Business Case:

Students, instructors, and administrators will have access to academic and institutional data through a single, intelligent interface thanks to the AI-Powered Digital Assistant Platform (AIDAP). Currently, universities rely on disparate, ineffective, and challenging-to-use technologies, including email, calendars, registration portals, and LMS.

By combining various sources into a single AI-powered assistant that comprehends natural language inquiries and provides prompt, precise answers, AIDAP resolves this issue. Through text and voice interaction, the platform will increase accessibility across devices, decrease administrative burden, and improve communication.

Administrators will have a centralized platform for managing policies and announcements, lecturers will be able to share materials and keep an eye on class statistics, and students will receive individualized updates and reminders.

By combining existing systems and automating tasks, AIDAP supports the university's goals while ensuring privacy, security, and scalability for everyone that uses it. It delivers a modern, efficient approach to managing academic life.

Use Case	Description	Associated Requirement ID
UC-1 Query Academic Information	Always allows a student to ask academic inquiries, such as when their next exam is. The system will then understand the question using Natural Language Processing. It will further output the date and time from the school.	R1, R3, R5, RS1, RS7
UC-2 Recieve Notifications	Users can access reminders and automatic notifications for upcoming assignments, campus-wide announcements, and schedule changes on their preferred device.	R1, R2, R3, RS2, RS9
UC-3	User can access a personalized	R2, RS3, RS6

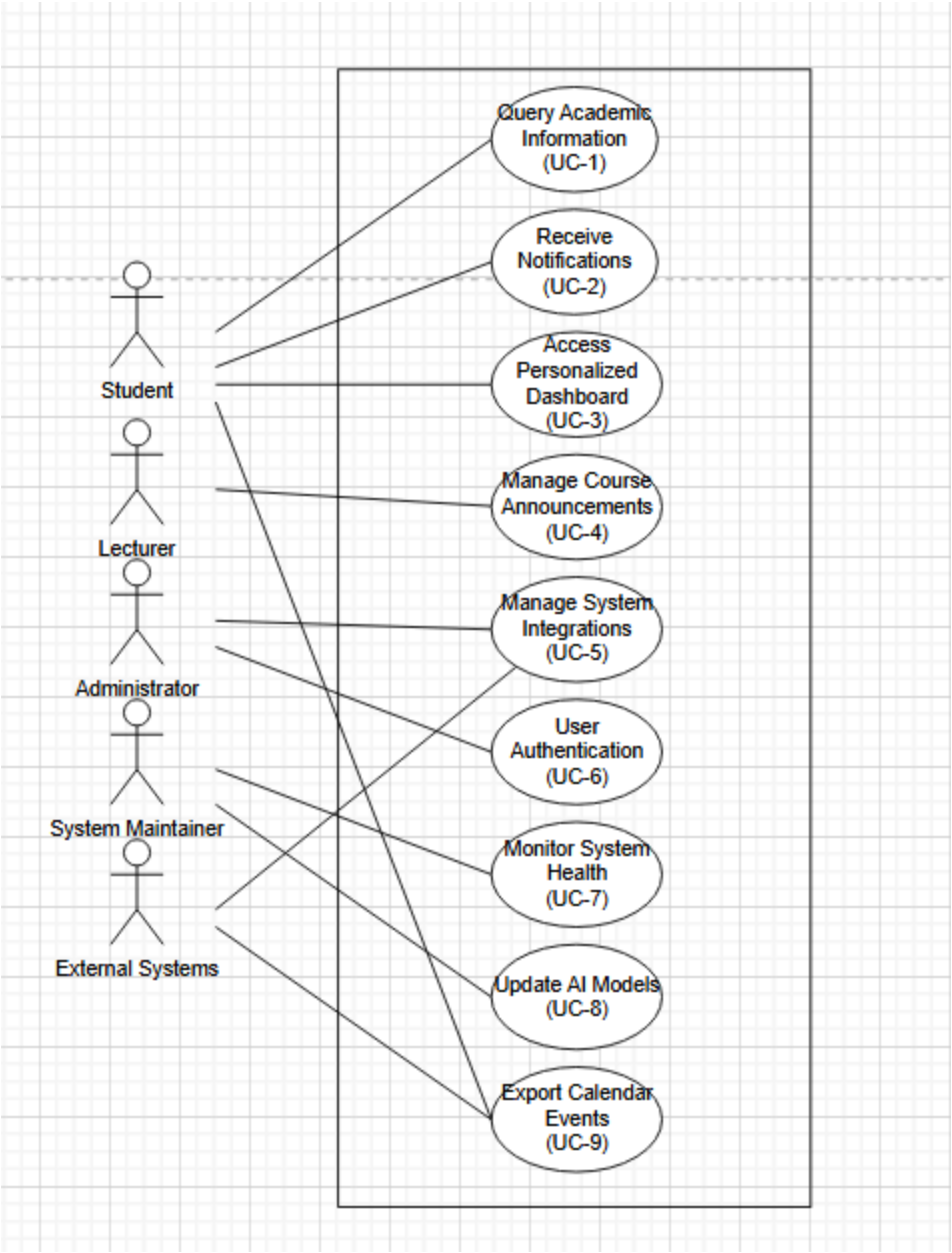
Personalized Dashboard Access	dashboard that provides a summary for upcoming events, as well as for academic performance.	
UC-4 Course Announcement Management	Lecturer shall be able to post announcements by text or voice to their students.	RL1, RL2
UC-5 Management of Integrations	Administrators should be a allowed to manage the connections the system has to external systems such as LMS, calendar, registration as well as email systems.	RA1, RA4, RD1, RD2
UC-6 User Authentication	Users should be able to sign on using single sign on (SSO), where roles define applicable permissions (student, lecturer, admin)	RS7, RA5, RM7
UC-7 System Health Monitor	System maintainer shall be able to view the monitoring dashboards showing latency, error rate and health of the system.	RM2, RM4
UC-8 AI model updates	Maintainer shall be able to put out new AI models and API key configurations without downtime.	RM1, RM3, RM5
UC-9 Calendar Events Exportation	Users shall be able to export upcoming events to their respective personal calendars.	RS13, RD2

ID	Quality Attribute	Scenario	Associated Use Case
QA-1	Performance	95% of student queries are answered in less than 2 seconds with normal load.	UC-1
QA-2	Availability	Upon server failure, a replica server should replace the failed server, allowing normal operation to resume within 30 seconds without user impact.	UC-2, UC-7
QA-3	Scalability	The system should handle up to a peak of 5000 concurrent users while maintaining a response time of less than 2 seconds.	UC-1, UC-5
QA-4	Security	Each user action is authenticated and documented using Single Sign On not allowing unauthorized access.	UC-6
QA-5	Modifiability	New AI models can be integrated into the system without updating core componenets	UC-8

ID	Constraint
CON-1	System to follow accepted guidelines for privacy as per university's rules
CON-2	System must be able to run on cloud servers while being able to handle up to 5000 users.
CON-3	System must maintain an average of less than 2 seconds of response time under normal load.
CON-4	Must allow updates without any downtime using pipelines for continuous deployment.
CON-5	System must be able to recover from failure without loss of stored data for any

	user.

ID	Concern
CRN-1	Ensuring seamless integration between multiple systems from the institute (LMS, registration, calendar, email) that use different APIs and data formats.
CRN-2	Maintaining data synchronization and consistency across the distributed sources and not having any performance drops.
CRN-3	Guaranteeing secure handling and storage of sensitive academic and personal information and also complying with privacy laws.
CRN-4	How will continuous integration and deployment be configured to allow zero-downtime updates?
CRN-5	Potential difficulty in accessing real-time health and error metrics without compromising operational security?



Name	**Contribution**
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Chidubem Edom	Constraints and Concerns