BANNARI AMMAN INSTITUTE OF TECHNOLOGY
Stay Ahead

BANNARI AMMAN
INSTITUTE OF TECHNOLOGY
Autonomous Institution, Accredited by NAAC With 'A' Grade

Software Requirement Specification for One credit course exemption

Name	BALANITHIN B
Roll no	7376221SE106
Seat no	270
Project ID	17
Problem Statement	One credit course exemption

1. Introduction:

Purpose:

- The objective of this document is to provide a comprehensive overview for completing three one-credit courses in order to qualify for exemption from one course. This document will outline the system's purpose, its key features, interfaces, functionalities, operational constraints, and how it will respond to external stimuli.

Scope of Project:

- This software system acts as a centralized online platform tailored for students seeking exemption from one course by completing three one-credit courses. It simplifies the submission of exemption applications, allowing students to provide necessary

documentation and track their application status in real-time. The system enhances user experience with intuitive navigation and automated notifications that keep students informed of any updates or decisions regarding their applications.

- Administrators gain access to robust tools for efficiently managing and reviewing exemption applications. They can thoroughly assess eligibility criteria, ensuring applicants meet required standards such as course completion or equivalent qualifications. Administrators have the authority to approve eligible applications, updating students' course enrollment statuses accordingly. In cases where applications do not meet criteria, the system provides clear and constructive feedback to help students understand the decision.

- Moreover, the software system prioritizes compliance with academic policies and regulations governing course exemptions. It incorporates stringent security measures to protect sensitive student information throughout the application and review process. By streamlining workflows and enhancing transparency, the system aims to optimize efficiency for both students and administrators involved in the exemption process, thereby supporting smoother academic operations and student progression.

2. Technical Components:

COMPONENTS	***MEANSTACK***
FRONT END	○ ANGULAR (JS FRAMEWORK) ○ HTML/CSS/SCSS
Back End	Express.js (Web framework for Node.js) Node.js (Java script runtime environment)
Database	MongoDB (NOSQL Database)
API	REST Ful API GraphQL APIs

3. System Overview:

3.1 Students:

- **Capabilities:**
  - **Submit exemption applications**: Students initiate the process by submitting an application for course exemption through the designated platform or portal provided by their educational institution.
  - **Upload relevant details and documents**: Students upload necessary documents such as transcripts, certificates, and course descriptions for the three one-credit courses they completed.
  - **Monitor application status**: Students can track the progress of their exemption application through the system. This includes knowing when their documents have been received, when the application is under review, and when a decision has been made.
  - **Receive exemption decision notifications**: The system notifies students via email or through the platform about the decision on their exemption application. Notifications include whether the exemption request has been approved or denied.

3.2 Administrative Staff:

a) Exemption Review Committee:

- **Capabilities:**
  - **Review exemption applications**: Committee members access the system to review the applications submitted by students for MEAN stack project course exemption.
  - **Access student documents**: They have the ability to view and download uploaded documents to verify the completion of the three one-credit courses.
  - **Evaluate alignment**: Assess whether the content covered in the three one-credit courses adequately meets the learning outcomes and requirements of the MEAN stack project course.
  - **Make exemption decisions**: Based on their evaluation, committee members make decisions to approve or deny exemption requests.

- **Communicate decisions**: The committee uses the system to communicate decisions back to students. They can also provide feedback or requests for additional information if needed.

3.3 System Features:

a) Application Submission:

- Students access the system to fill out and submit their application for MEAN stack project course exemption. They provide necessary personal details and upload supporting documents.

b) Document Management:

- The system stores and manages documents uploaded by students securely. Administrative staff can access these documents as part of the review process.

c) Notification System:

- The system sends automated notifications to students at key stages of their application process, such as when their application is received, under review, and when a decision is made.

d) Decision Tracking:

- Both students and administrative staff can track the status of exemption applications through the system. This ensures transparency and keeps all parties informed throughout the process.

e) Reporting and Analytics:

- The system may include reporting tools that allow administrators to generate reports on exemption requests, decision outcomes, and other relevant metrics.

3.4 Integration:

- The system may integrate with existing student information systems (SIS) or learning management systems (LMS) to streamline data flow and ensure accuracy in student records.

3.5 Security and Compliance:

- The system adheres to institutional policies and regulations regarding data security and privacy. It ensures that student data and documents are handled confidentially and securely throughout the exemption process.

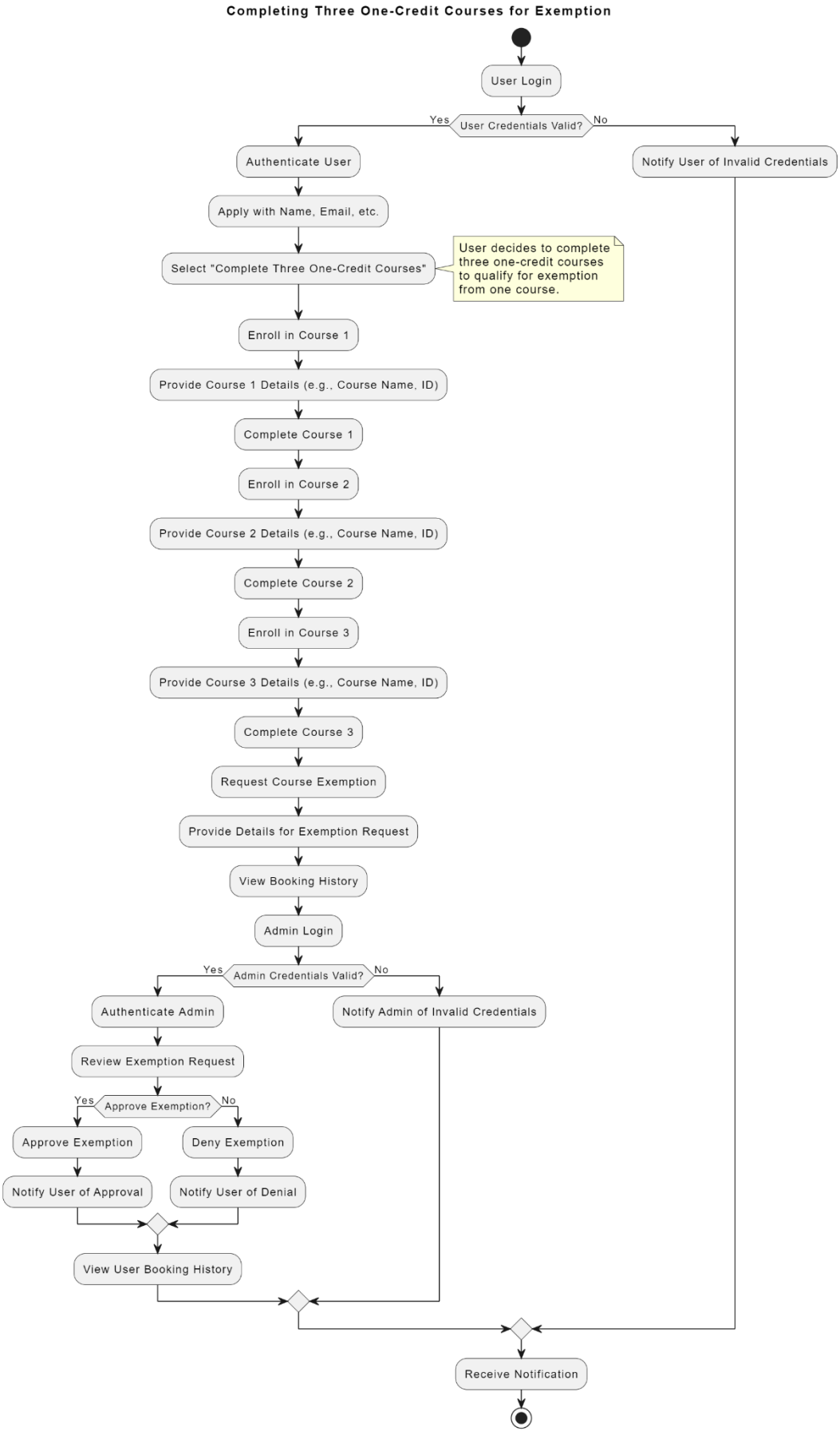
4.Functional Requirements Summary

1. **Application Submission:**
    - Students can easily submit their exemption applications via a user-friendly interface.
    - Application form includes fields for personal details and allows uploading relevant documents.
2. **Document Management:**
    - The system securely stores and manages documents uploaded by students.
    - Administrative staff can view, download, and verify these documents during the review process.
3. **Application Status Tracking:**
    - Students track their application status (pending, under review, decision made).
    - Real-time updates and notifications are provided via email or platform.
4. **Exemption Review Process:**
    - Administrative staff have a dedicated interface to review applications.
    - They evaluate whether completed courses align with MEAN stack project requirements.
5. **Decision Management:**

- The system supports committee decisions (approve, deny, request more information).
- Decision-making is documented with clear rationale within the system.

6. **Reporting and Analytics:**
    - Reporting tools provide insights into application statistics (received, decisions made).
    - Analytics help identify trends for process enhancement.
7. **Security and Compliance:**
    - Adherence to data security and privacy regulations (e.g., GDPR, FERPA).
    - Encryption ensures secure handling of student information and uploaded documents.
8. **User Support and Helpdesk:**
    - User support resources include FAQs, help documentation, and contact information.
    - A helpdesk feature enables prompt resolution of queries related to the exemption process.

FLOWCHART:


Completing Three One-Credit Courses for Exemption
User Login
User Credentials Valid?
Yes
No
Authenticate User
Notify User of Invalid Credentials
Apply with Name, Email, etc.
Select "Complete Three One-Credit Courses"
User decides to complete three one-credit courses to qualify for exemption from one course.
Enroll in Course 1
Provide Course 1 Details (e.g., Course Name, ID)
Complete Course 1
Enroll in Course 2
Provide Course 2 Details (e.g., Course Name, ID)
Complete Course 2
Enroll in Course 3
Provide Course 3 Details (e.g., Course Name, ID)
Complete Course 3
Request Course Exemption
Provide Details for Exemption Request
View Booking History
Admin Login
Admin Credentials Valid?
Yes
No
Authenticate Admin
Notify Admin of Invalid Credentials
Review Exemption Request
Approve Exemption?
Yes
No
Approve Exemption
Deny Exemption
Notify User of Approval
Notify User of Denial
View User Booking History
Receive Notification

5.Technology Stack

Frontend

1. **Angular**:
    - **Description**: A powerful front-end framework for building robust single-page applications.
    - **Reason**: Angular provides a structured framework with components, services, and dependency injection, which is beneficial for building complex user interfaces.
2. **HTML/CSS/SCSS**:
    - **Description**: Standard markup and styling languages for creating web pages and applications.
    - **Reason**: Fundamental for creating UI components and styling your application.
3. **Bootstrap** (Optional):
    - **Description**: Front-end component library for developing responsive and mobile-first projects.
    - **Reason**: Offers pre-built UI components and responsive layout, reducing development time.

Backend

1. **Node.js**:
    - **Description**: JavaScript runtime built on Chrome's V8 JavaScript engine for server-side applications.
    - **Reason**: Allows you to use JavaScript on both the frontend and backend, facilitating full-stack development.
2. **Express.js**:
    - **Description**: Fast, unopinionated, minimalist web framework for Node.js.
    - **Reason**: Simplifies routing, middleware creation, and handling HTTP requests, making backend development straightforward.

Database

1. **MongoDB**:

- **Description**: NoSQL document database that stores data in flexible, JSON-like documents.
- **Reason**: Offers scalability and flexibility, which is suitable for handling diverse data types and rapid development iterations.

Development Tools

1. **Visual Studio Code**:
   - **Description**: Lightweight but powerful source code editor.
   - **Reason**: Offers built-in support for TypeScript, Node.js debugging, and an extensive library of extensions for MEAN stack development.
2. **Git & GitHub/GitLab**:
   - **Description**: Version control system and platforms for hosting Git repositories.
   - **Reason**: Essential for collaborative development, tracking changes, and managing your project's codebase.