IT314 - Software Engineering

Group Number : 33

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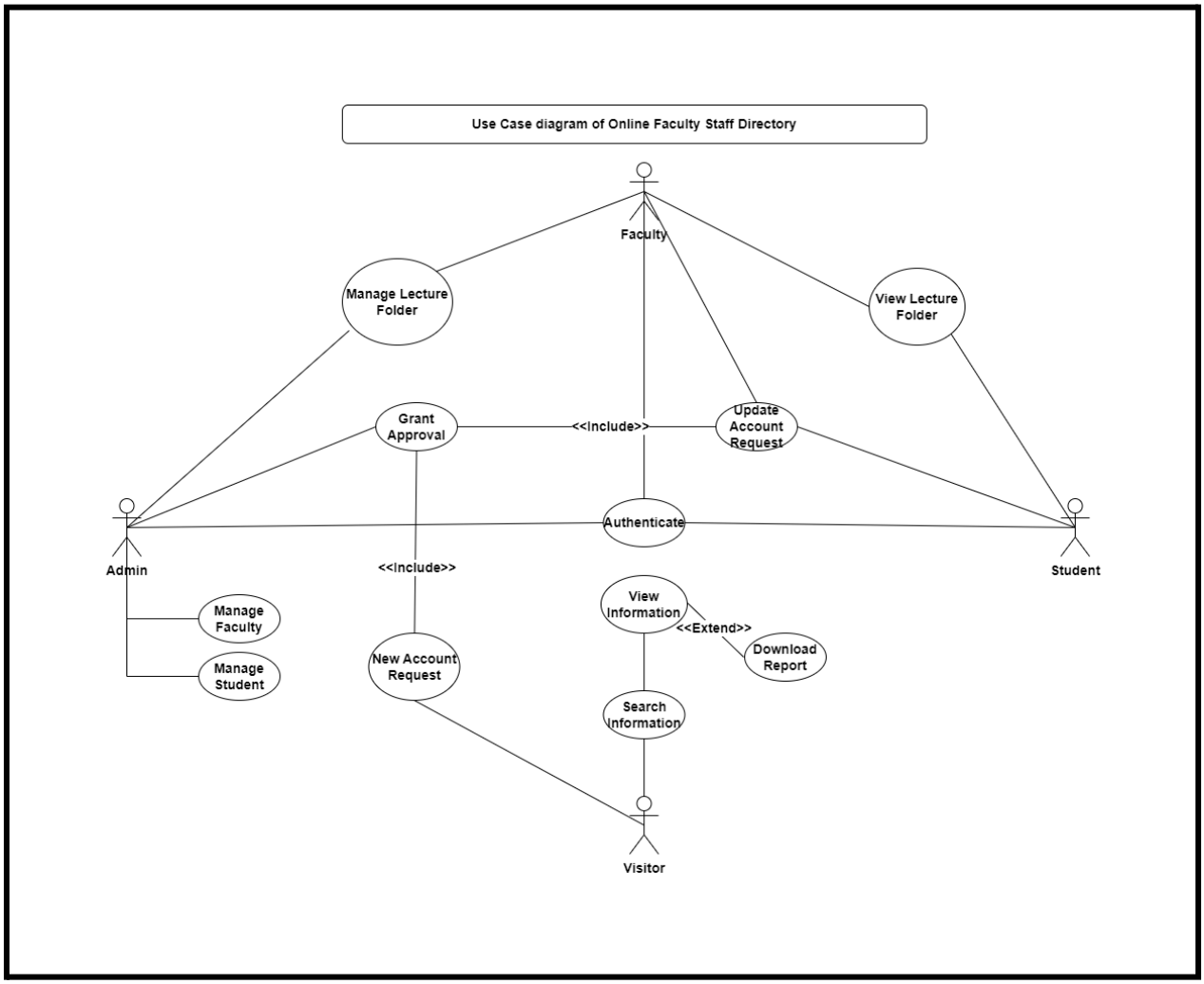
Use Case Diagram



Textual description use case diagram

1. **Grant Approval:** This use case involves the process of approving or rejecting a request made by a user (either a faculty member or a student) by the admin. The admin reviews the request, checks if all the required information is provided, and then approves or rejects the request.
    - **Pre-Conditions:** The user has made a request that requires approval from the admin.
    - **Post-Conditions:** The request is either approved or rejected, and the user is notified of the decision.

2. **Manage Lecture Folder:** This use case involves the process of managing the lecture folder, which includes adding new lectures, editing existing ones, and deleting outdated ones.
    - **Pre-Conditions:** The lecture folder exists and is accessible to the user. Here, the user is authenticated as faculty. The admin is logged into the system and has the necessary permissions to manage the lecture folder.
    - **Post-Conditions:** The lecture folder is updated with new lectures added, existing ones edited, and outdated ones deleted.

3. **View Lecture Folder:** This use case involves the process of allowing students and faculty members to view the lecture folder, which contains all the lecture materials for the course.
    - **Pre-Conditions:** The student or faculty member is logged into the system and has the necessary permissions to view the lecture folder.
    - **Post-Conditions:** The student or faculty member can access and view the lecture folder.

4. **Manage Faculties:** This use case involves the process of managing faculties from the admin side, which includes adding new faculty members, editing their information, and deleting faculty members.
    - **Pre-Conditions:** The admin is logged into the system and has the necessary permissions to manage faculties.
    - **Post-Conditions:** The faculty list is updated with new members added, existing ones edited, and outdated ones deleted.

5. **Manage Students:** This use case involves the process of managing students from the admin side, which includes adding new students, editing their information, and deleting student records.
    - **Pre-Conditions:** The admin is logged into the system and has the necessary permissions to manage students.
    - **Post-Conditions:** The student list is updated with new students added, existing ones edited, and outdated ones deleted.

6. **Authentication:** This use case involves the process of authenticating students to ensure that only authorized users can access the system.
    - **Pre-Conditions:** The student has registered for an account in the system and has entered the correct login credentials.
    - **Post-Conditions:** The student is granted access to the system and can perform the authorized actions.

7. **View Information:** This use case involves the process of allowing users to view their personal information, such as their account details, course enrollment, and grades.
    - **Pre-Conditions:** The user is logged into the system and has the necessary permissions to view their information.
    - **Post-Conditions:** The user can access and view their personal information.

8. **Public Information:** This use case involves the process of allowing visitors to view public information about the institution, such as the course offerings, admission requirements, and faculty list.
    - **Pre-Conditions:** The visitor is on the institution's website or portal.
    - **Post-Conditions:** The visitor can access and view public information about the institution.

9. **New Account Request:** This use case involves the process of allowing visitors to request a new account for the system, such as prospective students who want to apply for admission.
    - **Pre-Conditions:** The visitor is on the institution's website or portal and wants to request a new account.
    - **Post-Conditions:** The institution receives the request and processes it accordingly.

10. **Search Information:** This use case involves the process of allowing visitors to search for specific information about the institution.
    - **Pre-Conditions:** The student/faculty have access to information being searched.
    - **Post-Conditions:** The information is organized and presented in a clear, concise and understandalbe manner.

11. **Update Account Request from Students:** This use case involves the process of allowing students to update their account information, such as their contact details, course enrollment, and password.
    - **Pre-Conditions:** The student is logged into the system and has the necessary permissions to update their account information.
    - **Post-Conditions:** The student's account information is updated with the new information provided.

12. **Update Account Request from Faculty:** This use case involves the process of allowing faculty members to update their account information, such as their contact details, courses taught, and password.
    - **Pre-Conditions:** The faculty member is logged into the system and has the necessary permissions to update their account information.
    - **Post-Conditions:** The faculty member's account information is updated with the new information provided.

13. **Download the Report:** This use case involves the process of allowing users to download reports generated by the system, such as student grades, attendance records, or course evaluations.
    - **Pre-Conditions:** The user is logged into the system and has the necessary permissions to download the report.
    - **Post-Conditions:** The report is downloaded and saved to the user's device or computer for viewing and analysis. Depending on the specific report being downloaded, there may be additional preconditions and postconditions. For example, if the report contains sensitive information, the user may need to enter additional authentication details or the report may be encrypted for security purposes.

User Stories

Functional Requirements:

1. **Front of the card:** As an admin, I want to be able to add/edit/delete user details in the database, so that I can manage the users of the system effectively.

   Back of the Card (Conditions of Satisfaction):

- The system should allow me to add, edit, and delete user information easily and efficiently.
- The changes to user details should be reflected in the system immediately.
- The system should ensure the security and privacy of user information and prevent unauthorized access.
- The system should provide error messages and alerts for any issues that arise during user management.

2. **Front of the Card:** As an admin, I want to be able to backup and restore the data in the system, so that I can restore the data in the event of a system failure or data loss.

   Back of the Card (Conditions of Satisfaction):

- The system should allow me to backup the data on a regular basis, and should be easy to use and understand.
- The system should allow me to restore the data quickly and efficiently in the event of a system failure or data loss.
- The backup and restore functions should be reliable and accurate.
- The system should provide error messages and alerts for any issues that arise during backup or restore.

3. **Front of the card:** As an admin, I want to be able to approve courses/resources/grants to faculties, so that I can manage the resources and grants of the institution effectively.

Back of the Card (Conditions of Satisfaction):

- The system should allow me to approve courses, resources, and grants easily and efficiently.
- The system should ensure that only authorized personnel are able to approve or deny requests.
- The system should provide detailed information about the courses, resources, and grants to help me make informed decisions.
- The system should provide error messages and alerts for any issues that arise during the approval process.

4. **Front of the Card:** As an admin, I want to be able to generate reports on the use of the system, so that I can analyze the usage patterns and identify areas for improvement.

   Back of the Card (Conditions of Satisfaction):

- The system should provide accurate and detailed reports on the usage of the system.
- The reports should be easy to understand and analyze, with clear visualizations and summaries.
- The reports should cover all aspects of system usage, including user activity, resource utilization, and performance metrics.
- The system should provide error messages and alerts for any issues that arise during the report generation process.

5. **Front of the Card:** As a faculty member, I want to be able to view and update my personal profile, so that I can keep my information up-to-date.

   Back of the Card (Conditions of Satisfaction):

- The system should allow me to view and update my personal profile easily and efficiently.
- The changes to my personal profile should be reflected in the system immediately.
- The system should ensure the security and privacy of my personal information and prevent unauthorized access.
- The system should provide error messages and alerts for any issues that arise during profile management.

6. **Front of the card:** As a faculty member, I want to be able to view and update my contact information, so that I can stay connected with my colleagues and students.

   Back of the Card (Conditions of Satisfaction):

- The system should allow me to view and update my contact information easily and efficiently.
- The changes to my contact information should be reflected in the system immediately.
- The system should ensure the security and privacy of my contact information and prevent unauthorized access.
- The system should provide error messages and alerts for any issues that arise during contact information management.

7. **Front of the Card:** As a faculty member, I want to be able to upload my research work and academic material, so that I can share them with the community.

   Back of the Card (Conditions of Satisfaction):

- The system should provide the option to upload different types of academic material such as research papers, articles, conference papers, and presentations.
- The system should allow faculty members to manage and organize their uploaded materials, such as categorizing them based on subject, date, or type.
- The system should ensure the security and privacy of the uploaded materials, and restrict access to authorized users only.
- The system should allow faculty members to track the number of downloads and views for their uploaded materials.
- The system should notify faculty members about any copyright issues related to their uploaded materials.

8. Front of the Card: As a faculty member, I want to be able to view my feedback and evaluations from students, so that I can improve my teaching style and material.
   Back of the Card (Conditions of Satisfaction):

- The system should provide a comprehensive report on the evaluations and feedback collected from the students.
- The system should display the evaluations and feedback in an organized and easy-to-understand format, such as charts or graphs.
- The system should allow faculty members to filter the evaluations and feedback based on the course, semester, or student.
- The system should provide a summary of the areas where faculty members are performing well and the areas where they need to improve.
- The system should allow faculty members to respond to the feedback and address any concerns or issues raised by the students.

9. **Front of the Card:** As a student, I want to be able to search for faculty members based on criteria such as name, department, courses, and area of expertise, so that I can find the appropriate faculty members for my needs.

   Back of the Card (Conditions of Satisfaction):

- The search function should be easy to use and accessible from the homepage.
- The search function should provide relevant and accurate results based on the search criteria entered by the student.
- The search function should allow students to refine their search results based on different parameters such as faculty rating, course rating, and teaching style.
- The search function should display detailed information about the faculty members, such as their name, department, area of expertise, courses taught, and ratings.
- The search function should allow students to bookmark or save their favorite faculty members for future reference.

10. **Front of the Card:** As a student, I want to be able to view detailed information about faculty members of my institution, so that I can make informed decisions about my academic path.

    Back of the Card (Conditions of Satisfaction):

- The system should provide detailed and accurate information about the faculty members, including their educational qualifications, research interests, and publications.
- The system should display the faculty members' teaching experience and expertise, and the courses they have taught in the past.
- The system should allow students to view the ratings and reviews of the faculty members provided by other students.
- The system should allow students to compare the information of different faculty members to make an informed decision about their academic path.
- The system should ensure that the information displayed is up-to-date and accurate.

11. **Front of the Card:** As a student, I want to be able to communicate with my faculty members through the system, so that I can ask questions and clarify my doubts.

    Back of the Card (Conditions of Satisfaction):

- The system should provide a user-friendly interface for students to communicate with their faculty members.
- The system should allow students to send messages to the faculty members and receive responses in a timely manner.
- The system should provide a notification system to alert faculty members when they receive a message from a student.
- The system should allow faculty members to send group messages to all the students enrolled in their courses.
- The system should ensure the security and privacy of the messages exchanged between students and faculty members.

12. **Front of the Card:** As a student, I want to be able to provide feedback and evaluations to the faculty members belonging to my institute, so that I can give my opinion on their teaching style and academic material.

    Back of the Card (Conditions for Satisfaction):

- The feedback form should be user-friendly and easy to fill out.
- The feedback should be anonymous to encourage honest feedback.
- The feedback should be reviewed by the appropriate authority for action.

- Faculty members should be informed of their feedback and evaluations in a timely manner.
- The feedback mechanism should be reliable and secure to prevent misuse.
- As a student, I want to be able to access and download course materials, such as lectures, handouts & study material from my faculty members, so that I can study effectively
- The course materials should be available in a timely manner, preferably before the corresponding class.
- The materials should be organized and easy to navigate.
- The system should allow downloading and offline access to course materials.
- The materials should be accessible to all students, including those with disabilities.
- The system should have measures in place to prevent unauthorized access and sharing of materials.

Non-Functional Requirements:

13. **Front of the Card:** As a user, I want the system to be fast and reliable, with quick page load time and capacity to handle large traffic, so that I can access the information I need without any delay.

    Back of the Card (Condition for Satisfaction):

- The system should have a page load time of no more than 2 seconds, even during peak traffic hours.
- The system should be able to handle a large number of simultaneous requests without crashing or experiencing a significant slowdown.
- The system should be able to quickly load and display data without any lag or delay.
- The system should be able to handle different types of media, such as images, videos, and PDFs, without affecting its speed and reliability.
- The system should have a backup and recovery mechanism in place in case of unexpected downtime or crashes.
- User feedback and performance metrics should be regularly monitored to identify and address any speed or reliability issues.

14. **Front of the Card:** As a user, I want the system to be portable and usable on desktop as well as mobile devices, so that I can access it from any device.

    Back of the Card (Conditions of Satisfaction):

- The system should be responsive and adjust to different screen sizes and resolutions for desktop, laptop, tablet, and mobile devices.
- All features and functionalities should be available on both desktop and mobile versions of the system.
- Users should be able to perform all tasks on the system from any device without any loss of functionality or accessibility issues.
- The user interface should be intuitive and easy to use on both desktop and mobile devices.
- The system should be tested and verified to work on all popular web browsers and operating systems.
- The system should have appropriate security measures in place to protect user data on all devices.
- Users should be able to seamlessly switch between devices without any loss of data or interruption in service.

15. **Front of the Card:** As a user, I want the system to be secure, with appropriate settings for controlling what information is visible to the public, so that my personal and professional information is protected.

    Back of the Card (Conditions of Satisfaction):

- The system should use secure protocols such as HTTPS to encrypt data transmission between the user's device and the server.
- The system should have a secure login system, such as multi-factor authentication, to prevent unauthorized access to user accounts.
- The system should implement appropriate access control measures, such as role-based access control, to ensure that only authorized users can access sensitive information.
- The system should have regular security audits and vulnerability scans to ensure that security measures are up to date and effective.
- The system should have clear and transparent privacy policies and provide users with the ability to control what personal information is visible to the public.

- The system should comply with relevant data protection regulations such as GDPR, CCPA, etc.

16. **Front of the Card:** As a user, I want the system to be reliable and consistently available with minimum downtime and technical issues, so that I can access the information I need anytime.

    Back of the Card (Condition for Satisfaction):

- The system should have an uptime of at least 99.9%.
- The system should be monitored for any downtime or technical issues, and any issues should be resolved promptly.
- Regular maintenance and updates should be performed during off-hours to minimize disruption to users.
- Any scheduled maintenance or downtime should be communicated to users in advance.
- The system should have redundancy and backup measures in place to ensure continuity of service in case of any unexpected outages.
- The system should have appropriate disaster recovery and business continuity plans in place to ensure that critical information is not lost in case of any major issues.
- Users should be able to access the system from anywhere with an internet connection, without any geographical restrictions.

17. **Front of the Card:** As a user, I want the system to be able to store and work with a large database of faculties and staff, so that I can find the appropriate faculty members for my needs.

    Back of the Card (Conditions of Satisfaction):

- The system should be able to store a large number of faculty and staff records without any performance degradation or data loss.
- The system should be able to retrieve and display faculty and staff records quickly and efficiently, even when dealing with a large number of records.
- The system should allow users to search and filter faculty and staff records based on various criteria such as name, department, area of expertise, and courses taught.

- The system should provide accurate and up-to-date information about faculty and staff, including their contact information, office hours, and academic qualifications.
- The system should provide an easy and intuitive interface for users to navigate and search through the faculty and staff records.
- The system should have appropriate access controls to ensure that only authorized users can access and modify the faculty and staff records.
- The system should be scalable and able to handle an increasing number of faculty and staff records as the institution grows.
- The system should have appropriate data backup and recovery mechanisms to ensure that faculty and staff records are not lost due to any technical issues or system failures.

18. **Front of the Card**: As a user, I want the system to be easy to use, with a user-friendly interface which requires minimal training, so that I can access the information I need without any difficulty.

    Back of the Card (Conditions of Satisfaction):

- The interface should be intuitive, with a simple and clear layout that allows users to quickly find the information they need.
- The system should have minimal steps to complete a task, reducing the time and effort required to use the platform.
- The system should have clear instructions or tooltips to guide users through the process, eliminating the need for extensive training.
- The language and terminology used in the interface should be easy to understand, avoiding technical jargon that may confuse users.
- The system should have a responsive design, which adjusts to different screen sizes, making it easy to use on various devices.
- The system should have a consistent design across all pages, making it easy for users to navigate through the platform.
- The system should allow users to customize the interface, such as the font size, color scheme, and layout, to match their preferences and needs.
- The system should be designed with accessibility in mind, such as using high contrast colors and providing alternative text for images, to accommodate users with disabilities.

19. **Front of the Card:** As a user, I want the system to be responsive, irrespective of the platform on which it is running, so that I can access the information I need from any device.

    Back of the Card (Conditions of Satisfaction):

- The system should be tested on various platforms and devices to ensure its compatibility and responsiveness.
- The system should have a responsive design that adapts to different screen sizes, resolutions, and orientations.
- The system should have fast loading times and smooth transitions, even on low-performance devices.
- The user interface should be consistent across all platforms to provide a seamless user experience.
- The system should be designed with accessibility in mind to ensure that users with disabilities can use it without any difficulties.
- The system should have the capability to store user preferences, so that the users can customize their experience on different devices.
- The system should have an efficient caching mechanism to minimize the data transfer and improve the performance.
- The system should be regularly updated to ensure that it remains compatible with the latest devices and platforms.

20. **Front of the Card:** As a user, I want the system to be available 24/7 to all the users, so that I can access the information I need anytime.

    Back of the Card (Conditions for Satisfaction):

- The system should have a reliable and robust infrastructure that can support 24/7 availability with minimum downtime for maintenance and upgrades.
- The system should have automatic failover and redundancy mechanisms to ensure continuous availability even in case of hardware or software failures.
- The system should be monitored 24/7 to detect and resolve any issues that may arise and to ensure optimal performance.
- The system should have appropriate backup and disaster recovery mechanisms to prevent data loss and ensure quick recovery in case of any disaster.

- The system should have a clear and concise communication mechanism in place to inform users of any planned maintenance or downtime well in advance.
- The system should be designed with scalability in mind, so that it can handle increased traffic and usage without compromising on performance or availability.

21. **Front of the Card:** As a user, I want the system to have access to technical assistance and updates as needed, so that I can resolve any issues quickly.

    Back of the Card (Conditions for Satisfaction):

- The system should have a dedicated technical support team that can be easily reached through multiple channels such as email, phone, or live chat.
- The technical support team should respond to user inquiries promptly and efficiently within a reasonable time frame, ideally within 24 hours.
- The system should have a clear and comprehensive user manual or knowledge base that is easily accessible to users.
- The system should have a mechanism for users to report technical issues or bugs, and the technical support team should provide regular updates on the progress of issue resolution.
- The system should be regularly updated with bug fixes and security patches to ensure the system is up-to-date and secure.
- The system should have a well-defined process for software updates, including release notes, version history, and the ability to roll back to a previous version if necessary.
- The system should have a feedback mechanism to collect user feedback and suggestions for improvement and use it to inform future updates and enhancements.

B) Create the sprints from the product backlog.

Sprint 1:

- Set up the basic structure of the directory system with login and registration functionality for admin, faculty, and students
- Implement the ability for the admin to add, edit, and delete user accounts
- Implement the ability for faculty to view and update their personal profile and contact information
- Implement the ability for students to search for faculty members based on different filters such as name, department, and area of expertise
- Implement the ability for the system to have appropriate settings for controlling what information is visible to the public and ensure that faculty and staff members have control over their personal and professional information.

Sprint 2:

- Implement the ability for admin to manage users of the system and backup and restore the data
- Implement the ability for admin to make certain information visible for selected sets of people or make it public
- Implement the ability for admin to approve courses/resources/grants to faculties and update the requested/changed information from faculties to be visible to the end-user
- Implement the ability for faculty to upload their research work and academic material to share with the community

Sprint 3:

- Implement the ability for faculty to view the number of their profile visits
- Implement the ability for faculty to communicate with students through the system or other communication tools such as email
- Implement the ability for students to provide feedback and evaluations to the faculty members belonging to their institute, including ratings and comments on their teaching style and academic material

Sprint 4:

- Implement the ability for admin to provide support to users of the system, including answering questions and resolving issues as needed
- Implement the ability for admin to generate reports on the use of the system, including information on the most-searched for faculty members, the most active users, and any errors or issues that have arisen

- Implement the ability for the system to have a notification and alert system that allows administrators to send important updates and alerts to faculty

Sprint 5:

- Implement the ability for the system to include analytics and reporting capabilities to allow administrators to track usage and identify areas for improvement
- Implement the ability for the system to have fast and reliable performance with quick page load time and capacity to handle large traffic
- Implement the ability for the system to be portable and usable on desktop as well as mobile devices

Sprint 6:

- Implement the ability for the system to be reliable and consistently available with minimum downtime and technical issues
- Implement the ability for the system to be scalable to store and work with a large database of faculties and staff
- Implement the ability for the system to have a user-friendly interface which requires minimal training and is easy to use for all users
- Implement the ability for the system to be secure and should only protect sensitive data.
- Implement the ability for the system to be responsive and available 24/7 to all the users
- Implement the ability for the system to provide technical assistance and updates as needed for all users.