



Government of the People's Republic of Bangladesh
ICT Division
Agargaon, Dhaka
Aspire to Innovate (a2i) Programme

TERMS OF REFERENCE

For

Hiring a firm for Development, Upgradation, Enhancement, maintenance, and Support
Service
Of
MuktoPaath Platform (4IR driven interactive e-Learning Platform)



1. Introduction

The Government of the People's Republic of Bangladesh has declared a vision to build 'Smart Bangladesh' by 2041 where the term 'Smart Bangladesh' possesses four interrelated components: Smart Government, Smart Society, Smart Economy, Smart Citizen. Technology literacy alongside the availability and usage of modern technology are integral to the "Smart Education" component of the Smart Bangladesh. As a part of this initiative, the government aims at ensuring Use of technology in learning experience for diversified learners and professionals to encourage and empower them with their education, employability skills and capacity development opportunities.

Blended Learning is made available to learners electronically by the improvement of online infrastructure, Internet connectivity or by making the country digitally empowered in the field of technology as it is one of the major initiatives of Smart Bangladesh. In collaboration with Government and Non-Government organizations, Aspire to Innovate (a2i) has brainstormed an idea to introduce an 4IR driven new-age technology based electronic learning platform enhancing the availability of learning tools anytime and from anywhere.

Learners around our country are rapidly adapting to smart phones and a significant portion of them are under third or fourth generation mobile internet coverage. This rapid development of government e-Service and internet infrastructure has created a great opportunity for e-learning providers of both public and private sectors to avail online learning to learner's fingertips. This initiative will establish a highly standard e-learning platform with mobile first strategy in terms of accessibility, accountability, sustainability, scalability, reliability, and learners' satisfaction with their hand-held devices.

Background of the Organization: a2i, a multinational digital transformation organization founded in Bangladesh, accelerates the inclusive digitization of public services thereby widening access and decentralizes delivery. It evolved from the flagship Aspire to Innovate program of the government's Digital Bangladesh Vision 2021 initiative, supported by UNDP. Bangladesh's now aspires to become a prosperous, developed, poverty-free and equitable nation with its bold 'SMART Bangladesh Vision 2041' – an aspirational strategic plan to transform the economy to reach High-Income Country status by 2041 and achieve the 2030 Sustainable Development Goals along the way.

Soon to be formally established as Bangladesh's national innovation agency, a2i builds on the Government of Bangladesh's efforts to champion the cause of 'digital equity' and fosters an adaptive, national system for collective strategizing, planning, action and learning to catalyze truly unprecedented transformations in public service delivery. It also works as an innovation intermediary through a 'whole-of-government' approach and supports the government to be on the forefront of integrating new, mission-driven innovation policy and whole-of-society approaches to achieve the SDGs. Through UNDP's Accelerator Labs network, and by leveraging the South-South Network for Public Service Innovation, a2i is also working to support the digital progress of other least developed countries (LDCs) and many developing countries including Fiji, Jordan, the Maldives, the Philippines, and Yemen with funding, advice, and technologies.



2. Objectives

The overall objectives of the assignment will be the following:

- To ensure user-friendliness, accessibility for all learner, particularly the persons with disabilities, ethnic and marginalized communities to interact, learn, and collaborate smoothly and effectively.
- To enhance collaboration, adaptability, integration capacities for empowering partner organizations in customizing, rapidly scaling MuktoPaath for their specific needs.
- To establish a sustainable model that ensures long-term viability and continuous improvement while offering white-labeling services to partner organizations.
- To ensure robust infrastructure for learners, educators partners in spreading e-learning opportunities across the nationally and internationally.
- To embrace the technological advancements of fourth industrial revolution(4IR) to drive transformative change, fostering a dynamic learning environment that encourages innovation and adaptability.

3. Business case Realization

The MuktoPaath (www.muktopaath.gov.bd) is a national e-learning platform for education, skills and professional development over multiple sectors. Various educational courses & tutorials are delivered through MuktoPaath to diversified professionals including teachers, students, unemployed youths, farmers, journalists, doctors, migrating workers, government officials, and NGO workers. The platform also offers different types of assessments, forums, and certifications for the unemployed and under-employed youths of Bangladesh with a view to encourage and empower them with employability skills and capacity development opportunities. The educational courses and tutorials are designed, developed, and managed by domain experts under supervision of appropriate technical specialists from relevant government and non-government organizations.

The MuktoPaath platform is designed and developed as a learning management system (LMS) so that the participants of this e-learning platform can learn appropriate knowledge and skills in a chronological way with appropriate support from online facilitators. The participants' learning progress is recorded and tracked by the LMS and they are notified about their progress. There are dedicated online facilitators who communicate with the participants and provide necessary support. The learning activities in MuktoPaath include watching AV lessons, taking part in quiz, exam, participating in forum discussions and live sessions and submitting assignments and quizzes etc.

This platform uses elements of 'Gamification' to create a virtual 'incentive' for the participants to involve them regularly and actively. Every week some participants are selected as the most active users based on various criterions including the activities, quizzes, assignments, forum discussion and blogs. The participants' learning is guided and monitored regularly by the assigned coordinators and facilitators who communicate and provide feedback to individual



participants and help individuals to complete the courses. The best performers of a course have opportunities to be a facilitator in the future course-sessions and to get other facilities.

Currently MuktoPaath has a user base of more than 21.8 Lakh learners from diverse target groups who are participating in nearly 200+ training courses offered by 80+ different partners. It is targeted that more than 1,00,00,000 will join this platform to learn and develop their professional knowledge and skills by 2025. As e-learning is becoming popular across the globe there are many government and non-government institutions as well as academia's are coming forward to transform their existing professional training and academic curricula and offer through digital platforms to a broader range of population. There is also demand for international collaboration as well as sharing its different tools and services independently with many different platforms.

There is also a growing need to include different educational management and administrative features in the platform. There are needs for monitoring and guidance to the policymakers to offer guided learning experiences and career counseling for the learners. This platform also to be made more secure and scalable so that multiple partner organizations can use this platform to deliver their professional learning and training courses with appropriate flexibility and security. Therefore, a new version of the MuktoPaath e-learning platform will be developed with improved features and supports.

4. Existing Features of MuktoPaath

The MuktoPaath platform is designed and developed as a learning management system (LMS) so that the participants of this e-learning platform can learn appropriate knowledge and skills with appropriate support from online facilitators. The participants' learning progress is recorded and tracked by the LMS and they are notified about their progress. There are dedicated online facilitators who communicate with the participants and provide necessary support. The learning activities in MuktoPaath include watching attractive videos, taking part in forum discussions, and submitting assignments and quizzes. Here are the existing features of MuktoPaath platform briefly:

According to the module

Online Course/ MOOC (Learner)

- Course Landing page
- Course Search Page
- Course Details Page
- Course Enrollment
- Course Journey
- Learner Course Panel
- Course Certificate

Online Course/ MOOC (Admin)

- User Role Management



- Course Configuration
- File Manager
- Content Bank
- Content Development Tool
- Course Calendar
- Asset Management
- Reporting
- Content Player
- Payment

Classroom

- User Role Management
- Integration with VCT
- Class Schedule
- Class Material Management
- Class Work
- Attendance Management
- Exam Management
- Result & Grading

Assessments/Exam Center

- User Role Management
- Type-wise Assessment Management
- Question Management
- Online Interview Session
- Dashboard

Training Management System

- Training Configuration
- User Management
- Exam Management
- Logistic Management
- Cafeteria Management
- Venue Management
- Hostel Management
- Accounts Management

Smart Search Engine (Apache Solr)

- Basic Search
- Body Search
- Case-sensitive Search
- Searching Recommendation
- Personalized searching



- Multi-layered Dashboard (Apache Superset)

Dashboard (Reporting Tool)

- Customized Report Downloads in Multiple Formats
- Analytics
- Forecasting
- Partner Dashboard
- Learner Dashboard

Accessibility

- Text Alternatives
- Image Adjustment Setting
- Accessible By Keyboard Only
- Time limitation

Content Bank

- Question Bank

File Manager

- Storage Setting
- Folder Management
- Material Management

Account Management

- Registration & Login (SSO)
- Profile
- User Management
- Institution/Partner Management
- Account Settings
- Digital Portfolio/CV

Communication & Notification Module

- System
- E-mail
- SMS

Financial Services / Payment

- Income Statement

Calendar

- Central event schedule
- Service-wise schedule
- Personalized event/schedule adding

Survey

- Survey Module

Certificate

- Certificate Template
- Certificate Builder

Blog, Forum & Tutorial, Master Class

Integration

- SSO with Skills
- Integration with ekshop
- Payment Integration



- Third party course integration
- Social media integration
- Chatbot

Mobile Application

- Learner Mobile Application

Artificial Intelligence

- Course Recommendation Engine

5. Scope of work

We need to develop new modules and features for the e-learning platform MuktoPaath. In addition, our focus is on improving the platform's user-friendliness by upgrading and refining the current features, with the aim of providing a smoother experience for both partners and users. The following specific areas require attention:

5.1 Analysis Development and Integration

5.2 Existing System Upgradation

5.3 Existing System Enhancement

5.4 Support for 24/7

5.1 Analysis Development and Integration

In the scope of work for consultancy firm on the e-learning platform MuktoPaath, development tasks are driven by user feedback to ensure user-friendliness and seamless integration with best practice systems. Consultancy firm will focus on identifying and implementing improvements based on user needs, enhancing the platform's usability and overall user experience. The goal is to create a user-friendly environment that aligns with industry best practices, optimizing the platform's functionality and efficiency. By actively engaging with user feedback and continuously improving the platform, consultancy firm contribute to fostering a positive and gratifying learning experience for all users on MuktoPaath.

5.1.1 Comprehensive Online Professional Degree Courses:

A Seamless Journey from Admission to Certification. The e-learning platform offers a comprehensive solution for university-level professional degree courses. This system ensures a smooth and efficient process from admission testing to certificate issuance, supporting



various aspects to enhance the learning experience. The following are the key components that need to be ensured for the success of this platform:

1. Admission Module:
 - Provide a user-friendly interface for registration and scheduling of admission tests.
 - Offer a secure and monitored environment for online admission tests.
 - Implement advanced proctoring techniques to ensure the integrity of the test.
2. Payment Module:
 - Facilitate seamless online payment methods for course fees and related expenses.
 - Ensure a secure payment gateway to safeguard user financial information.
3. Online Class Arrangements:
 - Offer a robust virtual classroom environment for live online classes.
 - Provide support for video conferencing, screen sharing, and interactive tools for effective teaching.
4. Blended learning system:
 - Allowing learners to participate in online, offline, and face-to-face classes.
 - This blended approach will encompass a variety of academic activities, including exams, content sharing, and the utilization of diverse forms of communication
 - Additionally, a comprehensive tracking and reporting system will be integrated to monitor and document all aspects of the learning process.
5. Classwork and Assignments:
 - Deliver course materials, assignments, and resources through the platform.
 - Enable submission and grading of assignments digitally, promoting timely feedback.
6. Content Sharing:
 - Provide a centralized repository for course materials, lecture notes, and supplementary resources.
 - Ensure easy access to content for both teachers and students.
7. Multilayer Communication:
 - Facilitate seamless communication among teachers, students, and administrative staff.
 - Incorporate features like discussion forums, messaging, and notifications.
8. Assessment:
 - Support online quizzes, exams, and assessments with various question types.
 - Implement secure assessment protocols to prevent cheating.
9. View Account:
 - Offer personalized user profiles where students can view their courses, progress, and grades.
 - Provide transparency in tracking academic performance.
10. Attendance Management:
 - Develop an automated attendance tracking system based on class participation and engagement.
 - Generate attendance reports for students and instructors.
11. Report Management:
 - Provide a mechanism for generating various reports, such as student progress and course analytics.
 - Support data-driven decision-making for administrators.



12. Result Publishing and Result Management:
 - Automate the process of result calculation and publication.
 - Ensure secure and confidential access to grade reports.
13. Course Materials:
 - Ensure availability of comprehensive subject resources.
14. Virtual Library:
 - Establish a digital library within the platform.
15. Virtual Seminars:
 - Create immersive seminar experiences, including library access, live sessions, and presentations.
16. Global Collaboration:
 - Develop virtual connections with universities worldwide for knowledge sharing and communication.
17. Educational Visits:
 - Organize virtual tours to various institutes, customized to course requirements.
18. Online Job Fair:
 - Host virtual job fairs to connect students with job opportunities.
19. Career Club:
 - Establish a platform for students to discuss and plan their careers.
20. Journal Hub:
 - Launch a centralized journal repository for publishing and accessing research articles.
21. Certificate Issuance:
 - Generate digital certificates upon successful course completion.
 - Implement authentication measures to validate the authenticity of certificates.

In summary, the e-learning platform streamlines the entire process of pursuing professional degree courses online, from admission testing to receiving university certificates. The platform's features encompass admission arrangements, seamless payment methods, interactive online classes, effective assessment strategies, robust content sharing, and multi-layer communication. Additionally, attendance management, report generation, and secure certificate issuance enhance the overall learning journey. Upon course completion, users gain industry-relevant skills and knowledge, empowering them for future career opportunities.

5.1.2 Customization for Sustainable Model:

As part of MuktoPaath's new sustainability policy, paramount importance will be placed on utilizing MuktoPaath's technology for sustainable purposes. MuktoPaath provides an open platform replete with a diverse array of features. Some of these features will be made available based on market analysis, while others will be designated as advanced features. Furthermore, specific usage conditions may apply to certain features, necessitating compliance by users or organizations. To ensure a seamless user experience, a comprehensive analysis and organization of the aforementioned aspects are imperative. This entails meticulous evaluation of the features, comprehension of their market demand, and their subsequent classification into open or advanced categories. Transparent guidelines and conditions governing feature utilization will be established, streamlining integration and operation. The core objective of this policy is to establish an efficient and user-friendly e-learning platform for sustainability,



enabling users to effectively harness MuktoPaath's technology. By prioritizing the development and accessibility of features that resonate with market demands and user requirements, MuktoPaath aspires to provide a robust and tailored e-learning solution for sustainability-focused users and organizations. This approach underscores adaptability, scalability, and user satisfaction.

- Modular Models: Segregate features for open and premium services
- The first few modules will be open; the rest will require payment to join.
- Regularly add features based on market needs.
- Customized as per partner demand to ensure sustainability.

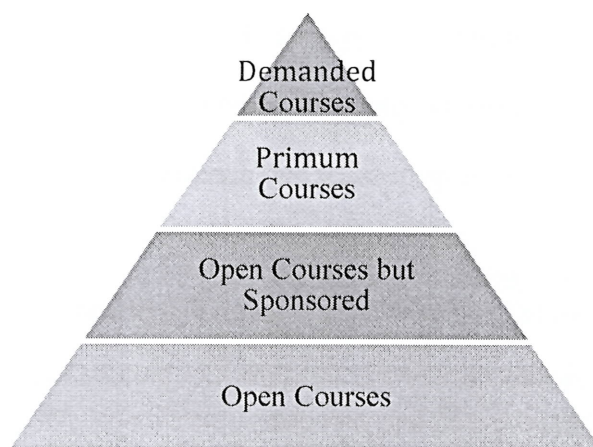


Fig: Sustainable Model for User

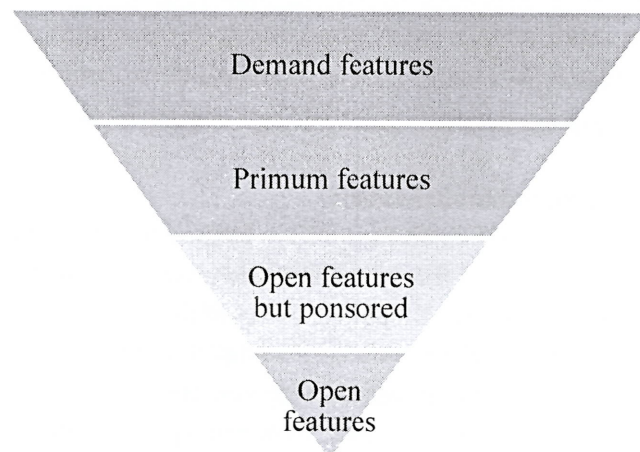


Fig: Sustainable Model for Partner

5.1.3 Fourth Industrial Revolution(4IR) and e-learning platforms

Incorporating Fourth Industrial Revolution (4IR) technologies into e-learning platforms is crucial for modernizing education to meet the demands of our digital era. These technologies, like artificial intelligence, virtual reality, and others, bring exciting possibilities to online



learning. They make learning more personalized and fun by adapting content to each student's unique needs and preferences. Additionally, they help teachers improve their teaching methods and course design through data-driven insights, resulting in better learning outcomes. With the widespread availability of the internet, e-learning breaks down geographical barriers, allowing people from around the world to access high-quality educational materials. As the job market evolves, these technologies also equip learners with the skills they need for future employment, emphasizing the importance of continuous learning and adaptability. In essence, 4IR technologies enhance e-learning platforms, making education innovative, effective, and accessible, thus preparing learners to succeed in our ever-changing, tech-driven world.

The Fourth Industrial Revolution (4IR) is poised to revolutionize e-learning platforms by enabling personalized learning through artificial intelligence and data analytics. These platforms will adapt content to individual learners, improving engagement and outcomes. 4IR technologies like virtual reality and augmented reality will make learning more immersive and interactive. Enhanced data collection and analysis will offer insights for course improvement. Widespread internet access will democratize education, and automation will streamline administrative tasks. E-learning will align with future job skills, emphasizing lifelong learning and adaptability. In summary, 4IR will empower e-learning platforms to provide tailored, efficient, and future-ready education.

Artificial Intelligence:

AI (Artificial Intelligence) can play a transformative role in enhancing the e-learning platform MuktoPaath for both learners and partners. The consultancy firm will ensure that MuktoPaath's recommendation algorithm considers both user interests and learning needs to generate a personalized list of suggestions

Here is some ways AI can help:

1. **For Learners: Personalized Learning:** AI can analyze learners' behavior, preferences, and performance data to provide personalized learning paths and recommendations. It tailors the content and resources to suit individual learning styles, improving engagement and knowledge retention. Consultancy firm will confirm
 - **Activity Suggestions:** Analyzing user login data, the AI provides timely notifications, suggesting relevant activities based on user behavior. (For user)
 - **Login Duration Tracking:** The AI keeps track of how long a user stays logged into the platform, calculating average login durations and identifying patterns.
 - **Unfinished Course Notifications:** The system identifies incomplete courses in a user's profile and notifies the user, encouraging them to finish their ongoing courses.
 - **Course Recommendation through AI:** AI can analyze a student's academic performance, interests, and career goals to suggest appropriate courses. This is



increasingly being used in educational technology platforms and can be a helpful aid. However, human guidance and understanding of individual needs and aspirations are also crucial in course selection.

- **Job Recommendation through AI:** AI can match job seekers with suitable job opportunities based on their skills, experience, and preferences. Companies often use AI-driven recruitment platforms to streamline the hiring process. While AI can help identify relevant job opportunities, the final decision often involves a human touch in the form of interviews and assessments.
 - **Career Guidance through AI:** AI can provide general career advice based on data and trends. It can help individuals explore various career paths and understand the potential demand for certain skills. However, personalized career guidance may require a deeper understanding of an individual's unique strengths, weaknesses, and aspirations, which AI may not fully capture.
 - AI will read to the user a summary with course description, objectives.
 - When a user joins the system, the system reads some information and provides updates and suggestions through AI. This includes details like the user's last login, completed courses, and any new courses related to their completed ones.
 - **Helpline 333:** An AI-based hotline service should be launched for MuktoPaath's users and partners through the National Helpline 333.
 - **Chatbot:** By incorporating **Artificial Intelligence chatbot** into MuktoPaath, we will be able to provide the best option for learners to seek clarification anytime and at their convenience. With AI chatbot, learners can easily ask questions on subject matter that are unclear and get immediate answers.
 - **Simulator:** Simulator will be integrated in MuktoPaath which will have following features (but not limited to).
 - real-life scenario
 - immersive graphics and sound
 - Real-Life Tools & Behaviors
 - assessments and evaluations
 - **AR VR related content and platforms** will be integrated with MuktoPaath platform.
2. **For Partners:** Content Creation and Curation: AI can assist partners in creating and curating educational content by suggesting relevant resources, identifying gaps in content coverage, and automating content generation processes.
- **Login Duration Tracking:** The AI keeps track of how long a user stays logged into the platform, calculating average login durations and identifying patterns.
 - **Login Duration Tracking:** The AI keeps track of how long a user stays logged into the platform, calculating average login durations and identifying patterns.
 - **Performance Analytics:** AI-powered analytics can help partners track the performance of their courses, providing insights into learners' engagement, progress, and satisfaction. This data-driven approach allows partners to continuously improve their offerings.



- **Predictive Analytics:** AI can predict learner behaviors and course performance trends, enabling partners to proactively address potential issues and make data-driven decisions to optimize course delivery.

3. Development and integration of various AI tools should be ensured as per users, partners, and market demand.

Overall, AI in MuktoPaath creates a more efficient and effective e-learning ecosystem, enriching the learning experience for learners and empowering partners to deliver high-quality, tailored educational content. As AI continues to evolve, its impact on the e-learning platform will undoubtedly lead to further advancements, making learning more accessible, engaging, and rewarding for all stakeholders involved.

- **Online Proctoring:**

Auto proctoring system will follow AI algorithm trained on diverse cheating scenarios proctors the session such as: Facial Recognition, Device Detection, Multiple People Detection, Detect Distraction Levels. Trained proctors will review the recorded exam sessions to validate the proctoring report. AI-based remote proctoring technology will generate a variety of flags during an exam session to catch any suspicious behavior on behalf of the candidate. The choices of flags available are as: Candidate not present, Additional person present, Suspicious candidate activities, Mobile phone detected. Based on different flags that our AI algorithm will generate during an exam session a credibility index is generated. Credibility Index is a single score that predicts the integrity of the candidate while taking the test.

1. **Capturing images** of individuals through AI tools and utilizing these tools to identify their positional activity.
2. User must be identified through **biometric** system
3. Determining whether others are engaged in one's **evaluation**.
4. Learners will not be able to take the advantages of **browsing** in the middle of an online exam. So, at the starting of exams, their device browser will get locked and it will remain the same till the exam ends. This feature will bring transparency in the online assessment system.
5. It is essential to implement measures to disable the **copy and paste** functionality during examinations, ensuring the integrity and fairness of the assessment process.
6. Integrate an internationally renowned **plagiarism checker** while considering the requirements of the MuktoPaath platform
7. **ChatGPT** checker will be added
8. Most importantly, incorporating an intelligent proctoring system

5.1.4 Payment management dashboard:

The Consultancy firm will develop Payment management dashboard for all payment-related issues and support inquiries through the e-learning platform. Features of Payment management dashboard are following



1. Report of funds received and disbursed per course
2. Report of funds received and disbursed by partners
3. Provision for downloading reports
 - **Timely Resolution:** The consultancy firm will ensure timely resolution of payment concerns to facilitate smooth financial operations for partners and organizations collaborating with the platform.
 - **User-Friendly Interface:** The consultancy firm will design and implement a user-friendly interface for the Payment Management Dashboard, allowing partners to access real-time payment information, transaction histories, and financial reports with ease.
 - **Transparent Communication:** The consultancy firm will integrate transparent communication features into the dashboard to foster a trustworthy relationship between the platform and partner organizations, streamlining payment processes.
 - **Robust Security Measures:** The consultancy firm will implement robust security measures to safeguard financial data and transactions, instilling confidence in partners about the platform's reliability and confidentiality.

The successful execution of these tasks by the consultancy firm will optimize financial management, simplify reconciliation procedures, and provide a convenient one-stop solution for partners, addressing their payment queries efficiently. This, in turn, will contribute to a seamless and successful collaboration experience for all stakeholders involved in the e-learning platform

5.1.5 White Label Support:

The e-learning platform MuktoPaath should be developed as a white-label platform, allowing partners to personalize the platform's appearance, branding, and functionality according to their unique needs. By offering white label support, the platform empowers partners to align the design, colors, and features with their branding, creating a seamless integration between the platform and their identity. This level of customization enhances the partner's user experience, providing a cohesive branding experience throughout the platform. Furthermore, partners gain the flexibility to tailor platform features to suit their specific requirements, optimizing the platform to align with their teaching methods, course offerings, and learner engagement strategies. With a sharp focus on innovation and user-centric solutions, the consultancy firm organization aims to transform the MuktoPaath platform into a cutting-edge white-label platform, empowering partners to deliver a personalized and branded e-learning experience.

1. Customization and Branding:



Consultancy firm will focus on providing partners with the freedom to align the platform's design, colors, and features with their branding, creating a seamless integration between the platform and the partner's unique identity.

2. **Cohesive Branding Experience:**
Consultancy firm will ensure that the White Label Support enhances the partner's user experience by delivering a cohesive and consistent branding experience throughout the platform. This will include personalization of logos, banners, and visual elements.
3. **Flexibility in Platform Features:**
Consultancy firm will enable partners to tailor platform features to meet their specific requirements, allowing for alignment with teaching methods, course offerings, and learner engagement strategies.
4. **Integration of Partner Systems:**
Consultancy firm will facilitate the seamless integration of partner analytics, user data management, and content delivery systems into the platform. This will enable partners to gather valuable insights, optimize content offerings, and make data-driven decisions to enhance their services continually.

By successfully implementing the White Label Support, consultancy firm will empower partners to create a distinctive and branded experience for their learners, deepening their partnership with the platform and attracting new users. This feature demonstrates the platform's commitment to innovation, flexibility, and the success of its partners, fostering a mutually beneficial environment for all stakeholders involved in the e-learning journey.

5.1.6 Partners' App:

Consultancy firm will work for design and development of this Partner App for the larger number of mobile phone users. Features of Partners' App are following:

1. Consultancy Firm will develop 2 versions of the app - Android and iOS (Apple)
2. Partners will get most of the functionalities of their dashboard such as: total number of courses, total number learners, current course, course wise total number of enrolled students, total number of availed certificated, total number of pending certificates, total number of approved certificates, forecasting etc.
3. Partner will get notification about different course status, learner status, relevant schedules, approval lists etc. through their app
4. Partners will be able to answer queries, provide guidance, and communicate with learners on demand basis.
5. Partner will be able to manually approve quiz, contest, exam request though their App

5.1.7 Job Search Platform:

MuktoPaath, our cutting-edge e-learning platform, provides a unique and powerful feature that caters to the needs of both job seekers and employers. Through our platform, employers gain access to a diverse pool of skilled and talented individuals actively seeking employment



opportunities. With an intuitive and user-friendly interface, employers can effortlessly search for job applicants who align with their specific requirements. Our platform's advanced search and filtering capabilities enable employers to find candidates based on skills, qualifications, experience, and other essential criteria. We prioritize maintaining the confidentiality and security of candidate information while ensuring that employers can make informed hiring decisions. Through MuktoPaath, employers can discover top talent from various fields and industries, fostering meaningful connections and enhancing workforce recruitment and development. By facilitating seamless interactions between employers and job seekers, MuktoPaath empowers both parties to explore and embrace new possibilities in the dynamic world of e-learning and professional growth.

1. MuktoPaath will connect jobless users to organizations based on their qualifications.
2. Job-related portals will be integrated (like-NiSE, bdjob) with MuktoPaath to provide seamless access.
3. Users will receive customized job offers that match their qualifications.
4. AI should be used in providing job information

5.1.8 Recognition to best user:

The platform will give special recognition to its best users as a token of appreciation and encouragement. The platform will track and evaluate users' performance, engagement, and contributions throughout their learning journey. Those who will exhibit exceptional dedication, academic excellence, and active participation in various courses and discussions will be rewarded with accolades, badges, or certificates. This recognition will serve as a testament to their commitment to learning and their positive impact on the MuktoPaath community. Such recognition will not only motivate the recognized users but will also inspire others to strive for excellence, fostering a dynamic and supportive learning environment for all.

1. MuktoPaath will provide personalized notifications to celebrate the achievements of its best users, sharing details of their activities and tenure on the platform.
2. These notifications aim to acknowledge and appreciate the user's dedication, serving as a source of motivation for their continued learning journey and positive impact on the MuktoPaath community.

5.1.9 Customization as SAAS:

As an e-learning platform operating on the Software as a Service (SAAS) model, we place a strong emphasis on customization as a key aspect of our development approach. We believe that tailoring the platform to meet the specific needs of our users and partners is essential in



delivering a seamless and gratifying learning experience. When identifying the need for new features or modules to enhance the platform's utility, we are committed to promptly undertaking development work. However, before implementing any new elements, we prioritize conducting a thorough assessment of the needs and requirements of our valued users and partners. This ensures that the evolution of our platform precisely aligns with their expectations and preferences. While we continuously strive to introduce new enhancements to meet emerging demands, we also acknowledge the significance of our current features and modules in providing a smooth service to our users and partners. As a result, we place a high priority on the improvement of existing functionalities to ensure they perform optimally and deliver the best possible experience for all stakeholders. To achieve this, we believe in combining continuous evaluation with thoughtful enhancements. This approach allows us to address the evolving needs of our users and partners effectively. By creating a robust e-learning platform that offers personalized and tailored experiences, we aim to foster a strong sense of engagement and satisfaction for everyone involved. Our goal is to deliver a seamless and gratifying learning experience that aligns with the evolving demands of the e-learning landscape. By reinforcing our commitment to providing exceptional service and maintaining our position as a leading SAAS-based e-learning solution, we are confident in our ability to cater to the diverse and dynamic needs of our users and partners

5.1.10 Open Standard API:

As an e-learning platform, MuktoPaath recognizes the importance of seamless integration with partner organizations to enrich the learning experience for our users. To achieve this, we emphasize the implementation of an Open Standard API (Application Programming Interface). The Open Standard API acts as a bridge between MuktoPaath and partner platforms, facilitating effortless data exchange and collaboration. Through this API, partner organizations can connect their platforms to MuktoPaath, enabling a smooth and unified user experience. Partners can share their content data, courses, and resources with MuktoPaath, providing users with access to a wider range of services and benefits within our platform. Reciprocally, MuktoPaath can share its information with other platforms that also support the Open Standard API, creating a mutually beneficial exchange of data and functionalities. This reciprocal sharing enhances the interoperability of e-learning platforms, promoting cross-platform engagement and expanding the reach of valuable educational resources. By embracing the Open Standard API, MuktoPaath fosters a collaborative ecosystem, empowering users to access a diverse array of content and services seamlessly. This integration enriches the learning journey for learners, making it more comprehensive and engaging. In conclusion, the implementation of the Open Standard API reinforces MuktoPaath's commitment to providing a flexible and interconnected e-learning platform. It allows partner organizations to share their



content seamlessly while enabling MuktoPaath users to access additional resources and services. This collaborative approach ultimately enhances the overall learning experience, benefiting all stakeholders within the e-learning community.

Integration of Standard Frameworks

- MuktoPaath is dedicated to crafting a seamless and effective e-learning experience for its users. To achieve this objective, the platform will seamlessly integrate universally recognized standard LMS frameworks such as SCORM(Sharable Content Object Reference Model), xAPI etc.
- These frameworks serve as benchmarks within the industry, fostering greater compatibility and interoperability among e-learning content and tools. By embracing the standards MuktoPaath empowers content creators to develop learning materials that can be effortlessly shared across diverse platforms, guaranteeing a uniform experience for learners, irrespective of their chosen tools. This integration of standard frameworks reflects MuktoPaath's unwavering commitment to furnishing a dynamic and versatile e-learning ecosystem that caters comprehensively to the distinctive requisites of both learners and educators.

5.2 Existing System Upgradation:

5.2.1 MOOC:

Massive Open Online Course: This section should ensure that partners can effortlessly create and publish courses, while users can easily view and download reports of various categories from their respective partner dashboards. The report download functionality should be tailored and customized to meet the specific needs of each partner. Additionally, users should be able to complete courses seamlessly and receive their certificates. Any issues encountered while using the user/partner platform must be promptly resolved. Moreover, partners are expected to collaborate in various aspects concerning the course, including uploading it to the platform.

1. The consultant firm will analyze, develop, customize, and integrate the best practices into the MOOC part of MuktoPaath from various e-learning platforms at both the national and international levels.
2. The consultant firm will develop, customize, and integrate new modules and features to enhance the user and partner experience.
3. The consultant firm will develop, customize, and integrate new modules and features to create an engaging and enjoyable journey for our users, as well as attract new users to the MOOC part of the MuktoPaath platform.
4. For the e-learning platform, it is essential to ensure that partners have the capability to create courses on their own. However, in cases where partners face difficulties, they should receive necessary support and cooperation.



5. Partners must have access to a customized dashboard, tailored to meet their specific requirements.
6. The platform should provide regular reports as per the partner's needs, offering valuable insights and data.
7. Ensuring strong user support is a priority, helping users navigate the platform effortlessly.
8. Emphasizing a seamless user journey is crucial, providing an intuitive and gratifying learning experience for all users.

5.2.2 Virtual Classroom:

The objective is to ensure that various partners, teachers, and institutions can seamlessly manage online classes using virtual classrooms. The development process should actively incorporate feedback from partners, users, and institutions to enhance the user experience. Partner institutes should facilitate the smooth download of their respective course reports and customize them according to the users' requirements. Additionally, both partners and users must provide support to ensure the effective functioning of the virtual classroom platform.

1. Support should be provided for the creation of partner classes, enabling partners to navigate their tasks independently with ease.
2. The user journey must be optimized for a seamless experience, ensuring partners can efficiently manage their activities.
3. A feature to view and download comprehensive reports, including attendance, performance, and examination data, should be available.
4. A facility to view and download the tabulation sheet should be provided for easy access.
5. Customization options should be available to accommodate the specific needs of partners.
6. Ensuring user support is essential for a successful partnership.
7. The consultant firm will analyze, develop, customize, and integrate the best practices into the virtual classroom part of MuktoPaath from various e-learning platforms at both the national and international levels.
8. The consultant firm will develop, customize, and integrate new modules and features to enhance the user and partner experience.
9. The consultant firm will develop, customize, and integrate new modules and features to create an engaging and enjoyable journey for our users, as well as attract new users to the virtual classroom part of the MuktoPaath platform.



5.2.3 Exam Centre:

This module will be utilized by individuals and institutions to conduct various types of exams through the Exam Center. There are approximately 10-12 types of tests that need to be conducted seamlessly, and it is crucial to ensure that each feature functions properly. The consultancy firm will provide comprehensive support in this regard. Furthermore, the development team will actively incorporate new requirements based on user feedback and ensure the implementation of exam center proctoring. Above all, the team will focus on continuous improvement and development of the exam center to enhance its capabilities.

1. Customization will be tailored to meet the specific needs of partners.
2. Individuals and organizations can effortlessly test and publish content on the platform.
3. Interviews will be confirmed as part of the process.
4. Arrangements for various post-examination certificates will be provided.
5. A feature to download results by averaging multiple exam marks or percentage-wise will be available.
6. The consultancy firm will ensure comprehensive support and cooperation for both users and partners.
7. The consultant firm will analyze, develop, customize, and integrate the best practices into the exam center part of MuktoPaath from various e-learning platforms at both the national and international levels.
8. The consultant firm will develop, customize, and integrate new modules and features to enhance the user and partner experience.
9. The consultant firm will develop, customize, and integrate new modules and features to create an engaging and enjoyable journey for our users, as well as attract new users to the exam center part of the MuktoPaath platform.

5.2.4 Training Management System:

A comprehensive training management system will facilitate blended learning experiences. Customization should be undertaken based on the specific needs of partners, organizations, and users to ensure a seamless journey for them. Both partner organizations and users are required to provide round-the-clock support to ensure the effectiveness of the training management system.

1. The consultancy firm will customize as per the specific needs of the training organization.
2. The consultancy firm will ensure all types of support to partners and users for smooth training activities on the platform.
3. Regular reports, including every activity/session, will be provided to the organization in a timely manner.



4. Downloading of all types of reports will be facilitated.
5. Customizable dashboards will be available to meet individual requirements

5.3 Existing System Enhancement:

Our primary focus will be on enhancing the usability of all existing modules and features on the platform, aiming to provide a more user-friendly experience for both users and partners. This includes ref

5.3.1 Mobile App:

Our e-learning platform recognizes the evolving landscape of education, where mobile devices have become the primary gateway for our users. As such, the mobile app plays a pivotal role in delivering a seamless and enriching learning experience. To meet this demand, we are strategically directing our development efforts towards enhancing the mobile app. Key to this endeavor is the optimization of app performance, ensuring swift loading times, smooth navigation, and reduced data usage. We aim to create an intuitive user interface that simplifies the learning journey, allowing learners to effortlessly access courses, track progress, and interact with instructors and peers. Our commitment to excellence extends beyond performance improvements. We actively seek user feedback to identify any existing gaps in functionality and promptly address them. This collaborative approach ensures that the app evolves in line with user needs and expectations. Moreover, recognizing the significance of partner organizations, we are dedicated to making their experience as convenient as possible. Through the app, partners can efficiently manage courses, enroll learners, monitor progress, and access relevant analytics. In conclusion, our e-learning platform is steadfast in its pursuit of mobile app enhancements, ensuring an immersive and efficient learning experience for all users. By catering to the needs of learners and partners alike, we envision a thriving ecosystem of education, empowering individuals and organizations worldwide. Together, let's revolutionize the way we learn and grow.

1. Ensure a seamless user journey through mobile app design and development. Prioritize enhancing app performance and optimizing the interface for intuitive navigation. Identify and address any existing gaps in functionality to provide a fulfilling learning experience.
2. Emphasize convenience for partners by enabling them to effortlessly complete their activities within the app. From managing courses to monitoring progress, partners should find the app to be a user-friendly and efficient tool.



3. Facilitate access to comprehensive reporting for partners through the app. By providing a dashboard or dedicated section, partners can conveniently view all relevant analytics and track their performance.
4. With these improvements, our e-learning platform aims to empower learners and partners alike, fostering a dynamic and thriving educational ecosystem. Together, let's revolutionize the way we learn and collaborate for a brighter future.

5.3.2 Dashboard:

In the context of an e-learning platform, various types of dashboards are available to facilitate data visualization and user interaction. However, there is a crucial need to enhance these dashboards to ensure they are smooth, user-friendly, and tailored to the specific requirements of the platform's partners. As an effective e-learning platform, MuktoPaath prioritizes the seamless integration of dashboards that offer intuitive navigation and data representation. This should enable administrators, learners, and partners to access and comprehend critical information effortlessly. **Customizability** is equally important, as partners collaborating with the e-learning platform have diverse needs and goals. By providing customizable dashboard options, partners can access and download reports relevant to their specific preferences, enabling them to make data-driven decisions to optimize their content offerings and engagement on the platform. In conclusion, for an e-learning platform to thrive and foster successful partnerships, the dashboards must be enhanced to be more seamless, user-friendly, and customizable. This approach will empower stakeholders to harness the full potential of data insights, enabling the platform to deliver a personalized and impactful learning experience for all participants.

1. Partner Dashboard:

This dashboard will offer partners the flexibility to personalize their settings according to their requirements. It will empower partners with the capability to access and download reports, ensuring they have real-time insights into their activities on the platform. Moreover, the Partner Dashboard will come with a dedicated support system, offering prompt assistance to partners in resolving any reporting issues they might face. This support will enhance the overall experience for partners, enabling them to make informed decisions and optimize their engagement with the e-learning platform. By incorporating a Partner Dashboard into the e-learning platform, it ensures that collaboration with partners is streamlined and effective. The dashboard's user-friendly interface and comprehensive reporting functionalities will foster transparency, trust, and a mutually beneficial relationship between the platform and its partners.

- Partners can view and download all reports on their dashboard.



- Partners can easily communicate with the required person for development through their dashboard.
- The user journey on the dashboard for partners needs to be made smoother.
- The partner will see reports, like Google Analytics, on their dashboard, showing metrics such as the number of visitors from **mobile devices**, **web users**, the **geographical distribution** of users (including domestic and international users), the **gender distribution** (male and female), and the breakdown by **district**. Additionally, they will be able to view the total number of individual **course views** by their partners.

2. Analytic Dashboard:

In the context of an e-learning platform, the Analytic Dashboard offers administrators and stakeholders a comprehensive view of important metrics related to platform usage, learner engagement, course performance, and other relevant data. It compiles and analyzes data collected from various sources within the e-learning platform and presents it in a user-friendly format. The successful scope of work for the Analytic Dashboard should result in a functional, user-friendly, and secure tool that empowers e-learning platform administrators and stakeholders to gain valuable insights into platform performance, user engagement, and course effectiveness, ultimately improving the overall learning experience for learners.

3. Learner Dashboard:

The platform will offer learners a secure and private environment to track their course progress and performance. By leveraging TOR's privacy features, learners will be able to access the dashboard anonymously, ensuring that their identity and activity history remain confidential. The dashboard will provide clear and comprehensive visualizations of learners' progress, displaying completed modules, assignments, and grades in a user-friendly format. Learners will easily monitor their learning journey, set personal goals, and access personalized recommendations for further study. MuktoPaath will ensure that learners can enjoy an enhanced, privacy-focused learning experience, empowering them to explore educational content.

5.3.3 Notification Management:

users are informed and engaged effectively. The platform should be thoughtfully designed to ensure that all types of notifications, including course updates, assignment deadlines, and important announcements, are promptly updated and displayed to users in a convenient and non-intrusive manner. To enhance user experience, notifications should be visible on the user's dashboard or home page, eliminating the need to navigate to a separate notification section. This approach ensures that users stay well-informed without disruption, fostering a seamless



learning experience. Additionally, the notification system should allow users to customize their notification preferences, enabling them to choose the frequency and types of notifications they receive. This empowers users to tailor their learning journey and stay updated based on their individual preferences. By implementing an efficient and user-friendly notification system, MuktoPaath can keep learners and partners engaged, informed, and connected, creating an enriched e-learning environment where users can focus on their learning goals with ease.

5.3.4 Accessibility:

In the scope of work for consultancy firm on the e-learning platform MuktoPaath, a key focus area is the improvement of platform accessibility. Consultancy firm are tasked with ensuring that users can seamlessly complete the registration process, navigate through the course or class journey, actively participate in assessments, and obtain certificates without any hindrance. To achieve this, consultancy firm will engage with accessible individuals to gain valuable insights and perspectives. By understanding the specific needs and challenges faced by these users, consultancy firm will optimize the platform's design and functionalities to offer a smooth and inclusive user journey. Where necessary, consultancy firm will undertake development work to implement accessibility features and enhancements, ensuring that all users can access and benefit from the e-learning platform. The goal is to create an inclusive and user-friendly environment that empowers learners of all abilities to thrive in their educational pursuits on MuktoPaath.

5.4 Support for 24/7

Establish a dedicated support team available 24/7 to cater to the increasing user base, ensuring efficient support for users and partners. The platform's enhancements aim to deliver an improved and more user-centric experience while fostering seamless collaborations with partner organizations.

Different users prefer to get support from different places. As a result, the consultancy firm must ensure support from all available means

5.4.1 User Support:

1. Consultancy firms need to ensure support via phone to many users
2. Consultancy firm needs to ensure service to some users through social media or Facebook
3. Consultancy firm to ensure support through mail to some users
4. Depending on the consultancy firm course, many users will sometimes have to provide services through Google Forms



- The consultancy firm will provide a dedicated call center to support MuktoPaath's 1 crore users, offering uninterrupted and effective assistance.
- The call center should be well-equipped to address users' queries and concerns, ensuring a seamless learning experience for the large user base.
- At times, courses are made available to a large user base consisting of various public and private partners, with each course targeting more than 3-5 lakh users. In such cases, a dedicated support team should be added to assist these users
- The consultancy firm will allocate a dedicated team to provide support for partners and large-scale users

5.4.2 Partner Support:

In the future, MuktoPaath, as an e-learning platform, envisions a strong emphasis on Partner Support to create a collaborative and supportive ecosystem that benefits all stakeholders. Consultancy firm will play a crucial role in this endeavor by providing comprehensive support to enhance the overall user experience. To facilitate the partner journey on our e-learning platform, consultancy firm from partner organizations are encouraged to ensure full cooperation through the following actions-

1. **Create User Guidelines:**
Consultancy firm should create comprehensive user guidelines that provide clear instructions and tips for learners to navigate through their courses and materials effectively. Well-structured guidelines enhance the learning experience and enable learners to make the most of the content.
2. **Conduct Platform Demonstrations:**
Consultancy firm should conduct platform demonstrations for learners, showcasing the unique features and benefits of their courses. Demonstrations help learners understand the course structure and learning objectives, generating interest and engagement.
3. **Upload Courses, Classes, and Training Materials:**
Consultancy firm should upload all their courses, classes, and training materials onto the platform. By doing so, learners will have easy access to a diverse range of educational content, enriching their learning journey. By adhering to these cooperative measures, consultancy firm can optimize their presence on the e-learning platform, providing learners with a seamless and enriching learning experience. The collaborative effort between the platform and consultancy firm fosters a supportive and dynamic environment, benefiting all stakeholders involved in the e-learning ecosystem. This proactive support approach aims to provide users with a smooth and seamless learning journey, fostering a positive and satisfying experience.
4. **Reports:**



Time-to-time reports should be shared appropriately, according to the partner's specific needs.

Through this collaborative effort, MuktoPaath aims to build strong and long-term relationships with partners based on trust and excellence. By delivering consistent and high-quality support, we seek to create a robust and engaging e-learning platform that meets the diverse needs of our users and partners alike. Ultimately, the vision of Partner Support in MuktoPaath is to cultivate a supportive environment where partners actively contribute to the growth and success of the platform. Together, we will strive to deliver a seamless and enriching learning experience that empowers learners, educators, and organizations, forging a path towards enhanced educational opportunities for all.

6. Security

The consultancy firm should follow any of the industry standard secure development methodology such as Comprehensive Lightweight Application Security Process (CLASP) by OWASP etc.

1. The consultancy firm should consider common vulnerabilities such as SQL Injection, Cross Site Scripting (XSS) etc.
2. Consultancy firm will undertake responsibility for Input Validation Controls, Authorization/Authentication Control, and other security controls in place in both test and production environments of application.
3. The following vulnerabilities must be checked and ensured security from the beginning:
 - a. Cross Site Request Forgery (CSRF)
 - b. Cross Site Scripting (XSS)
 - c. Session hi-jacking
 - d. Session Fixation
 - e. SQL Injection
 - f. Input Validation/Filtering
 - g. Output Escaping
 - h. Code Injection
 - i. Secure File Access



7. Version control and source repository

1. Consultancy firm must ensure that all sources are maintained through market leading source repository solutions (Ex: Bit Bucket, GitHUB etc).
2. The source repository must be regularly used for controlling file and history changes.
3. Solutions must be upgraded to a new version by fixing bugs, optimizing algorithms and adding extra functions.
4. Production instances should get updates, should get source directly from the repository instead of regular file copy source upload.

8. Maintenance and Support

1. Continuous health check of database, tuning database, tuning codes & queries and mitigating the issues.
2. Recording, managing reporting issues and user level application related technical problems received through the method prescribed by a2i, develop and deploy necessary solutions.
3. Updating training manual adjusting the changes in the system.
4. Fixing all bugs in the system irrespective of its nature and complexities.
5. Fixing Authentic Data entered into system following structured authorization system
6. Continuous support in data exchange to the system by the various user groups.

9. Change Management and Version Control

1. Developing, recording and reporting change documents, source code management and version management.
2. Incorporating and streamlining the system in compliance with updated versions of development tools/language/DB and ensure availability of APIs as required for integration with other services.
3. Ensure all levels of testing prior to execute changes in production environment.

10. Post-Hosting Support

1. Providing active and operation support to Data Center in application/DB.
2. Regular database tuning and application configuration support to the hosted environment.



3. On-demand accountable consultancy support to Data Center in terms of Data Backup Scheduling, Back-end service execution, Server Configuration for DB/Application.

11. Capacity Management and Knowledge Transfer

1. Facilitating a workshop with a client team for knowledge transfer.
2. Provide authentic access to client experts to source code and documents.
3. Developing text Tutorial for end-users.
4. Consultancy firm company will develop Technical Training Manual, User Training Manual, Hosting Specification Document, Implementation Plan, SRS (Software Requirements Specification), Data Dictionary, Class Diagram, Process Flow Diagram and other necessary documents and will open those to a2i during the contracted period and will finally handover all those along with accepted version of source code to a2i after before expiry of the contract.
5. Consultancy firm Company will provide Technical Training to 5 Technical/Semi-Technical Persons nominated by a2i for configuring and managing the technology, another training for 20 users will also have been conducted by the consultancy firm covering operational use of the system.

12. Quality Assurance (QA):

1. Scope and Objectives:
Define the scope of QA activities within the project or initiative. Specify the primary objectives of QA, such as ensuring software quality, minimizing defects, and meeting project milestones.
2. Roles and Responsibilities:
Identify the roles and responsibilities of the QA team, developers, testers, and other stakeholders. Define who is responsible for creating test plans, test cases, executing tests, and reporting defects.
3. Testing Approach:
Specify the testing methodologies to be used (e.g., Agile testing, Waterfall testing). Describe the types of testing (unit testing, integration testing, system testing, etc.) and their respective responsibilities.
4. Test Criteria:
Outline the criteria for test entry and exit, including what defines a successful test phase and when a project is ready for deployment.
5. Test Environment:
Detail the required test environment, including hardware, software, and network configurations. Ensure that the test environment closely mirrors the production environment.
6. Defect Management:
Describe the process for reporting, tracking, and resolving defects. Specify the severity levels and the process for prioritizing and resolving identified issues.



7. **Automated Testing:**
If applicable, specify whether automated testing will be used and outline the tools, frameworks, and scripts to be employed.

13. IT Audit:

1. **Audit Scope:**
Define the scope of the IT audit, including the specific systems, processes, and controls to be audited. Outline the objectives of the audit, such as identifying risks, evaluating controls, and ensuring compliance.
2. **Audit Criteria:**
Specify the standards, regulations, and best practices against which the IT systems and controls will be assessed (e.g., ISO 27001, GDPR, industry-specific standards).
3. **Roles and Responsibilities:**
Identify the roles and responsibilities of the audit team, internal stakeholders, and any external auditors. Clarify who is responsible for providing documentation and access to systems.
4. **Audit Methodology:**
Describe the audit methodologies and techniques to be used, including sampling methods, data analysis, interviews, and technical assessments.
5. **Data Security and Privacy:**
Include requirements related to data security and privacy during the audit, ensuring compliance with applicable data protection regulations.
6. **Audit Reporting:**
Specify the format and content of the audit report, including findings, recommendations, and action plans. Define the timeline for delivering the final audit report and any interim reports.
7. **Confidentiality and Access:**
Address confidentiality concerns and outline access requirements to audit-related information. Specify how audit findings will be shared with relevant stakeholders while maintaining confidentiality.
8. **Follow-up Procedures:**
Define the process for tracking and verifying the implementation of audit recommendations and corrective actions.

14. Development Approach:

1. **Define the Development Approach:**
Clearly state the chosen development approach, such as Agile, Waterfall, DevOps, or a hybrid approach. Explain why this approach is suitable for the project.
2. **Explain the Rationale:**
Provide a brief rationale for selecting the chosen approach. Explain how it aligns with the project's goals, timelines, and complexity.
3. **Iterative or Incremental Development (if applicable):**



If using an iterative or incremental approach (common in Agile), describe how the project will be broken down into iterations or increments.

4. Roles and Responsibilities:
Specify the key roles involved in the development process (e.g., product owner, Scrum master, developers), along with their responsibilities.

15. Development Methodology:

1. Methodology Overview:
Describe the development methodology to be employed. For example, if you're using Agile, provide an overview of Agile principles, practices, and ceremonies.
2. Phases and Milestones:
Outline the major phases or milestones of the development process. In Waterfall, this might include requirements, design, development, testing, and deployment. In Agile, it might involve sprint planning, daily stand-ups, sprint reviews, and retrospectives.
3. Project Artifacts:
Specify the key project artifacts that will be created during development, such as user stories, wireframes, design documents, code repositories, and test cases.
4. Change Management (if applicable):
If the project anticipates changes in requirements or scope, describe the change management process, including how changes will be assessed, approved, and incorporated into the development process.
5. Testing and Quality Assurance:
Explain how testing and quality assurance activities will be integrated into the development process. This might include details about unit testing, integration testing, user acceptance testing, and quality assurance reviews.
6. Documentation Requirements:
Specify the documentation standards and requirements, including how documentation will be managed throughout the project.
7. Collaboration and Communication:
Emphasize the importance of collaboration and communication among team members and stakeholders. Highlight regular meetings, reporting mechanisms, and tools to facilitate communication.
8. Deployment and Release Strategy:
Describe the strategy for deploying and releasing the project's deliverables, including any plans for staging, user training, and production rollout.
9. Risk Management:
Highlight how risks and issues will be identified, assessed, and managed during the development process.
10. Performance Metrics:
Define the key performance metrics or KPIs that will be used to measure the project's progress and success. This might include timelines, budget, and quality criteria.



16. Implementation Methodology:

- 1) Overview of Implementation Approach:
 - Begin by providing an overview of the chosen implementation methodology to set the context. Explain why this methodology is appropriate for the project.
- 2) Key Phases:
 - a) Define the major phases or stages of the implementation process. For example:
 - i) Initiation: Planning and project kick-off.
 - ii) Execution: Carrying out the project activities.
 - iii) Monitoring and Control: Oversight and adjustments during implementation.
 - iv) Closure: Formal project completion and evaluation.
- 3) Roles and Responsibilities:
 - a) Specify the roles and responsibilities of project team members, stakeholders, and any external parties involved in the implementation process. For instance:
 - i) Project Manager: Responsible for overall project management.
 - ii) Team Members: Roles and responsibilities within the team.
 - iii) Stakeholders: Their roles and involvement during implementation.
- 4) Project Plan:
 - a) Include a high-level project plan that outlines the major tasks and milestones for each phase.
 - b) Define timelines and dependencies between tasks.
- 5) Resource Allocation:
 - a) Describe how resources (human, financial, and technological) will be allocated throughout the implementation process.
 - b) Address how resource conflicts will be resolved.
- 6) Change Management:
 - a) Outline how changes in project scope, objectives, or requirements will be handled during implementation. Include a change control process.
- 7) Quality Assurance and Testing:
 - a) Explain the approach to quality assurance during implementation. Specify any quality standards or metrics to be followed.
 - b) Detail the testing strategy, including types of testing (e.g., system testing, user acceptance testing) and testing environments.
- 8) Communication Plan:
 - a) Describe the communication strategy for keeping stakeholders informed about project progress, issues, and changes.
 - b) Specify communication channels, frequency of updates, and responsible parties.
- 9) Risk Management:
 - a) Identify potential risks and how they will be assessed, mitigated, or managed throughout the implementation.
 - b) Describe contingency plans for critical risks.
- 10) Documentation and Reporting:
 - a) Specify the types of documents and reports that will be generated and maintained during implementation.



- b) Define reporting timelines and distribution channels.
- 11) Training and Knowledge Transfer:
 - a) If applicable, explain the plan for training end-users or relevant personnel on the implemented solution.
 - b) Address knowledge transfer processes to ensure continuity.
- 12) Testing and Validation (if applicable):
 - a) Specify any post-implementation testing or validation activities to ensure that the implemented solution meets its intended goals.
- 13) Monitoring and Evaluation:
 - a) Describe how the project's progress and performance will be monitored and evaluated against established goals and KPIs.
- 14) Security and Compliance (if applicable):
 - a) Explain how security measures and compliance with relevant regulations (e.g., GDPR, HIPAA) will be ensured during and after implementation.
- 15) Closure and Handover:
 - a) Detail the steps involved in formally closing the project, including archiving project documentation, and conducting any necessary handover activities.
- 16) Lessons Learned:
 - a) Include a section on capturing lessons learned during implementation, which can inform future projects.

17. System Design and Development:

- 1) Project Overview:
 - Start with an overview of the project, its objectives, and the scope of the system design and development effort.
- 2) Design Phase:
 - Define the design phase, which typically includes the following steps:
 - Requirements Analysis: Describe how requirements will be gathered and documented.
 - Architecture Design: Explain how the system's architecture will be planned and documented.
 - UI/UX Design (if applicable): Outline the approach to user interface and user experience design.
- 3) Development Phase:
 - Specify the development phase, including:
 - Technology Stack: List the technologies, frameworks, and tools that will be used for development.
 - Coding Standards: Describe coding standards and guidelines that developers must follow.
 - Development Environment: Detail the development environment setup, including development, staging, and production environments.



- Version Control: Explain how version control systems (e.g., Git) will be used to manage code.
 - Testing: Describe how different types of testing (unit testing, integration testing, user acceptance testing, etc.) will be conducted during development.
 - Continuous Integration/Continuous Deployment (CI/CD): If applicable, outline the CI/CD pipeline for automating build, testing, and deployment processes.
- 4) Milestones and Deliverables:
- Specify major milestones and deliverables for both the design and development phases. Include dates or timelines for each.
- 5) Roles and Responsibilities:
- Define the roles and responsibilities of team members involved in design and development, such as:
 - Project Manager
 - System Architects
 - Developers
 - Quality Assurance/Testers
 - UI/UX Designers (if applicable)
- 6) Communication and Collaboration:
- Describe how communication and collaboration will be facilitated among team members, including regular meetings, reporting, and communication tools.
- 7) Change Management:
- Explain how changes to design or development requirements will be managed and documented.
- 8) Quality Assurance and Testing:
- Detail the testing strategy and plan for ensuring the quality of the developed system.
 - Specify the criteria for successful testing and validation.
- 9) Security Measures:
- Outline the security measures and best practices that will be incorporated into the development process, including data security, encryption, and access controls.
- 10) Documentation:
- Describe the documentation requirements for design and development, including design documents, technical specifications, and user manuals.
- 11) Deployment and Delivery:
- Explain how the developed system will be deployed, including staging, user acceptance, and production environments.
 - Specify the process for releasing and delivering the final system to end-users or clients.
- 12) Post-Implementation Support:
- If applicable, describe the plan for post-implementation support, including monitoring, maintenance, and issue resolution.
- 13) Risk Management:



- Address potential risks during the design and development phases and how they will be identified, assessed, and mitigated.
- 14) Budget and Resources:
- Indicate the budget allocated for the design and development phases and how resources (financial, human, and technological) will be allocated.
- 15) Timeline and Milestones:
- Provide a project timeline that includes major milestones and deadlines for design and development activities.
- 16) Approval and Sign-off:
- Specify the process for obtaining approvals and sign-offs at key stages of design and development.

18. Testing Plan in TOR:

- 1) Objective:
Begin by stating the primary objective of the testing phase, which is typically to ensure that the project's deliverables meet specified quality standards and functional requirements.
- 2) Scope:
Define the scope of the testing effort, including what will be tested (e.g., software, hardware, processes), what will not be tested, and any specific features or functionalities to be prioritized.
- 3) Testing Strategy:
Describe the overall testing strategy, including the types of testing to be performed. Common types include:
 - Unit Testing: Testing individual components or modules in isolation.
 - Integration Testing: Testing the interactions between integrated components.
 - System Testing: Testing the entire system as a whole.
 - User Acceptance Testing (UAT): Validating that the system meets user requirements.
 - Performance Testing: Evaluating system performance under load and stress conditions.
 - Security Testing: Assessing the system's security vulnerabilities and measures.
 - Specify the sequence and dependencies among these testing types.
- 4) Test Environment:
Detail the test environment requirements, including hardware, software, data, and network configurations. Ensure that the test environment mirrors the production environment as closely as possible.
- 5) Test Data:
Explain how test data will be generated or sourced and provide any guidelines for data privacy and security.
- 6) Test Cases:
Describe how test cases will be created, including the use of test scripts, test scenarios, and test data. Specify who will be responsible for developing and maintaining test cases.
- 7) Test Execution:



Outline the process for executing tests, including schedules, test cycles, and the testing team's responsibilities. Specify any automation tools or frameworks that will be used for testing and test automation.

- 8) Defect Management:
Define the process for reporting, tracking, and managing defects or issues identified during testing. Specify how defects will be prioritized and resolved.
- 9) Regression Testing:
Explain the approach to regression testing to ensure that new changes do not introduce new defects or break existing functionality.
- 10) Exit Criteria:
Define the criteria that must be met for each type of testing to be considered successful and for the testing phase to be completed.
- 11) Reporting and Documentation:
Describe the format and frequency of test progress reports, defect reports, and test summary reports. Specify how test documentation (e.g., test plans, test cases, test scripts) will be managed and updated.
- 12) Risk Management:
Address potential risks and challenges related to testing, including resource constraints, timeline pressures, and technical complexities. Describe mitigation strategies.
- 13) User Involvement:
Specify the level of user involvement in testing, particularly in user acceptance testing (UAT). Define the responsibilities of users in providing feedback and approval.
- 14) Approval and Sign-off:
Outline the process for obtaining approvals and sign-offs from relevant stakeholders, indicating their roles in reviewing and accepting test results.
- 15) Schedule and Milestones:
Provide a testing schedule that includes milestones and deadlines for each testing phase and activity.

19. User Acceptance Testing (UAT):

- 1) Objective:
Begin by stating the primary objective of the UAT phase, which is to ensure that the system meets user requirements and is ready for deployment.
- 2) Scope:
Define the scope of UAT, including which aspects of the system will be tested by end-users, and clarify any specific features or functionalities to be prioritized.
- 3) UAT Strategy:
Describe the overall UAT strategy, including the approach, methods, and criteria for conducting UAT. Specify whether UAT will be conducted as part of scripted tests or exploratory testing.
- 4) UAT Environment:
Detail the UAT environment requirements, including hardware, software, data, and network configurations. Ensure that the UAT environment resembles the production environment as closely as possible.
- 5) UAT Test Data:
Explain how UAT test data will be prepared and provide any guidelines for data privacy and security during testing.



- 6) Test Cases and Scenarios:
Describe how UAT test cases and scenarios will be developed, outlining the user interactions and workflows to be tested.
- 7) UAT Execution:
Outline the process for executing UAT, including schedules, test cycles, and the roles and responsibilities of end-users in conducting UAT.
- 8) Defect Reporting:
Define the process for end-users to report defects or issues identified during UAT, including how these will be tracked, prioritized, and resolved.
- 9) Feedback Collection:
Explain how end-users will provide feedback on the system's functionality, usability, and any areas of improvement.
- 10) UAT Approval Criteria:
Specify the criteria that must be met for UAT to be considered successful and for the system to be accepted by end-users. Outline how defects will be categorized based on severity and their impact on UAT approval.
- 11) Training and Support:
Detail the training and support that will be provided to end-users during UAT, including user guides and assistance.
- 12) Communication and Collaboration:
Explain how communication and collaboration will be facilitated among end-users, project teams, and stakeholders during UAT.
- 13) UAT Reporting and Documentation:
Describe the format and frequency of UAT progress reports, defect reports, and UAT summary reports. Specify how UAT documentation (e.g., UAT test cases, feedback records) will be managed and updated.
- 14) Rollback Plan (if applicable):
If UAT identifies critical issues, outline a plan for rolling back changes or taking corrective measures.
- 15) UAT Schedule and Milestones:
Provide a UAT schedule that includes milestones and deadlines for each UAT phase and activity.

20. Risk Management Plan:

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- 1) Risk Management Objectives:
Begin by stating the objectives of the risk management plan, which include identifying, assessing, addressing, and monitoring risks to minimize their impact on the project.
 - 2) Risk Identification:
Detail the process for identifying potential risks that could affect the project. Consider risks related to scope, schedule, budget, resources, technology, stakeholders, and external factors.
 - 3) Risk Assessment:
Explain how risks will be assessed in terms of likelihood (probability of occurrence) and impact (potential consequences). Use a risk matrix or a similar method to categorize risks.
 - 4) Risk Register:



- Describe how the identified risks will be documented in a risk register. Each risk entry should include a description, likelihood, impact, risk level, and initial mitigation strategies.
- 5) Risk Ownership and Accountability:
Define the roles and responsibilities of individuals or teams responsible for identifying, assessing, and managing risks. Assign risk owners who will take ownership of specific risks.
 - 6) Risk Mitigation Strategies:
Outline the strategies that will be employed to mitigate or reduce identified risks. These strategies may include avoidance, mitigation, transfer, or acceptance.
 - 7) Contingency Plans:
Specify contingency plans for high-impact risks that cannot be fully mitigated. Describe the steps that will be taken to minimize the impact if these risks materialize.
 - 8) Monitoring and Reporting:
Explain how risks will be monitored throughout the project's lifecycle. Detail the frequency and format of risk status reports to stakeholders.
 - 9) Trigger Events:
Define trigger events that indicate when a risk is becoming a reality or escalating in severity. Describe the predefined actions that will be taken in response to trigger events.
 - 10) Communication Plan:
Describe how risks will be communicated to stakeholders, including the project team, management, and relevant external parties.
 - 11) Decision-Making Authority:
Clarify who has the authority to make decisions regarding risk management strategies and actions.
 - 12) Lessons Learned and Continuous Improvement:
Include a process for capturing lessons learned from risk management activities and applying these lessons to future projects.
 - 13) Legal and Compliance Considerations (if applicable):
Address risks related to legal and compliance issues specific to the project domain.
 - 14) Documentation and Reporting:
Explain how risk documentation, including the risk register and associated reports, will be maintained and shared with stakeholders.
 - 15) Schedule and Milestones:
Provide a timeline for key risk management activities, including risk identification, assessment, mitigation planning, and monitoring.

21. Duration of the assignment:

Total Duration of the assignment is 22 (Twenty-two) Months

- Selected Consultancy firm will have to sign separate SLA and Non-discloser agreement as part of the core agreement for these 22 (Twenty-two) months.
- Development time will be for 9 months from the initiation of the contract.
- Maintenance time will be for 22 months from the initiation of the contract.



Deliverables with payment Schedule:

SI	Deliverable	Timeline	Payment
1	Inception Report with detailed design	End of 15 days upon the signing of the contract	05%
2	Platform and Solution Development (Professional Degree Courses) <ul style="list-style-type: none"> ✓ Admission Module ✓ Payment Module ✓ Multilayer Communication ✓ Attendance Management ✓ Report and Result Management ✓ Virtual Library ✓ Virtual Seminars ✓ Global Collaboration ✓ Educational Visits ✓ Online Job Fair ✓ Career Club ✓ Journal Hub ✓ User/Teacher/Administrative/Academic Management ✓ Implementation, Maintenance & Support of Existing System ✓ Need to handover the source code to the client 	End of 03 months upon the signing of the contract	15%
3	Platform and Solution Development (TMS, Sustainable Model, AI & Online Proctoring) <ul style="list-style-type: none"> ✓ Training Management System ✓ Modular Models ✓ Reading Tools ✓ Updates and suggestions ✓ feedback ✓ AI chatbot ✓ Natural Language Processing (NLP) ✓ Performance Analytics ✓ Predictive Analytics ✓ Capturing images ✓ User Verification ✓ Feature Lock ✓ AI Proctoring 	End of 06 months upon the signing of the contract	15%



	<ul style="list-style-type: none"> ✓ Implementation, Maintenance & Support of Existing System ✓ Need to handover the source code to the client. 		
4	<p>Platform and Solution Development Recognition to best user, Job Search Platform, White Label Support, Payment management dashboard,</p> <ul style="list-style-type: none"> ✓ personalized notifications ✓ Job information ✓ 100% Customizable ✓ Payment management dashboard ✓ Implementation, Maintenance & Support of Existing System ✓ Need to handover the source code to the client. 	End of 09 months upon the signing of the contract	15%
5	<p>Platform and Solution Development Existing System Upgradation</p> <ul style="list-style-type: none"> ✓ MOOC ✓ Virtual Classroom ✓ Exam Centre ✓ Implementation, Maintenance & Support of Existing System ✓ Need to handover the source code to the client. 	End of 12 months upon the signing of the contract	15%
6	<p>Platform and Solution Development Existing System Enhancement</p> <ul style="list-style-type: none"> ✓ Mobile App ✓ Dashboard ✓ Notification Management ✓ Accessibility ✓ Implementation, Maintenance & Support of Existing System ✓ Need to handover the source code to the client. 	End of 15 months upon the signing of the contract	15%
7	Implementation, Maintenance & Support of Existing System	End of 22 months upon the signing of the contract.	20%

22. Eligibility Criteria (Specific to this assignment)

This is a national project with utmost importance towards the digital Bangladesh goal so the bidder must prove that they have solid technical background and operational strength to undertake and take this work forward without any hindrances. Bidders must also have adequate technical ability, resources, human resources, and processes. As such, following are defined as minimum eligibility criteria:

1. The consultancy firm needs to have minimum 1 experience of developing e-learning platform providing courses for education/skills/professional development etc. (Please provide work completion certificate).
2. The consultancy firm needs to have minimum 1 experience of working with e-governance projects (Please provide work completion certificate).
3. Minimum 5 years of experience in ICT business as a registered company/entity in Bangladesh.
4. Must have valid and up to date (2023-2024) Trade license/ Register of joint stock & companies (RISC) registration (if applicable), TIN certificate, VAT Identification Number, Updated Income Tax Payment Certificate.
5. The average annual turnover is minimum of BDT 2 Crore in the last 3 years. (Please submit necessary documents)
6. Average working capital minimum BDT 70 lac in last two years (Please submit necessary documents)

23. Team Composition

The minimum required qualification and experience of the Key professional staffs are as follows:

Sl.	Position	No of person	Qualification	Job Description
1.	Team Lead	01	<p>i) Academic requirement is graduation in Computer Science and Engineering/ICT or any other relevant subjects.</p> <p>ii) Minimum 3 years of experience in managing large scale projects with a total of 10 years of experience in ICT industry</p>	The Project Lead is responsible for the day-to-day operational management of the MuktoPaath project, including overseeing the work and preparation of project progress reports. The



			<p>iii) Minimum 5 years of experience in leading such an assignment role including software design and development preferable in Bangladesh government IT projects</p>	<p>chosen candidate will be responsible for regular reporting to the client and ensuring effective communication throughout the project. They will also be responsible for overseeing all technical aspects of the MuktoPaath project implementation, including analyzing the user requirements, developing software design specific to MuktoPaath, selecting the appropriate technical solutions, and ensuring the successful implementation for long-term sustainability.</p>
2.	AI Expert	01	<p>i) Graduate in Computer Science/CSE/Software Engineering or any other relevant Science disciplines from any University ii) Should have minimum 3 years of profound experience in the field of Artificial Intelligence with a total of 5 years of experience in ICT industry iii) Experience with multiple programming languages including Java/C/Python/R, JavaScript and SQL and experience in data science including artificial intelligence.</p>	<p>The Developer will develop code accordingly to ensure the product's usability and stability based on requirements. Assist team members in critical areas of programming.</p>
3.	System Analyst	01	<p>i) Minimum 3 years of experience in any government domain related to Public Service Delivery with total 5</p>	<p>Collaborate with Data Scientists, Data Architects and Business Analyst to ensure alignment</p>



			years of business analysis experience in corporate field.	between the business objectives and the analytics back end as well as ensure the scalability security of the final product.
4.	Solution Architect	01	<p>i) Graduate in Computer Science ICT/CSE/Software Engineering or any other relevant Science disciplines from any University</p> <p>ii) Minimum 2 years of experience in the field of IT Solution architecture works with a total of 4 years of experience in the ICT industry</p> <p>iii) Minimum 3 years working Experience with large-scale enterprise solution within the government project will get preference.</p>	<ul style="list-style-type: none"> • Building and integrating information systems to meet the project's needs. • Assessing the systems architecture currently in place and working with technical staff to recommend solutions to improve it. • Resolving technical problems arise. • Providing supervision and guidance to development teams. • Continually researching current and emerging technologies and proposing changes where needed. • Informing various stakeholders about any problems with the current technical solutions being implemented. <p>Assessing the business impact that certain technical choices have.</p>
5.	Security Expert	01	1) Graduate in Computer Science /ICT/CSE/Software	Develop plans to safeguard computer



			<p>Engineering or any other relevant Science discipline from any University.</p> <p>ii) Minimum 3 years of experience in IT system security with a total of 6 years of experience in ICT industry.</p>	<p>files against unauthorized modification, destruction or disclosure.</p> <p>Choose, implement, monitor and upgrade computer anti-virus and malware protection systems</p> <p>Encrypt data transmissions and erect firewalls to conceal confidential information during transmit</p> <p>Implement password authentication to keep unauthorized users from accessing sensitive data files</p> <p>Modify security files to incorporate new software, correct errors, and change user access status</p> <p>Perform risk assessments and tests on running data processing activities and security measures</p> <p>Educate workers about computer security and promote security awareness and security protocols</p> <p>Keep accurate and current backup files of all important data on the shared corporate network</p> <p>IT security pros who specialize in computer</p>
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				forensics gather evidence for prosecuting cybercrime. Computer forensics specialists can set up & operate an investigator's lab, and process computer crime scenes
6.	Senior Developer	02	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have a minimum of 7 years of profound experience in the field of web-based software programming/coding/scripting for ICT-based applications or Software development.</p>	<p>Conduct requirement analysis for a particular ICT for development solution</p> <p>Develop the necessary business and system specifications</p> <p>Provide assistance to develop system design for any technical solutions</p> <p>Develop URS, SRS for any outsourcing of project work. Carry out the technical evaluation for project development standardization</p> <p>Monitor execution of the outsourced project work</p>
7.	Developer	04	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University</p> <p>ii) Should have a minimum 3 years of profound experience in the field of web-based software programming/coding/scripting for ICT based applications or Software development.</p>	The Developer will develop code accordingly to ensure the product's usability and stability based on requirements. Assist team members in critical areas of programming.



8.	Senior Mobile Apps Developer	02	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 05 years of profound experience in the field of mobile apps design and developing or programming.</p>	Develop the assigned task and assist Mobile Apps Developer to accomplish the project & report on daily basis to Project Lead
9.	Technical Document Writer	01	<p>i) Minimum graduate in any Computer Science or any other relevant discipline.</p> <p>ii) Should have a minimum 01 years of profound experience in the field of technical documentation with a total of 3 years' industry experience.</p>	<p>Record Technical description of features, API, 3rd party integration</p> <p>Prepare user manual by describing the current flow of application</p> <p>Create release notes with proper explanation for user</p>
10.	UX Expert	01	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have a minimum 06 years of profound experience in the field of user experience design.</p>	The UX Expert will gather requirements from users and partners, and subsequently, finalize and implement the design in alignment with the trends in national and global e-learning platforms, ensuring it meets the needs of users and partners
11.	UI/UX Designer	01	<p>i) Graduate in any relevant subject from any University.</p> <p>ii) Should have minimum 03 years of profound experience in the field of user interface design</p>	This role is about designing the interface to ensure it delights the user.
12.	Graphics Designer	02	i) Graduate in any discipline from any University.	Graphics Designer responsibilities include creating visually



			<p>ii) Should have minimum 03 years of profound experience in the field of graphics design & digital content preparation.</p>	<p>appealing designs, such as logos and graphics, adhering to brand guidelines, utilizing graphic design software, managing deadlines, communicating with clients, staying updated on design trends, collaborating with team members, and ensuring design quality and effectiveness for both print and digital media.</p> <p>He/She must also incorporate feedback, problem-solve, and present design concepts to clients.</p>
13.	QA Lead	01	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 05 years of profound experience in the field of software Quality assurance in application.</p>	<p>QA Lead will oversee the activity of the quality assurance, developing, implementing, and maintaining a system of quality and reliability testing for the System.</p>
14.	QA Engineer	01	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 03 years of profound experience in the field of software Quality assurance in application</p>	<p>QA Expert is expected to designing and developing automated test procedures on the basis of requirements (S)he is expected to executing the test cases all across the system following the procedures</p> <p>This role is about designing the interface to ensure it delights the user.</p>



15.	Infrastructure Expert	01	<p>i) Graduate in Computer Science and Engineering/ICT or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 05 years of profound experience in the field of system Deployment installation, configuration should have experience on large scale data backup and user management system.</p>	<p>Experience with web technologies and building enterprise architecture roadmaps</p> <p>Experience designing, integrating, and managing complex infrastructure solutions</p> <p>Knowledge of client-server networking and database management</p> <p>Ability to provide technical system solutions, determine overall design direction, and provide hardware recommendations for complex technical issues</p> <p>Experience planning and developing support processes and adhering to best practices</p> <p>Strong written and oral communication skills, and the ability to effectively communicate with technical and non-technical audiences</p> <p>Ability to quickly comprehend the functions and capabilities of new technologies</p> <p>Advanced skills: While most employers did not require the following skills, multiple job listings included them as preferred. Add these to your Infrastructure</p>
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				Architect toolbox and broaden your career options.
16.	Support Engineer	04	<p>i) Graduate in Computer Science ICT/CSE or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 02 years of profound experience in the field of software maintenance support service for web & mobile application</p>	<p>Communicate and work with customers to resolve IT related support requests. Perform assigned change requests. Improve customer service, perception, and satisfaction.</p>
17.	Helpdesk Support Executive	08	<p>i) Graduate in any disciplines from any University</p> <p>ii) Should have minimum 02 years of profound experience in the field of helpdesk or call center</p>	<p>Communicate and work with customers through the call center or online to resolve IT-related support requests. Perform assigned change requests. Improve customer service, perception, and satisfaction</p>
18.	Business Analyst	01	<p>i) Minimum academic requirement is Bachelor's degree in Business Administration, MIS, Information Technology or any relevant field from a reputed University</p> <p>ii) Minimum 3 years of experience in managing large scale IT business with a total of 5 years of experience in ICT industry</p>	<p>The Business Analyst will be responsible for conducting business analysis and developing business requirement specifications for the MuktoPaath project, under the guidance of the Senior Business Analyst. They will collaborate closely with stakeholders to gather and document requirements, analyze business processes, and identify areas for improvement. The Business Analyst will play a crucial role in understanding and documenting business</p>



				needs, translating them into clear and concise specifications, and ensuring alignment between business requirements and technical solutions. They will work as part of the project team to facilitate effective communication and collaboration between business and technical stakeholders throughout the project lifecycle.
19.	Project Assistant	1	<p>i) Graduate in Computer Science ICT/CSE or any other relevant Science disciplines from any University.</p> <p>ii) Should have minimum 02 years of sound knowledge of web application development or assisting in project management.</p>	<p>Project Assistance will assume the role of coordinator for the MuktoPaath project, engaging with various stakeholders, such as technical experts, domain specialists, support teams, users, and partners.</p> <p>They will gather diverse requirements from domains, users, and partners, forwarding these requirements to the appropriate teams for further action. Once the requirements have undergone development and testing, Project Assistance will present the results to the domain team.</p>



JV Modality:

Multiple Companies having technical and legal competency for developing such Product can bid jointly but they must have legal agreement among them where one the company needs to be led. Lead company needs to fulfill all conditions mentioned in this TOR. Joint-venture agreement needs to have clear identification about each responsibility matrix along with IPR.

