

## **Detailed Requirements Document**

### **Functional Requirements**

#### **I. Search & Browse**

- Allows students to search for specific classes to view future assignments
- Enables searching for assignments by title for quick access
- It provides a browsing feature to view each class with its respective assignments
- Includes a schedule browsing function to check upcoming deadlines, study sessions, and important dates

#### **II. User Interactions**

- Students can add assignments manually or through LMS synchronization
- Allows students to set study sessions for quizzes, tests, or general review
- Users can modify schedules dynamically to adjust for workload changes
- Supports study session reminders based on upcoming deadlines and user preferences

#### **III. System Updating**

- AI generates personalized study recommendations based on past performance and engagement.
- Assignment tracking syncs automatically with the LMS to ensure real-time updates
- Due dates and submissions are updated in real-time as changes occur in the LMS
- Teacher recommendations and feedback are pushed to student dashboards

#### **IV. Permissions & Role-Based Access Control**

- Students can view assignments, study schedules, AI-generated recommendations, and grades
- Professors can push study recommendations and monitor aggregated study trends
- Administrators can update system content, manage user roles, and push routine platform updates
- Role-based access ensures data privacy and restricts certain features based on the user type

#### **V. Data Management**

- Study history and submission records are stored in a structured and accessible format
- Tracks assignment completion status seamlessly upon submission
- Maintains a performance tracking system to show grade trends over time
- Ensures secure storage of user data with controlled access

#### **VI. Integration Requirements**

- Canvas LMS integration ensures real-time syncing of assignments, due dates, and grades
- API interactions facilitate seamless communication between the system and the database

- The system supports third-party API authentication for secure data access
- Ensures that updates in the LMS are reflected immediately within the StudyBuddy platform

### **Non-functional Requirements**

#### **I. Performance & Scalability**

- The system should support a substantial amount of concurrent users without performance degradation
- The response time for retrieving assignments, schedules, and AI recommendations should be under a certain amount of seconds
- The system must be able to scale dynamically to accommodate increased user traffic

#### **II. Security & Privacy**

- User data, including study history and grades, must be encrypted at rest and in transit
- Role-based access control should be implemented to restrict unauthorized access to sensitive data
- The platform must comply with FERPA regulations for handling student data
- Passwords must be stored securely using encryption methods

#### **III. Usability & UI**

- The platform should have an intuitive and easy-to-use UI that requires minimal training
- Users should be able to navigate between features within 3 clicks
- The interface should be responsive and accessible across various environments
- The system must provide clear feedback and confirmations for user actions (assignments added, schedule updates)

#### **IV. Maintainability & Support**

- The system codebase must be modular and well-documented for easy maintenance
- System updates should be deployed with minimal downtime, ideally through rolling updates
- Logs should be maintained for error tracking and debugging, with automated alerts for critical failures
- The system should allow for easy integration of new AI models for improved recommendations

#### **V. Availability & Reliability**

- The system should have a high percentage uptime, excluding scheduled maintenance
- Automatic failover mechanisms must be in place to handle server failures without significant downtime

- A backup system should be in place to restore lost or corrupted data within a reasonable time

**VI. Compatibility & Integration**

- The platform must be compatible with major web browsers (Chrome, Firefox, Safari, Edge)
- StudyBuddy should seamlessly integrate with LMS and future LMS platforms
- The system should support OAuth authentication for secure third-party integrations