

# Requirements Definition

## 1. Review of Requirements Gathering Task Deliverables

- **Date of Completion:** 12/1/2024
- **Insights from Gathered Data:**
  - **Challenges Identified:**
    - Limited collaboration tools.
    - Lack of personalized learning recommendations.
    - Difficulty accessing mentorship opportunities.
  - **Communication Preferences:**
    - WhatsApp, Email, Telegram bots, and App push notifications.
  - **User Suggestions:**
    - AI-powered chatbot for personalized assistance.
    - Direct messaging and mentorship matching.
    - Enhanced notifications for events and academic updates.
    - Centralized platform for knowledge sharing and academic resources.

### Key Trends Identified

1. High demand for streamlined event management and timely announcements.
  2. Students want better access to faculty support and administrative guidance.
  3. Strong interest in personalized learning tools and collaborative platforms.
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## 2. Functional Requirements

### User Management

- Secure user registration, login, and profile management.
- Multi-factor authentication (MFA) for added security.
- Role-based access:
  - **Students:** Access to courses, mentorship, and resources.
  - **Faculty:** Tools for mentorship, announcements, and evaluations.
  - **Admins:** Manage users, events, and platform settings.

### Event Management

- Create, view, and RSVP for academic events.
- Sync events with personal calendars.
- Notifications for event reminders, changes, and cancellations.
- AI-powered event recommendations based on user interests.

### Knowledge Sharing

- Upload and organize categorized academic resources.
- Search and filter tools for effective resource discovery.
- Collaborative discussion forums for courses and projects.

### Mentorship Tools

- Match students with mentors using an AI algorithm:
  - Mentors assist two junior students (mentees) in their academic and career paths.

- Provide guidance through:
  - Direct messaging.
  - Scheduled group sessions.
- Customizable mentorship profiles highlighting mentors' expertise.
- Track mentorship progress through feedback and performance dashboards.

### **Community Platform**

- Create tailored communities for:
  - Courses and subjects.
  - Career-related fields (e.g., internships, part-time jobs, and workshops).
  - Academic year groups and cross-year collaboration.
- Peer-to-peer help for assignments and tasks.
- Highlight achievements, share progress, and showcase projects.

### **Dashboard**

- Personalized dashboard showing:
    - Academic progress and course completion.
    - Mentorship and event participation statistics.
    - Notifications and announcements.
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## **3. Non-Functional Requirements**

### **Performance**

- Ensure fast response times for API requests and minimize latency.
- Provide real-time notifications and sync event data with user calendars efficiently.

### **Scalability**

- Support horizontal scaling to handle growth in user base and data volume without compromising performance.
- Optimize database and backend infrastructure for handling large numbers of concurrent users and data queries.

### **Security**

- Encrypt sensitive user data both in transit and at rest using industry-standard protocols.
- Use JWT (JSON Web Tokens) for secure token-based authentication in all user sessions.
- Regularly conduct security audits to ensure the platform is protected against vulnerabilities.

### **Reliability**

- Ensure fast recovery from system failures with backup and failover mechanisms.

### **Availability**

- Ensure platform availability 24/7, with minimal downtime during maintenance or system updates.
- Provide a transparent downtime notification system for users to be informed of any service interruptions.

### **Usability**

- Offer a user-friendly interface with intuitive navigation and responsive design across devices.
- Provide customization options for user dashboards and themes.

## **Maintainability**

- Write modular, clean, and well-documented code to facilitate long-term maintenance and scalability.
- Implement automated error monitoring and reporting systems to quickly address issues.