University System Database Requirements (MOSCOW)

Functional Requirements

- FR01 - Store student information (name, ID, contact details).

Justification: Must Have - Essential for identifying and managing students in all processes.

- FR02 - Store faculty information (name, department, contact details).

Justification: Must Have - Critical for managing faculty roles, assignments, and contact.

- FR03 - Track student enrollment in courses.

Justification: Must Have - Core function for tracking which students are enrolled in which courses.

- FR04 - Manage course details (course name, code, credit hours).

Justification: Must Have - Necessary to organize and reference academic courses.

- FR05 - Record grades for each student in every course.

Justification: Must Have - Vital for academic performance tracking and reporting.

- FR06 - Store information about academic programs and degrees.

Justification: Must Have - Important for understanding student progress and graduation eligibility.

- FR07 - Generate student transcripts on demand.

Justification: Should Have - Useful for administrative purposes and student requests, but not needed continuously.

- FR08 - Track faculty assignment to courses each semester.

Justification: Must Have - Essential for assigning faculty to the correct courses.

- FR09 - Manage course prerequisites and corequisites.

Justification: Should Have - Helps ensure proper course progression, but not critical for basic functioning.

- FR10 - Handle student registration for classes.

Justification: Must Have - Fundamental for allowing students to sign up for their courses.

- FR11 - Store tuition payment details and outstanding balances.

Justification: Must Have - Crucial for financial tracking and reporting.

- FR12 - Support course scheduling (timing, rooms, instructors).

Justification: Should Have - Ensures efficient resource allocation, though can be done manually.

- FR13 - Track attendance for students in each course.

Justification: Could Have - Beneficial for certain academic environments but not mandatory.

- FR14 - Manage library resources and borrowing status for students and faculty.

Justification: Should Have - Important for library management but not directly linked to academic tracking.

- FR15 - Record campus housing assignments for students.

Justification: Could Have - Useful for campuses with on-site housing but not essential for academic operations.

- FR16 - Store scholarship and financial aid information for students.

Justification: Should Have - Essential for universities that provide financial support.

- FR17 - Track student disciplinary actions or warnings.

Justification: Could Have - Enhances the student management process but not essential for academics.

- FR18 - Allow students to submit requests for course drops/additions.

Justification: Should Have - Important for student flexibility but can be handled manually.

- FR19 - Record internship or external project details linked to student programs.

Justification: Could Have - Useful for professional development programs but not critical.

- FR20 - Generate statistical reports on enrollment, performance, and faculty workload.

Justification: Should Have - Provides insights into resource management and performance, helpful for strategic decisions.

Non-Functional Requirements

- NFR01 - Performance: The database should handle up to 10,000 simultaneous queries with a response time of under 2 seconds.

Justification: Must Have - Critical for ensuring fast and efficient user interaction, especially during registration periods.

- NFR02 - Security: Data encryption must be applied to all sensitive information such as grades, financial records, and personal details.

Justification: Must Have - Ensures the confidentiality and integrity of sensitive student and faculty data.

- NFR03 - Scalability: The database must be able to expand to support future growth, accommodating up to 50% more students and faculty.

Justification: Should Have - Important for long-term system sustainability but not required immediately.

- NFR04 - Availability: The system must have 99.99% uptime, ensuring continuous access during critical periods like enrollment.

Justification: Must Have - Vital for ensuring the system is always accessible during key academic times.

- NFR05 - Data Integrity: All transactions must ensure data consistency, especially for registration, grading, and payment processes.

Justification: Must Have - Critical for maintaining accurate records and ensuring legal compliance.