International Islamic University, Islamabad

Department of software engineering

Artifact-2

Submitted to:

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Educational Management System

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Fully Dressed Use Case

1. UC-1

1.1 Use case name:

Manage Course Enrollment

1.2 Use case Scope:

Educational Management system

1.3 Level:

User Goal

1.4 Primary Actor:

Students perform tasks such as browsing, selecting, and finalizing their course schedules.

1.5 Stake holders:

1.5.1. Administrator:Administrators manage the course registration system.
1.5.2. Teachers: They provide information about offer courses and prerequisites.
1.5.3. Head Of Department: They advise students on course selection.
1.5.4. IT and System Administrators: They ensure that registration systems are functioning properly, secure, and user-friendly for all users.

1.6 Pre-conditions:

1.6.1. Users must have registered accounts.
1.6.2. Courses must be created.
1.6.3. Pre-requisite check must be completed.
1.6.4. Academic finance must be cleared.

1.7 Success Guarantee:

1.7.1. Students successfully enrolled in the courses.
1.7.2. Enrollment records of courses updated.
1.7.3. All courses managed successfully.

1.8 Main success scenario:

	Actor Action	**System Reaction**
1.8.1	Student accesses the course enrollment interface.	Displays available courses with their relevant details.
1.8.2	Student search for available courses.	Provides filters and search options to find specific courses.
1.8.3	Student selects courses for enrollment.	Updates the student's courses in cart, add the courses until student reach its maximum capacity.
1.8.4	Student reviews their selected courses.	Provides a list of selected courses for review.
1.8.5	Student select confirms enrollment option.	System check the prerequisite and then generates confirmation option for enrollment of courses and send confirmation email.
1.8.6	Student receives confirmation email.	System grant the access to the course material.

1.9 Extensions:

1.9.1. for **1.8.5**(Main Scenario) If any prerequisite checks fail or academic finance were not cleared, the system notifies the student and provides instructions to resolve it.
1.9.2. for **1.8.3**(Main Scenario) If the enrollment duration ends or the course reaches maximum capacity, the system notify the student that enrollment is no longer available for that course.

1.10 Special requirements:

1.10.1. The system should be scale able to handle a growing user data base.
1.10.2. Ensuring the security and privacy of user data.
1.10.3. The system should respond to user actions with in minimum time.
1.10.4. The system should be secure and user-friendly with clear navigation interface.

1.11 Technology and data variation list:

1.11.1. Keyboard shortcuts provide efficient searching and filtering during course enrollment.
1.11.2. Touchscreen devices offer built in navigation through gestures like tapping and swiping..
1.11.3. Traditional mouse input enables easy interface navigation and selection of courses.

1.12 Frequency of occurrence:

1.12.1. Course enrollment happens when new courses are offered or existing courses are available for enrollment.
1.12.2. Course enrollment typically occurs at the beginning of each academic semester.

1.13 Miscellaneous:

1.13.1. User interface usability and accessibility.
1.13.2. Handling Invalid inputs, server errors and system timeouts.
1.13.3. System load time optimization.
1.13.4. User manuals and documentations.
1.13.5. Planning for future growth and advance features.

1. UC-2

1.1 Use case name:

Manage Timetable schedule

1.2 Use case Scope:

Educational Management system

1.3 Level:

Sub-Function

1.4 Primary Actor:

Teachers: Assist with class scheduling and oversee assignment management.

2.5 Stake holders:

2.5. 1. Administrator: Make sure that resources are allocated and classes are organized effectively.
2.5.2. Students: For attendance and planning purposes, you can readily see your class schedule.
2.5.3. Curriculum Planners: They may provide input on scheduling requirements to ensure that courses are sequenced appropriately and that prerequisites are met.
2.5.4. IT Staff: They Manage the software or systems used for timetabling, ensuring that they are functional, user-friendly, and capable of handling the institution's scheduling needs.
2.5.5. **Guardians:**They may need to coordinate their schedules with their children's school timetables.

1.5 Pre-conditions:

2.6.1. Accounts must be registered by users.
2.6.2. Courses need to be made and scheduled for particular times.
2.6.3. Instructors need to be paired with the appropriate courses.
2.6.4. A clear semester schedule is required.

2.7 Success Guarantee:

2.7.1. Timetable schedules are generated, edited, and viewed with accuracy.
2.7.2. There are no errors in the class schedules that students may view.

2.8 Main success scenario:

	Actor Action	**System Reaction**
2.8.1	Teacher select timetable management option.	System displays the timetable management interface.
2.8.2	Teacher selects the option to create a new timetable or update existing one.	System opens a form for entering new timetable details or update existing one.
2.8.3	Teacher enters courses, times, and teachers name, room no.Teacher saves the changes to the timetable.	System validates the entered data saves Timetable.
2.8.4	System displays the updated timetables for student's.	Students can view their updated timetables through their portal.

Extensions:

2.9.1. for **2.8.3**(Main Scenario) The system alerts the teacher or administrator to scheduling conflicts and recommends other times.
2.9.2. for **2.8.4**(Main Scenario) Students who are impacted by a course cancellation or rescheduling are informed.

2.10 Special requirements:

2.10.1. Features for real-time teamwork for concurrent schedule adjustments.
2.10.2. Scalability to manage growing user traffic and data volumes.
2.10.3. Data security protocols to safeguard schedule data.

2.10.4. Responsive design ensures usability and easy navigation.

2.11 Technology and data variation list:

2.11.1. To ensure user accessibility, the system needs to support a variety of browsers, including Chrome, Firefox, Safari, and others.
2.11.2. Different back end technologies for data retrieval and storage, such as SQL and No SQL databases.
2.11.3. Design that is responsive to adjust to various screen sizes on PCs, tablets, and smartphones.
2.11.4. Integration for easy schedule management with calendar programs like Outlook or Google Calendar

2.12 Frequency of occurrence:

Every semester, at the start, or whenever necessary due to schedule modifications, the schedule is updated.

2.13 Miscellaneous:

2.13.1. The timeline interface's usability and accessibility.
2.13.2. Dealing with system timeouts and incorrect input errors.
2.13.3. Optimizing load times to enable effective scheduling access.
2.13.4. Making user guides and documentation available for consultation.
2.13.5. Planning for system growth and cutting-edge features in the future.

2. UC-3

3.1 Use case name:

Track Attendance Record

3.2 Use case Scope:

Educational Management system

3.3 Level:

Sub-Function

3.4 Primary Actor:

Teachers: Make sure that student attendance is accurately tracked so that academic performance may be evaluated.

3.5 Stake holders:

3.5.1. Administrators: Get attendance information for analytical and compliance-related administrative needs.
3.5.2. Students: They may access their own attendance records to monitor their attendance patterns and address any discrepancies.
3.5.4. Educational Institutions: They may use this information for resource allocation, scheduling, and identifying areas for improvement in the learning environment.
3.5.5. IT/Administrative Staff:Administrative staff may assist in data entry, troubleshooting, and providing user support.

3.6 Pre-conditions:

3.6.1. Accounts must be registered by users.
3.6.2. Classes need to be in session and schedules need to be made.

3.7 Success Guarantee:

3.7.1. Precise documentation and oversight of student presence.
3.7.2. Attendance reports that are produced accurately

3.8 Main success scenario:

	Actor Action	**System Reaction**
3.8.1	Instructor opens the relevant section/semester attendance tracking page.	System authenticates the instructor and displays the attendance tracking page.
3.8.2	System displays a list of the enrolled pupils.	The list includes each student's name, registration no.
3.8.3	Instructor marks attendance of students (present/absent).	System provides check boxes menus for marking attendance.
3.8.4	System update the attendance records and send confirmation.	Instructor receives a confirmation message, and students' attendance is updated for future.

9 Extensions:

3.9.1. for **3.8.1**(Main Scenario) Instructor encounters a system error while marking attendance.System displays an error message.
3.9.2. for **3.8.3**(Main Scenario) Instructor attempts to submit attendance without marking all students.System prompts the instructor to complete the attendance for all students.
3.9.3. for **3.8.4**(Main Scenario) Instructor marks a student incorrectly and needs to correct it.System allows editing of the attendance record before final submission.

3.10 Special requirements:

3.10.1. Synchronization in real-time to guarantee current attendance data.
3.10.2. Data security protocols to guard against illegal access or manipulation of attendance records.

3.11 Technology and data variation list:

3.11.1. Integration for more precise and safe attendance tracking with biometric `systems.
3.11.2. Interoperability across multiple platforms and devices, such as laptops, tablets, and cellphones.
3.11.3. Automated attendance tracking in physical classrooms using RFID or NFC technologies.

3.12 Frequency of occurrence:

Attendance tracking occurs for each class session.

3.13 Miscellaneous:

3.13.1. An easy-to-use interface that is intuitive for tracking attendance and navigating about.
3.13.2. Handling system errors and incorrect input errors.

3.13.3. To avoid loss, regularly backup your attendance records.
3.13.4. Giving consumers access to training resources so they can comprehend the attendance tracking procedure.

3. UC-4

4.1 Use case name:

Manage Student Registration

4.2 Use case Scope:

Educational Management system

4.3 Level:

User Goal

4.4 Primary Actor:

Students: They need an easy, efficient, and user-friendly system to registration and communicate with faculty and administrators.

4.5 Stake holders:

4.5.1. Alumni: They may provide mentor ship, career advice, or financial support, and may be interested in staying informed about registration and academic programs.
4.5.2. Employers and Partners: They may provide input on course offerings, internship opportunities, and desired skills and competencies.
4.5.3. Board of Trustees:They may be concerned with enrollment trends, student retention rates, and the overall effectiveness of the registration process in supporting the institution's mission and goals.
4.5.4. Financial Aid Office: They rely on the registration system to verify student enrollment, track eligibility for financial aid programs, and process disbursements.
4.5.5. IT Department: They are responsible for ensuring the system is secure, calculable, and integrated with other systems such as student information systems, learning management systems, and financial systems.
4.5.6. Administrators:They use the registration system to manage course offerings, set registration deadlines, allocate resources, generate reports, and ensure compliance with institutional policies and regulations.
4.5.7. Faculty and Academic Advisors:They rely on the registration system to access student records, approve course selections, and communicate important information to students.

4.6 Pre-conditions:

4.6.1. The system must be functional and accessible to users.
4.6.2. Users must have valid credentials to access the system.
4.6.3. The system's databases must be filled with accurate and up to-date data.
4.6.4. Students must be able to register for courses for the upcoming academic term or semester.
4.6.5. The student must pay his semester fee.

4.7 Success Guarantee:

4.7.1. The student's registration information is correctly recorded and stored in the system's database.

4.7.2. The registered courses are properly displayed in the student's profile and timetable.

4.8 Main success scenario:

	Actor Action	**System Reaction**
4.8.1	The student submits the payment voucher.	System receives the payment voucher.
4.8.2	The student navigates to the education management system's enters their credentials.	System authenticates the student and grants access to the registration interface.System validates the form inputs, checking for completeness and accuracy.
4.8.3	The system processes the payment voucher upload by the student.	System verifies the payment details and confirms the payment status.
4.8.4	The system confirms the enrollment and generates a registration confirmation.	System displays a confirmation message and sends a confirmation through email.
4.8.5	The system provides access to course enrollment and university portal.	System grants the student access to course content, schedules.

4.9 Extensions:

4.9.1. for **4.8.1**(Main Scenario) Student encounters an error during payment voucher submission.System displays an error message and provides options to retry the submission or contact support.
4.9.3 for **4.8.2**(Main Scenario) Student enters incorrect login credentials.System prompts the student to re-enter credentials.
4.9.4 for **4.8.3**(Main Scenario) Payment voucher is invalid or payment fails. System notifies the student of the issue.

4.10 Special requirements:

4.10.1. The system should be capable of handling variable user and data demands while scaling up or down.
4.10.2. The system should be responsive, with minimum 10 sec loading times.
4.10.3. To protect sensitive student data, the system should have strong security mechanisms in place.
4.10.4. The system should be compatible with other institutional systems.
4.10.5. To prevent against data loss, the system should include effective backup and recovery capabilities

4.11 Technology and data variation list:

4.11.1. Smart contracts automate specific procedures, such as fee payments or course enrollment.
4.11.2. Import/export capabilities for bulk data transmission.
4.11.3. Use voice commands to access course information, submit assignments, and check grades.
4.11.4. Sending notifications, reminders, and updates by email.
4.11.5. Scan a QR code to track attendance during classes or Events.

4.12 Frequency of occurrence:

4.12.1. At the beginning of each academic term.

4.12.2. Daily during the add/drop period, usually a week or two at the beginning of each term.

4.13 Miscellaneous:

4.13.1. User Interface Enhancements.
4.13.2. System Performance Optimization.
4.13.3. Strengthening data privacy and security measures to safeguard sensitive student information and comply with relevant regulations.

4. UC-5

5.1 Use case name:

Manage Student Grades

5.2 Use case Scope:

Educational Management system

5.3 Level:

User Goal

5.4 Primary Actor:

Teachers are responsible for inputting grades, assessments, and feedback into the system.

5.5 Stake holders:

5.5.1. Students:They rely on it to access their grades, track their academic progress, and understand their performance in different subjects or courses.
5.5.2. Administrators: They use the system to generate reports, analyze data, and make decisions related to curriculum, resources, and academic policies.
5.5.3. Educational Institutions: They may use data from the system for accreditation purposes, strategic planning, and resource allocation.
5.5.4. IT/Administrative Staff: Administrative staff may assist in data entry, user support, and training related to the system.
5.5.5. Curriculum Developers: They may also use the system to identify areas for curriculum improvement or modification.

5.6 Pre-conditions:

5.6.1. Students must be properly enrolled in the courses for which grades will be managed.
5.6.2. Instructors must be assigned to teach those courses within the system.
5.6.3. Assessments (e.g., quizzes, assignments, exams) must be created and configured within the system, specifying details such as due dates, instructions, and grading criteria.

5.7 Success Guarantee:

5.7.1. The system supports ongoing evaluation and improvement of grade management practices.
5.7.2. Users express satisfaction with the grade management process .

5.7.3. The grade management process complies with standards governing grading practices.
5.7.4. The grades entered into the system accurately reflect students' performance on assessments and assignments, with calculations performed correctly according to predefined grading criteria and weighting schemes.

5.8 Main success scenario:

	Actor Action	**System Reaction**
5.8.1	Completes an assignment, test, or project.	The system records the submission and notifies the teacher.
5.8.2	Teacher Grades the student's assignment, test, or project.	The system updates the student's grade and notifies the student of their grade.
5.8.3	Student Views their grades on the education management system.	The system displays the student's grades for each assignment, test, or project.
5.8.4	Teacher Records grades and participation in class activities.	The system updates the student's grades and participation records.
5.8.5	Student Uses grades and feedback to track progress and improve performance.	The system supports students in utilizing grades and feedback to monitor their academic progress and make improvements.

5.9 Extensions:

5.9.1. for **5.8.1**(Main Scenario) Student encounters an error while submitting an assignment, test, or project.The system displays an error message and provides options to contact support.
5.9.2 for **5.8.2**(Main Scenario) Teacher encounters an error while grading an assignment, test, or project.The system displays an error message and allows the teacher to save progress.
5.9.3 for **5.8.3**(Main Scenario) Student cannot access their grades on the system.The system prompts the student to check their internet connection, refresh the page.
5.9.4 for **5.8.4**(Main Scenario) Teacher encounters an error while recording grades and participation. The system displays an error message and provides options to contact support.

5.10 Special requirements:

5.10.1. Ensure that grade data is reliable and available, with backup and recovery plans in place in the event of system failures or data loss situations.
5.10.2. Allows for the modification of grading procedures, grading scales, and reporting formats to fit a variety of educational rules and practices.
5.10.3. Provide real-time access to grade information, particularly at peak usage times (e.g., end-of-semester grading).

5.11 Technology and data variation list:

5.11.1. Integrates with other educational technologies and systems to streamline data flow and enhance overall efficiency.

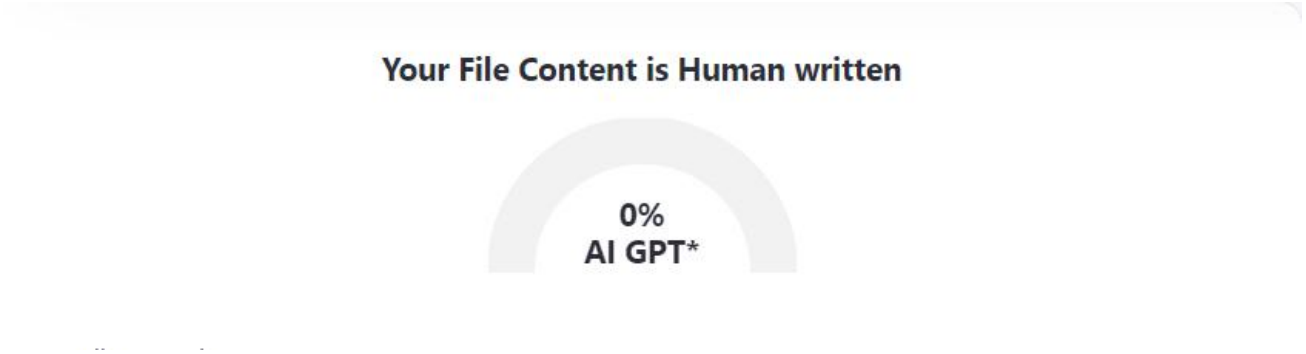
5.11.2. Implements robust security measures to protect student data and ensure compliance with privacy regulations.
5.11.3. Allows customization of grading criteria and scales to align with specific educational standards and requirements.
5.11.4. Provides real-time updates on grades and academic progress, enabling timely intervention and support for students as needed.

5.12 Frequency of occurrence:

5.12.1. Grade management typically occurs at the end of each semester.
5.12.2. Depending on the curriculum and teaching methodology, assessments may occur weekly, monthly, or at other intervals, requiring regular grade input.
5.12.3. At the end of the academic year, EMSs facilitate tasks such as final grade submission, generating report cards, and archiving grade data.

5.13 Miscellaneous:

5.13.1. Overcoming integration issues with other systems and platforms used in education.
5.13.2. Conducting frequent security evaluations.
5.13.3. Constantly upgrading the user interface



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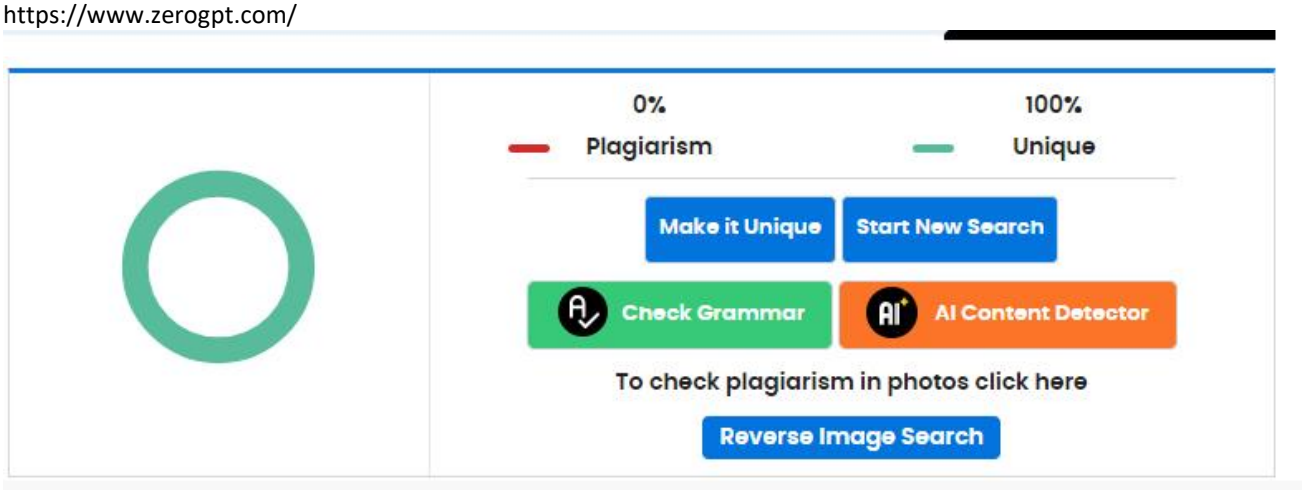

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