# **Software Requirements Specification (SRS) Document**

## **1. Introduction**

### **1.1 Purpose**

The purpose of this document is to provide a detailed description of the requirements for the development of a comprehensive web application aimed at assisting JEE and NEET students in generating question papers, conducting tests, and analyzing their performance.

### **1.2 Scope**

The application will include features for secure user authentication, a question bank with categorized questions, an algorithm for generating customized question papers, a controlled test environment, real-time monitoring of student performance, a performance analysis dashboard, and AI-driven revision recommendations.

## 

## **2. System Overview**

### **2.1 System Description**

The system is a web application designed to empower students preparing for JEE and NEET exams. It facilitates the generation of customized question papers, offers a controlled environment for test-taking, and provides detailed performance analysis.

### **2.2 System Features**

* User Authentication:
  + Secure login and registration for students.
* Question Bank:
  + A database of questions categorized by topics and difficulty levels.
* Paper Generation Module:
  + Algorithm for creating customized question papers.
* Test Environment:
  + A controlled environment for students to take tests.
* Real-time Monitoring:
  + System tracking and recording time spent on each question.
* Performance Analysis Dashboard:
  + Graphical representation of performance metrics.
* Revision Recommendations:
  + AI-driven suggestions for topics that need revision.

## **3. Functional Requirements**

### **3.1 User Authentication**

* The system shall provide secure login and registration functionalities.
* Users must be able to reset their passwords through a secure process.

### **3.2 Question Bank**

* The system shall maintain a database of questions categorized by topics and difficulty levels.
* Users should be able to add, edit, and delete questions.
* Questions must support various formats (multiple-choice, descriptive, etc.).

### **3.3 Paper Generation Module**

* The system shall implement an algorithm for generating customized question papers based on user preferences.
* Users should have the ability to select specific topics and difficulty levels.

### **3.4 Test Environment**

* The system shall provide a controlled test environment with a timer and navigation controls.
* Students should be able to flag questions for review.
* The system must prevent unauthorized activities during the test.

### **3.5 Real-time Monitoring**

* The system shall track and record the time spent on each question during a test.
* Real-time alerts should be generated for any suspicious behavior.

### **3.6 Performance Analysis Dashboard**

* The system shall display graphical representations of performance metrics.
* Users should be able to view their overall performance, topic-wise scores, and time management.

### **3.7 Revision Recommendations**

* The system shall provide AI-driven suggestions for topics that need revision based on the student's performance.

## **4. Non-Functional Requirements**

### **4.1 Performance**

* The system shall support a minimum of 1000 concurrent users.
* Response time for user interactions should be within 2 seconds.

### **4.2 Security**

* User authentication data must be securely stored and transmitted.
* Test data and results must be encrypted to ensure confidentiality.

### **4.3 Usability**

* The user interface shall be intuitive and user-friendly.
* The system must be accessible from various devices and browsers.

### **4.4 Reliability**

* The system shall have a backup mechanism to prevent data loss.
* Regular system maintenance should not affect user accessibility during peak hours.

### **4.5 Scalability**

* The system architecture must be scalable to accommodate future feature enhancements and increased user load.

## **5. Constraints**

* The system must comply with relevant privacy and data protection regulations.
* The application should support modern web browsers and devices.
* The development should adhere to a predefined budget and timeline.