# Requirements Definition

### Objectives:

1. Gather detailed functional requirements.
2. Document and validate requirements with stakeholders.
3. Ensure requirements are clear, complete, and feasible.

### Detailed Functional Requirements

#### User or Student Functional Requirements:

1. **User Registration and Authentication**:
   * **FR1**: The system shall allow new students to register by providing personal details (name, email, phone number, address) and creating a password.
   * **FR2**: The system shall allow students to log in using their email and password.
   * **FR3**: The system shall provide a password recovery option via email.
2. **Profile Management**:
   * **FR4**: The system shall allow students to view their profile information.
   * **FR5**: The system shall allow students to edit their personal information (excluding email).
   * **FR6**: The system shall allow students to upload documents (e.g., ID proofs, certificates) in formats such as PDF, JPEG, PNG.
   * **FR7**: The system shall display a list of uploaded documents with their statuses (approved, pending, rejected).
3. **Course Enrollment**:
   * **FR8**: The system shall display a list of available courses, including course name, description, instructor, and schedule.
   * **FR9**: The system shall allow students to view detailed information about each course.
   * **FR10**: The system shall allow students to enroll in courses.
   * **FR11**: The system shall display the enrollment status of each course the student has enrolled in.
4. **Report Submission**:
   * **FR12**: The system shall allow students to upload assignments and reports for their enrolled courses.
   * **FR13**: The system shall allow students to view the status of their submissions (submitted, graded, feedback provided).
   * **FR14**: The system shall allow students to download feedback and grades for their submissions.
5. **Notifications**:
   * **FR15**: The system shall send notifications to students for important updates, deadlines, and announcements.
   * **FR16**: The system shall display a list of notifications to students, sorted by date.

#### Admin Functional Requirements:

1. **Student Management (Admin)**:
   * **FR17**: The system shall allow admins to view all student profiles.
   * **FR18**: The system shall allow admins to approve or reject student registrations and uploaded documents.
   * **FR19**: The system shall allow admins to update student profile statuses (active, inactive).
2. **Course Management (Admin)**:
   * **FR20**: The system shall allow admins to create new courses with details such as name, description, schedule, and instructor.
   * **FR21**: The system shall allow admins to edit course details.
   * **FR22**: The system shall allow admins to assign instructors to courses.
   * **FR23**: The system shall display a list of all courses with their details and enrollment numbers.
3. **Report Management (Admin)**:
   * **FR24**: The system shall allow admins to view and download student submissions.
   * **FR25**: The system shall allow admins to grade submissions and provide feedback.
   * **FR26**: The system shall allow admins to update the status of submissions (submitted, graded, feedback provided).
4. **Notifications (Admin)**:
   * **FR27**: The system shall allow admins to create and send announcements to students.
   * **FR28**: The system shall display a list of all notifications sent, with their details.
5. **Analytics and Reporting (Admin)**:
   * **FR29**: The system shall generate reports on student performance, including grades and submission statistics.
   * **FR30**: The system shall provide statistical data on course enrollments, including trends and totals.
   * **FR31**: The system shall allow admins to view data visualizations and export reports in formats such as PDF and Excel.

### Detailed Non-Functional Requirements

1. **Performance**:
   * **NFR1**: The system shall handle up to 1000 concurrent users without performance degradation.
   * **NFR2**: The system shall respond to user actions within 2 seconds under normal load.
2. **Security**:
   * **NFR3**: The system shall use JWT for secure authentication.
   * **NFR4**: The system shall implement role-based access control to restrict access to specific features.
3. **Usability**:
   * **NFR5**: The system shall have an intuitive and user-friendly interface.
   * **NFR6**: The system shall be accessible on various devices, including desktops, tablets, and smartphones.
4. **Scalability**:
   * **NFR7**: The system shall be designed to accommodate future growth in user base and data volume.
5. **Maintainability**:
   * **NFR8**: The system shall be modular to facilitate easy maintenance and updates.
   * **NFR9**: The system shall include comprehensive documentation for developers and users.
6. **Reliability**:
   * **NFR10**: The system shall have an uptime of 99.9%.