SE 216 – SOFTWARE PROJECT MANAGEMENT
PROJECT NEEDS DOCUMENT

PROJECT NAME: Lecture-based University Preparation Application (LUPA)

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#	SOFTWARE NEEDS	DESCRIPTION
1	Monitoring of the Process:	Functionality: The Asana software will be used to keep track and monitor the process and team. It provides a comprehensive set of features for organizing and tracking project tasks and enabling an effective collaboration. Version: Asana 2.1.2 Upgrades/Service Packs: Yes, orderly updates are needed. Responsible Team: Development team Timeline: Before the start of the project.
2	Deep Learning & Recommendation Engine:	Functionality: To personalize the learning experience, the application will leverage a machine learning model. This model will predict optimal study durations for different courses. Integration will be done with the Python. Version: Python 3.12.3 Upgrades/Service Packs: Yes, regular updates are needed. Responsible Team: Development team Timeline: With the implementation of the application.
3	Application Development	Functionality: Flutter will be used to development of the application. Because it has cross-platform capabilities and performance. It has a hot reload feature which facilitates rapid development and debugging (which are very important for LUPA). Version: Flutter 3.10.1 Upgrades/Service Packs: Yes, orderly updates are needed. Responsible Team: Development team Timeline: With the implementation of the application.
4	Monitoring of the System:	Functionality: LUPA should have ways to gather user feedback, monitor system performance, and assess the effectiveness of its recommendations and services over time. Version: Latest version that hardware can support. Upgrades/Service Packs: Regular updates are needed. Responsible Team: IT team Timeline: Constant attention is needed.
5	Application Software:	Functionality: All core functionalities of the LUPA application (the Long-Short Term Memory algorithm supported by the AI). Version: Latest stable release.

		Upgrades/Service Packs: Yes, it will be needed. Regular updates for fixing any bugs, and feature developments. Responsible Team: Development team. Timeline: Continuous development and updates based on user feedback.
6	Security Software:	Functionality: Ensuring data privacy and protection. Version: Latest security patches applied. Because student data is private and important, the application requires robust security measures. Upgrades/Service Packs: Yes, it will be needed. Regular updates for security improvements. Responsible Team: IT team. Timeline: Ongoing maintenance to mitigate security risks
7	Database Software:	Functionality: Storing and managing user data, course information, and application settings. Version: Latest stable release. Upgrades/Service Packs: Yes, it will be needed. Regular database maintenance and optimization. Responsible Team: IT team with support from database administrators. Timeline: Continuous monitoring and optimization for performance.
8	Web Development Technologies:	Functionality: LUPA will be accessed by students through a web application which will be built using JavaScript HTML and frameworks. Version: appropriate version for the available hardware. Upgrades/Service Packs: Yes, orderly updates are needed. Responsible Team: Development team Timeline: Before the implementation of the sprint.

#	HARDWARE NEEDS	DESCRIPTION
1	Servers:	Functionality: Provide a secure and scalable framework to support the LUPA application. This includes, storing application data (user information, course data, etc.), running the deep learning models for personalized recommendations, and handling user requests and ensuring smooth application performance. Software & Supporting Equipment: Application software (Flutter) Operating System (Linux distribution, Windows Server, etc.), Database Management System (MongoDB).

		Team Members: The IT team will be responsible for, selecting and configuring the server infrastructure implementing security measures to protect user data monitoring server performance and ensuring uptime performing regular backups and disaster recovery planning. Timeline: Server infrastructure setup should be completed before the LUPA application launch.
2	Networking Equipment:	Functionality: Ensuring reliable connectivity for users accessing the LUPA application. Software & Supporting Equipment: Any device can hold the LUPA application (computers, cellphones, and tablets). Team Members: The IT team is responsible for network setup and maintenance. As well as assisting users to access to the application. Timeline: Set up before application launch and continuously monitored for performance.
3	Backup and Recovery Systems:	Functionality: Ensuring data integrity and recovery for any probable disaster. Software & Supporting Equipment: Backup softwares are mongodump and mongorestore which are the tools used to backup MongoDB data, Storage devices (e.g., NAS, SAN). Team Members: The IT team is responsible for implementing backup policies and testing recovery procedures. Timeline: Implemented before application launch and regularly tested for reliability.
4	GPU:	Functionality: The screen card improving computing performance to enable deep learning model processing and training more quickly. Possessing strong graphics processing powers, particularly for deep learning architectures that need to handle the input and helps processing big datasets efficiently with parallel computing power. Software & Supporting Equipment: Python libraries, Deep Learning framework, GPU (highly recommended for faster training and processing) Team Members: Development Team and IT Team Timeline: Varies depending on project complexity
5	SSD:	Functionality: Maintain a secure and scalable framework to support LUPA. Including, storing application data on high-performance SSDs. Running deep learning models for personalized recommendations on servers equipped with SSDs

		for faster data processing. Handling user requests with improved responsiveness due to the rapid data access offered by SSDs. Software & Supporting Equipment: SSD is essential device because it is connected to every part of computer. Team Members: IT team Timeline: At the beginning of the project.

#	SUPPORT NEEDS	DESCRIPTION
1	Financial Support:	Support Needed: Financial aid for the supply of the other project needs. Responsible Group: Sponsors Timeline: Before the implementation of the project. How Support is Provided: With the appropriate support of economic support. Commitment: Sponsorship Agreement is made, and financial obligations are specified, with term and terminations.
2	University Support:	Support Needed: Help with the integration of the students' lecture data into the application. Responsible Group: University staff and IT team Timeline: Before the implementation of the project. How Support is Provided: With regular meetings of the two sides and appropriate information exchange until the desired outcome is achieved. Commitment: An agreement will be done between the project team and university to continuity of their support.
3	Technical Support:	Support Needed: Maintenance, troubleshooting, and updates for server infrastructure and application software. Responsible Group: IT Team. Timeline: Available 24/7 with minimal downtime. How Support is Provided: Helpdesk ticketing system, on-call support, remote assistance. Commitment: With the use of SLA (Service Level Agreement) securing timely solutions to issues.
4	User Support:	Support Needed: Assistance for users encountering issues with the application. Responsible Group: IT Team and Development Team. Timeline: Continuous availability, especially during peak usage times (e.g., course selection period). How Support is Provided: FAQs, online chat support, email support.

		Commitment: With user satisfaction surveys, and regular feedback check.
5	Security Support:	Support Needed: Monitoring and preventing security breaches. Responsible Group: IT Team. Timeline: Continuous monitoring and quick answer to threats. How Support is Provided: With intrusion detection systems, and security audits. Commitment: Dedication to security protocols, and regular security updates.
6	Infrastructure Support:	Support Needed: Maintenance and optimization of server infrastructure and networking equipment. Responsible Group: IT Team. Timeline: Continuous monitoring for performance and scalability. How Support is Provided: System monitoring tools, and proactive maintenance. Commitment: Regular performance reviews, and capacity planning.
7	Training:	Support Needed: Training materials for users and administrators. Responsible Group: Development Team with the help of the IT Team. Timeline: Provided according to sprints. How Support is Provided: These can be online tutorials, guides targeting users, and video demos for easy learning. Commitment: Regular updates based on software changes and user feedback.