Requirement Specification Document for Question Bank Software

1. Introduction

The Question Bank Software project aims to develop a user-friendly platform for trainers to create and manage a centralized collection of multiple-choice questions (MCQs). The software will categorize questions by subject, topic, and difficulty level, facilitating the generation of customized question papers. Trainees will access these papers through secure, time-limited web links, allowing them to answer questions and receive instant feedback on their performance.

The application will support bulk uploads of questions from specified file formats and enable trainers to export questions and answers for further use. Overall, the software is designed to streamline the creation, management, and sharing of MCQs in an organizational training environment, enhancing the learning experience.

2. Scope

The scope of the Question Bank Software includes:

- User authentication with secure sign-in and two-step verification.

- Distinct user interfaces and permissions for trainers and trainees.

- Comprehensive question management capabilities for trainers.

- Flexible question selection and paper generation options.

- Time management features for tests.

- Bulk question upload functionality.

- Randomization of question and option order to prevent cheating.

- Web link validity management for secure access.

- Immediate feedback and database updates for test results.

- Responsive design for various devices.

- Display of results with performance analysis for trainees.

- Documentation and notification via email to stakeholders upon result publication.

3. <u>Functional Requirements</u>

3.1 User Authentication

The system will provide a secure sign-in process with two-step verification for both trainers and trainees.

3.2 User Interfaces and Permissions

The system will have separate interfaces for trainers and trainees, with appropriate permissions for each role.

3.3 Trainer's Question Management

Trainers will be able to add, edit, delete, and view questions, as well as access trainee test results.

3.4 Question Selection and Paper Generation

Trainers will select questions based on criteria (subject, topic, difficulty) and generate question papers as web links or downloadable files.

3.5 Test Completion Time

Trainers will be able to set a time limit for each test, ensuring trainees complete the test within the specified period and ensure secure access.

3.6 Bulk Question Upload

Trainers can upload questions in bulk using predefined file formats.

3.7 Question and Option Rearrangement

The system will randomize the order of questions and options for each test attempt.

3.8 Immediate Results and Database Update

The system will provide immediate feedback to trainees and update test results in the database.

3.10 Responsive Interface

The system will have a responsive design to ensure usability across devices.

3.11 Final Results Display

The system will display results to trainees, including options to review correct and incorrect responses.

3.12 Subjective Type Questions

The system will also allow trainees to access practice papers for self-assessment.

3.13 Documentation via Emails

The system will send email notifications to stakeholders once results are published.

4. Non-Functional Requirements

4.1 Performance

- The system will be capable of managing and processing large volumes of data.

4.2 Security

- The system will implement two-factor authentication for enhanced security.

4.3 Usability

- The user interface will be intuitive and easy to navigate for both trainers and trainees.

4.4 Compatibility

- The software will be compatible with major web browsers and mobile devices.

5. Technology Stack

- Frontend: Angular
- Backend: ASP.NET Core MVC
- Database: SQL

6. Target Audience

- Trainers and Educators

- Employees seeking training and assessment tools

7. Conclusion

The Question Bank Software is designed to facilitate the effective management and distribution of MCQs in an educational context. By addressing both functional and non-functional requirements, the software aims to enhance the learning experience for trainees while providing trainers with robust tools for question management and assessment.