

System Requirements Specification (SRS)

Student Mental Well-Being Monitoring System

Project Phase: Requirement Analysis

Version 1.0

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Abstract

Mental health has become a critical concern in modern academic environments due to increasing academic pressure, competition, and lifestyle-related stressors. Traditional approaches to monitoring student mental well-being rely heavily on infrequent surveys or face-to-face counseling, which often fail to identify early warning signs.

The **Student Mental Well-Being Monitoring System** is a web-based solution designed to provide continuous, accessible, and automated self-assessment of student mental health using structured questionnaires and rule-based evaluation techniques. The system enables students to assess general and specialized mental health domains such as sleep and burnout, categorizes risk levels, and provides timely recommendations. This SRS document presents a comprehensive requirement analysis, system architecture, functional and non-functional requirements, database design, and system models that form the foundation for the system's design and implementation.

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1 Introduction

1.1 Purpose

The purpose of this System Requirements Specification (SRS) document is to provide a detailed description of the functional and non-functional requirements of the *Student Mental Well-Being Monitoring System*. This document serves as a reference for developers, project evaluators, and academic supervisors to ensure that the system aligns with its intended objectives and user needs.

1.2 Introduction to Requirement Analysis

Requirement Analysis is the first and one of the most critical phases of the Software Development Life Cycle (SDLC). It involves identifying, understanding, documenting, and validating stakeholders' needs. Errors introduced at this stage can propagate through later phases, making them costly to rectify.

In this project, requirement analysis ensures clarity regarding system functionality, performance expectations, constraints, and scope. The system supports students through digital self-assessment and rule-based mental well-being evaluation.

1.3 SDG Alignment

The project aligns with the following United Nations Sustainable Development Goals (SDGs):

- **SDG 3 – Good Health and Well-Being:** Promotes mental health awareness and early risk identification.
- **SDG 4 – Quality Education:** Supports academic success through improved student well-being.
- **SDG 8 – Decent Work and Economic Growth:** Encourages healthy coping mechanisms that enhance long-term productivity.

2 Objective and Problem Description

2.1 Problem Description

Students today face numerous stressors such as academic workload, competitive environments, financial concerns, and personal challenges. These factors often lead to mental health issues including stress, anxiety, sleep disorders, and burnout. When left undetected, such issues negatively impact academic performance and quality of life.

Existing mental health assessment methods suffer from limitations such as infrequent assessments, delayed feedback, high manual effort, and reluctance among students to openly discuss mental health concerns. As a result, early signs of distress often remain unnoticed.

2.2 Objectives of the Project

The primary objectives of the system are:

- To design and develop a web-based mental well-being monitoring platform.
- To provide general and specialized mental health assessments.
- To compute domain-wise and overall scores using rule-based logic.
- To classify users into Low, Medium, or High risk categories.
- To recommend specialized assessments based on results.
- To securely store assessment history.
- To ensure usability, security, and scalability.

2.3 Beneficiaries

- **Students:** Gain awareness and early insights into their mental health.
- **Educational Institutions:** Understand overall well-being trends.
- **Counselors and Advisors:** Use anonymized data for planning interventions.

3 Project Study

3.1 Existing System

Current systems rely on:

- Paper-based questionnaires
- Online survey forms
- Periodic counseling sessions

3.2 Limitations of Existing System

- Manual data handling
- Delayed results
- Lack of real-time feedback
- No centralized data repository
- Poor scalability

3.3 Proposed System

The proposed solution is a web-based application allowing students to:

- Take general assessments
- Attempt specialized domain assessments
- Receive instant results and risk categorization

3.4 Benefits of Proposed System

- Automated evaluation
- Immediate feedback
- Early risk detection
- Secure data storage
- Scalable system design

4 Literature Survey

Research indicates that questionnaire-based screening tools are effective for early detection of mental health risks. Digital self-assessment platforms improve accessibility and participation. Rule-based systems are preferred for their transparency and interpretability.

5 Specialization Concepts Used

- Web Application Development
- Client–Server Architecture
- Database Normalization
- Rule-Based Decision Systems
- Authentication and Authorization
- Secure Password Storage

6 Requirements Specification

6.1 Functional Requirements

- User registration and login
- Assessment selection

- Questionnaire display
- Score calculation
- Risk categorization
- Result display
- Assessment history storage
- Admin management

6.2 Input–Process–Output

- **Input:** Student responses
- **Process:** Rule-based score computation
- **Output:** Risk level and recommendations

6.3 Non-Functional Requirements

- Security
- Performance
- Scalability
- Reliability
- Maintainability

7 System Architecture

The system follows a three-tier client–server architecture:

7.1 Presentation Layer

Implemented using ReactJS, responsible for UI rendering, form handling, and result visualization.

7.2 Application Layer

Implemented using ExpressJS, responsible for authentication, assessment processing, scoring logic, and database interaction.

7.3 Data Layer

Implemented using MongoDB to store user profiles, questions, responses, and results while ensuring data integrity.

8 Module Description

8.1 Student Module

Handles student interactions such as registration, assessment attempts, result viewing, and history tracking.

8.2 Admin Module

Manages assessment creation, domains, questions, scoring rules, and anonymized reports.

8.3 Assessment Management Module

Controls assessment lifecycle including selection, tracking, and validation.

8.4 Questionnaire Module

Dynamically retrieves and displays questions and validates responses.

8.5 Scoring and Categorization Module

Calculates scores and assigns risk levels.

8.6 Recommendation Module

Suggests specialized assessments based on general assessment outcomes.

8.7 Database Module

Manages CRUD operations for all system entities.

8.8 Security and Authentication Module

Ensures hashed password storage, role-based access, and session management.

9 System Models

9.1 ER Diagram

The ER diagram represents entities such as Student, Admin, AssessmentType, Domain, Question, Option, AssessmentAttempt, Answer, Score, and Category along with their relationships.

9.2 Use Case Diagram

Illustrates interactions between Students and Admins with system functionalities.

9.3 Data Flow Diagrams

Includes:

- DFD Level 0 – Context Diagram
- DFD Level 1 – Main Processes
- DFD Level 2 – Assessment Management
- DFD Level 3 – General Assessment Processing
- DFD Level 4 – Specialized Assessment Processing
- Admin DFD – Assessment and Question Management

10 Conclusion

This SRS document presented a detailed requirement analysis for the Student Mental Well-Being Monitoring System. The defined requirements, system models, and architectural design establish a strong and systematic foundation for subsequent design, development, and implementation phases.