Software Requirements Specification for Internship Platform System

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Introduction

In recent years, internships have become a vital component of higher education, providing students with practical, real-world experience in their chosen field of study. As such, many universities and colleges have established internship programs to help students find suitable internship positions.

However, managing an internship program can be a daunting task, particularly when dealing with a large number of students and internship positions. The traditional approach of manually matching students with internships and tracking their progress can be time-consuming, error-prone, and inefficient.

To address these challenges, many educational institutions are turning to technology-based solutions that can automate and streamline the process of managing internship programs. These solutions offer a centralized platform that allows students to search for internship positions, apply for them, and track their progress. At the same time, the platform enables employers to post internship positions, review applications, and manage the internship program.

Despite the benefits of technology-based solutions for managing internship programs, many educational institutions still rely on outdated, manual approaches. This can lead to inefficiencies, missed opportunities, and a lack of transparency for both students and employers.

To address this problem, there is a need for an internship platform that leverages the latest technology to automate and streamline the process of managing internships. This platform should be easy to use for both students and employers, providing a centralized location for posting and searching for internship positions, submitting and reviewing applications, and tracking the progress of internships.

In addition, the platform should provide a range of features that enable educational institutions to manage and oversee the internship program effectively. These features may include automated matching of students with internship positions based on their skills and interests, tracking of student progress and feedback, and integration with other systems such as billing and course registration.

Overall, the development of an effective and user-friendly internship platform can help educational institutions better manage their internship programs, improving outcomes for both students and employers.

Glossary of Terms

Introduction

The Glossary is an essential part of any project documentation that defines the specific terminology used in the problem domain. It aims to explain and define terms that may be unfamiliar to readers of use-case descriptions or other project documents. In this way, it serves as an informal data dictionary that captures data definitions, enabling use-case descriptions and other project documents to focus on the system's essential functions without getting bogged down by unfamiliar terminology.

Definitions

The glossary will be used to define and explain terms. By providing clear and concise definitions for these terms, the glossary will help ensure that everyone involved in the project is speaking the same language, leading to more effective communication and better outcomes.

Student

A user of the platform who is currently enrolled in an educational program and is seeking an internship opportunity.

Enterprise Representative

A user of the platform who represents a company and is responsible for managing the company's internships and interacting with student applicants.

Registrar

A user of the platform who is responsible for managing student academic records and verifying their eligibility for internships.

Advertiser

A user of the platform who is looking to advertise their products, services or job opportunities to students.

Credential

A document or certificate that proves a student's qualifications and achievements in a particular field or discipline.

Internship

A temporary job or work experience that is designed to provide students with practical skills and industry knowledge in their chosen field.

Internship Directory

A database of available internships, including job descriptions, requirements, and application deadlines.

Feedback

Comments or ratings provided by an enterprise representative or student on their internship experience.

Iteration

A process of revising or updating a feature or function of the platform to improve its usability or performance.

Resume

A document that summarizes a student's education, work experience, skills, and achievements, used to apply for internships and other job opportunities.

Application

A document or online form submitted by a student to apply for an internship.

Dispute

A disagreement or conflict between a student and an enterprise representative regarding the terms or conditions of an internship.

Evaluation

An assessment of a student's performance during an internship, conducted by the enterprise representative or supervisor.

Supplementary Specification

Objectives

The objective of this document is to define the requirements of the Internship Platform. This Supplementary Specification lists the requirements that are not readily captured in the use cases of the use-case model. The Supplementary Specification and the use-case model together capture a complete set of requirements on the system.

Scope

This Supplementary Specification applies to the Internship Platform, which will be developed by the project team. The system will allow students to find and apply for internships, allow enterprise representatives to advertise and manage internships, allow registrars to manage student internship records, and allow advertisers to manage their advertisements.

This specification defines the non-functional requirements of the system, such as reliability, usability, performance, and supportability, as well as functional requirements that are common across multiple use cases. (The functional requirements are defined in the Use Case Specifications.)

References

None.

Functionality

The system must allow multiple users to perform their work concurrently. The system must be able to handle large amounts of data and traffic during peak hours.

Usability

The user interface must be intuitive and easy to use for both students and enterprise representatives. The system must provide clear and concise instructions on how to use its features. The user interface must be compatible with all major web browsers.

Reliability

The system shall be available 24 hours a day, 7 days a week, with no more than 10% downtime. The system must have a backup system in place to prevent data loss in the event of system failure.

Performance

The system shall support up to 5000 simultaneous users against the central database at any given time. The system shall provide access to the internship directory with no more than a 5-second latency. The system must be able to complete 90

Supportability

The system must provide a user manual and help desk support to assist users with any issues they may encounter while using the system.

Security

The system must ensure the privacy and security of student and enterprise representative data. Students must not be able to view internship applications of other students. Enterprise representatives must not be able to view student data that is not relevant to their internship advertisement.

Design Constraints

The system shall integrate with an existing legacy system, the University Registration System, which is an RDBMS database. The system shall provide a web-based interface that is compatible with all major web browsers. The system must comply with all relevant security and privacy regulations.

Use Case Model

Internship Platform Use-Case Model Main Diagram

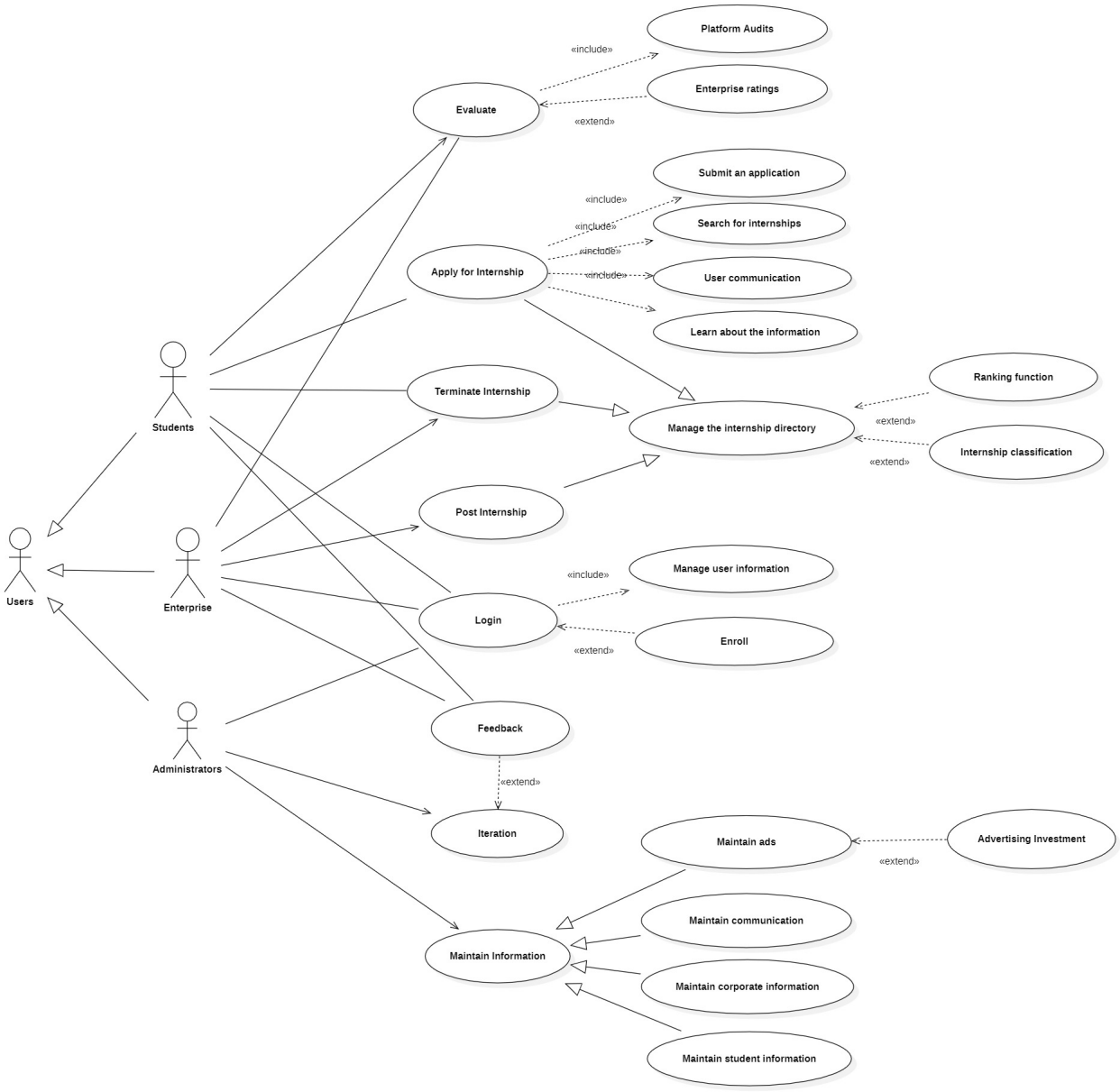

Figure 1: Use Case Diagram

Internship Platform Activity Diagram

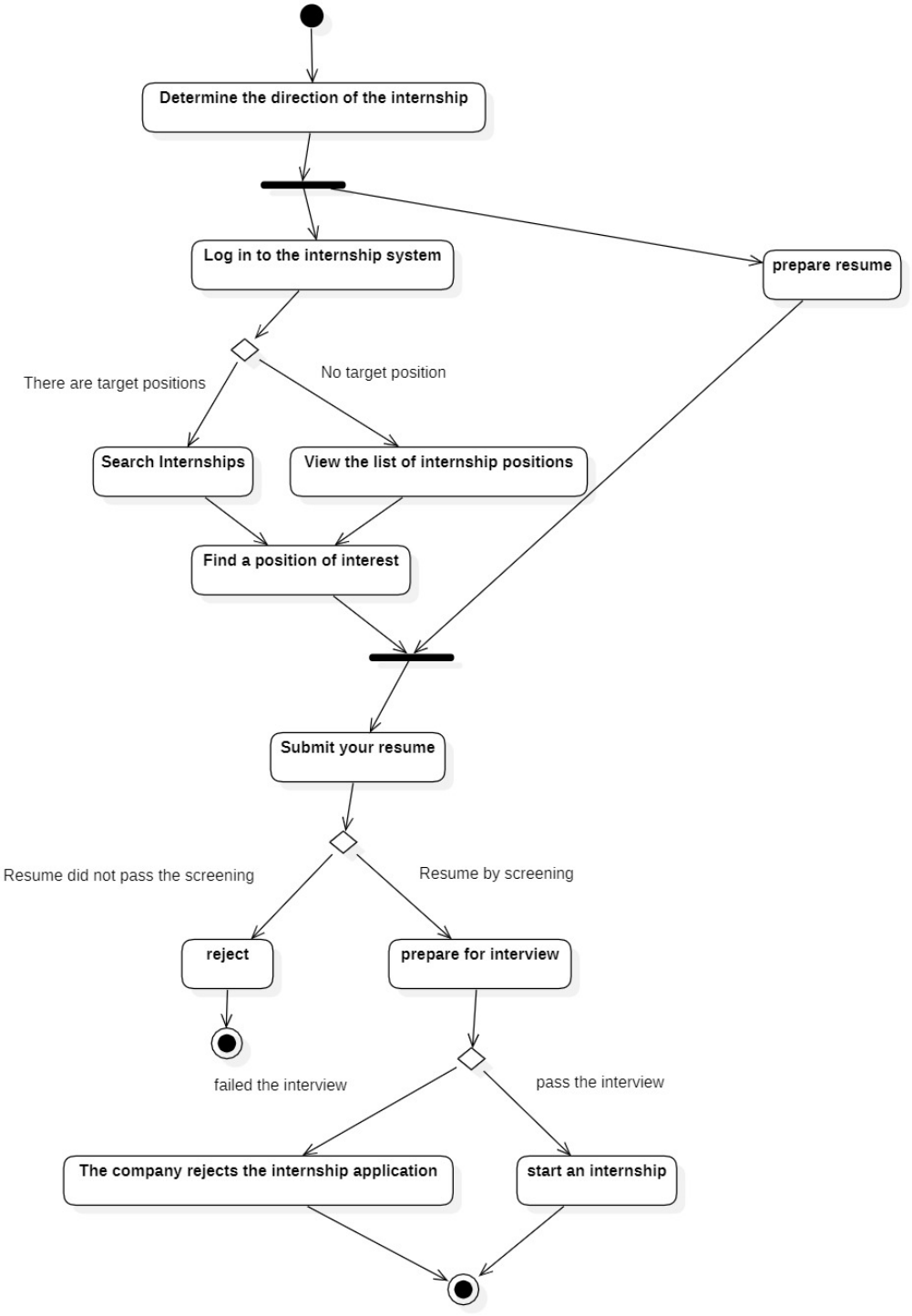

Figure 2: Activity Diagram

Login

Brief Description

This use case allows registered users, including students, company representatives, and registrars, to log in to the internship platform. The system will manage the information of all registered users, and for security reasons, multiple login failures will cause the system to temporarily close the user's login permissions.

Flow of Events

Basic Flow

1. The user accesses the login page and enters their email address and password.
2. The system validates the user's credentials and logs them into the system.
3. The user is redirected to their respective dashboard based on their user type (Student, Company Representative, or Registrar).

Alternative Flows

1. Invalid Credentials

   If the email address or password entered by the user is incorrect, the system displays an error message. The user is prompted to enter their credentials again. If the user fails to enter the correct credentials after a certain number of attempts, the system temporarily closes their login permissions for security reasons. The user can reset their password or contact the registrar for assistance.

2. System Unavailable

   If the system is unavailable, the user is notified with an error message. The user is prompted to try again later.

Special Requirements

The system should have a mechanism to prevent brute-force attacks and limit login attempts.

The user's login session should expire after a certain period of inactivity to ensure security.

Pre-conditions

The user must be registered on the internship platform.

The user must have a valid email address and password.

Post-conditions

The user is logged into the system and redirected to their respective dashboard.

The user's login session is active until they log out or their session expires due to inactivity.

Extension Points

The system can be extended to support multi-factor authentication for added security.

Maintain Information

Brief Description

The Maintain Information use case allows administrators to maintain student user information, enterprise representative information, and advertising information for advertisers. Administrators can add, delete, and modify user information and manage advertising information for the platform.

Flow of Events

Basic Flow

1. The administrator selects the option to maintain user information or advertising information.
2. If the administrator selects the option to maintain user information, they can choose to add, modify, or delete user information.

   If the administrator chooses to add user information, they will enter the relevant user details and save the information.

   If the administrator chooses to modify user information, they will select the user to be modified and update the relevant information.

   If the administrator chooses to delete user information, they will select the user to be deleted and confirm the deletion.
3. If the administrator selects the option to maintain advertising information, they can choose to add, modify, or delete advertising information.

   If the administrator chooses to add advertising information, they will enter the relevant details and save the information.

   If the administrator chooses to modify advertising information, they will select the advertisement to be modified and update the relevant information.

   If the administrator chooses to delete advertising information, they will select the advertisement to be deleted and confirm the deletion.
4. The system saves the changes made by the administrator.

Alternative Flows

1. If the administrator selects an invalid option, the system will prompt the administrator to choose a valid option.

Special Requirements

The administrator must have the necessary permissions to access and maintain user and advertising information.

User information must be kept confidential and secure.

Advertising information must be reviewed and approved by the platform before being published.

Pre-conditions

The administrator must be logged in to the system with valid credentials.

Post-conditions

The user or advertising information has been added, modified, or deleted according to the administrator's actions.

Extension Points

If additional user or advertising information is needed, the system can be extended to include additional fields for the relevant information.

Post Internship

Brief Description

This use case allows enterprise representatives to post new internship positions for students to apply. The platform will review the posted internship positions and once they pass the review, they will be added to the internship directory for unified management.

Flow of Events

Basic Flow

1. The Enterprise Representative logs into the platform and selects the option to post a new internship position.
2. The platform presents a form for the Enterprise Representative to fill out with the details of the internship position, such as title, job description, location, duration, and required skills and qualifications.
3. The Enterprise Representative submits the form and the platform saves the internship position as pending review.
4. The Platform Administrator receives a notification of the new internship position and reviews it according to the platform's standards and guidelines.
5. If the internship position meets the platform's standards and guidelines, the Platform Administrator approves it and adds it to the internship directory.
6. If the internship position does not meet the platform's standards and guidelines, the Platform Administrator rejects it and sends feedback to the Enterprise Representative on what needs to be improved.
7. The Enterprise Representative receives the feedback and makes the necessary changes to the internship position.
8. The Enterprise Representative resubmits the internship position for review.
9. Steps 4-8 are repeated until the internship position is approved and added to the internship directory.

Alternative Flows

1. Invalid Information

   If the Enterprise Representative submits an incomplete or invalid form, the platform will prompt the Enterprise Representative to correct the errors before submitting.

2. Review Feedback

   If the Platform Administrator rejects an internship position, the Enterprise Representative can choose to make the necessary changes or withdraw the internship position.

3. System Error

   If there is a system error during the review process, the platform will notify the Platform Administrator, who will investigate and resolve the issue.

Special Requirements

The platform must have clear standards and guidelines for approving internship positions.

The Enterprise Representative must have a valid account with appropriate permissions to post internship positions.

The Platform Administrator must have a valid account with appropriate permissions to review and approve internship positions.

Pre-conditions

The Enterprise Representative must be logged into the platform.

The Platform Administrator must be logged into the platform.

Post-conditions

If the internship position is approved, it will be added to the internship directory for students to apply.

If the internship position is rejected, the Enterprise Representative will receive feedback on what needs to be improved.

Extension Points

None.

Apply for Internship

Brief Description

This use case allows students to search for internships, view the details of the internship, and apply for the internships by submitting their applications and resumes. They can then communicate further with the company representatives.

Flow of Events

Basic Flow

1. The student logs in to the platform.
2. The student searches for available internships based on their interests, location, and other relevant criteria.
3. The system displays a list of available internships, along with their details, such as the job description, requirements, duration, and compensation.
4. The student selects an internship they are interested in and clicks on the apply button.
5. The system prompts the student to upload their resume and a cover letter or additional documents, such as a transcript or work samples.
6. The student submits their application, and the system sends a notification to the company representative.
7. The company representative reviews the application and decides whether to contact the student for further communication or reject the application.
8. If the application is accepted, the company representative contacts the student through the platform to arrange for an interview or discuss further details.

Alternative Flows

1. No available internships

   If there are no available internships that match the student's criteria, the system will display a message to inform the student and suggest alternative options.

2. Application rejected

   If the company representative rejects the student's application, the system will notify the student and suggest alternative internships or encourage them to improve their application for future opportunities.

3. Technical issues

   If there are any technical issues, such as the system being down or the application form not working, the system will display a message and prompt the student to try again later or contact the technical support team.

Special Requirements

The platform should have a feature that allows companies to post their available internships.

The platform should provide tools to filter, sort, and search for available internships based on relevant criteria, such as location, industry, and skills.

The platform should have a secure system for students to upload and submit their resumes and other documents.

The platform should provide a messaging system for students and company representatives to communicate and arrange for further details.

Pre-conditions

The student must be registered and logged into the platform.

The company must have posted their available internships on the platform.

Post-conditions

If the application is accepted, the student and the company representative can further communicate through the platform.

If the application is rejected, the student can look for alternative internships or improve their application for future opportunities.

The platform records the application and the communication between the student and the company representative for future reference.

Extension Points

The platform could provide a feature for students to rate and review the internship program and the company, which could inform future students' decisions and improve the quality of the internships.

The platform could provide a feature for companies to provide feedback on the student's performance during the internship, which could inform the student's professional development and future opportunities.

Terminate Internship

Brief Description

This use case allows either the student or the company to terminate the internship contract with a valid reason. The termination request needs to be approved by both parties, i.e., the student and the company.

Flow of Events

Basic Flow

1. The student or company representative initiates the termination request by filling out a termination form that includes the reason for the termination.
2. The system sends the termination request to the other party for approval.
3. The other party receives the termination request and approves or rejects it.
4. If both parties approve the termination request, the system terminates the internship contract and updates the status of the internship to "terminated".
5. The system sends a notification to both parties informing them of the termination.

Alternative Flows

1. Invalid Reason

   If the reason for the termination is not valid, the system will reject the request and notify the initiating party.

2. Termination Approval

   If the other party does not approve the termination request, the system will notify the initiating party that the request has been rejected.

3. Dispute Resolution

   If there is a dispute regarding the termination, the system will notify both parties and prompt them to resolve the issue through a dispute resolution process.

Special Requirements

The termination request should include a valid reason for termination.

The termination request needs to be approved by both the student and the company representative.

Pre-conditions

The internship contract should be active.

Post-conditions

The internship contract is terminated and the status is updated to "terminated".

Extension Points

If there is a dispute regarding the termination, the system will prompt both parties to resolve the issue through a dispute resolution process.

Evaluate

Brief Description

This use case allows internship participants to evaluate the relevant content of the internship and submit it for review. The platform will then review the content and publish it for viewing by logged in users if it passes the review.

Flow of Events

Basic Flow

1. The internship participant logs in to the platform.
2. The participant navigates to the evaluation section of the platform.
3. The participant selects the content they wish to evaluate.
4. The participant provides a rating and a written review of the content.
5. The participant submits the evaluation to the platform.
6. The platform reviews the evaluation to ensure it meets the guidelines and criteria for publication.
7. If the evaluation passes the review, it is published for viewing by logged in users.
8. If the evaluation does not meet the guidelines or criteria, it is rejected and the participant is notified.

Alternative Flows

1. If the participant is not logged in, they are prompted to log in before accessing the evaluation section.
2. If the evaluation does not pass the review, the participant is notified of the reasons for rejection and given the opportunity to resubmit.

Special Requirements

Evaluations must adhere to the platform's guidelines and criteria for publication.

Evaluations must be submitted by internship participants only.

Pre-conditions

Internship participant must be logged into the platform to access the evaluation section.

Post-conditions

If the evaluation passes the review, it is published for viewing by logged in users.

If the evaluation does not meet the guidelines or criteria, it is rejected and the participant is notified.

Extension Points

None.

Feedback

Brief Description

This use case allows Student and Company Representative users to provide feedback and suggestions for improvement on the internship platform. The system will collect the feedback and use it to inform future updates and improvements to the platform.

Flow of Events

Basic Flow

1. The Student or Company Representative accesses the feedback page on the platform.
2. The system displays a form for the user to provide feedback.
3. The user provides feedback and suggestions in the form.
4. The user submits the form.
5. The system stores the feedback and suggestions in the database.

Alternative Flows

1. Invalid Feedback

   If the feedback provided by the user is invalid, the system displays an error message.

   The user corrects the feedback and resubmits the form.

2. Technical Requirements

   The feedback page must be accessible from the platform's navigation menu.

   The feedback form must include fields for the user's name, email, and feedback/suggestions.

   The system must validate the input and display appropriate error messages if the input is invalid.

   The system must store the feedback and suggestions in the database.

   The system must allow administrators to view and analyze the feedback and suggestions to inform future updates and improvements to the platform.

Special Requirements

None.

Pre-conditions

The Student or Company Representative user must be logged into the platform.

The feedback page must be accessible from the platform's navigation menu.

Post-conditions

The feedback and suggestions provided by the user are stored in the database.

The system may use the feedback and suggestions to inform future updates and improvements to the platform.

Extension Points

None.

Iteration

Brief Description

This use case represents the iterative development process of the internship platform. The system administrators collect user feedback and suggestions for improvement, and the technical team uses this feedback to plan and execute product iterations.

Flow of Events

Basic Flow

1. The system administrators gather feedback and suggestions from Student and Company Representative users via the Feedback use case.
2. The administrators organize and categorize the feedback based on its content and severity.
3. The technical team reviews the feedback and identifies areas for improvement.
4. The team creates a plan for the next iteration, which includes specific tasks and goals to address the feedback received.
5. The team develops and tests the new features or changes.
6. The new iteration is deployed to a test environment for further testing and user feedback.
7. The team reviews the test results and feedback and makes any necessary adjustments.
8. The new iteration is deployed to the production environment for all users to access.

Alternative Flows

1. No feedback is received

   If no feedback is received, the technical team will still perform regular iterations based on their own analysis and market trends.

2. Technical limitations

   If the feedback suggests a change that is technically unfeasible or impossible, the team will communicate this to the administrators and suggest alternative solutions.

3. High severity issues

   If the feedback reveals a high-severity issue that affects many users, the team will prioritize this in the iteration plan and deploy a fix as soon as possible.

Special Requirements

The technical team must be proficient in agile development methodologies and have the necessary resources to carry out the iteration process.

Pre-conditions

The system must be in a stable state with no ongoing technical issues.

Post-conditions

The system will have new features or changes implemented based on user feedback, and the technical team will have a plan for the next iteration.

Extension Points

None.

Others

Platform Audits

This use case is a crucial part of the evaluation process for the internship management system. These audits are conducted periodically by designated individuals within the system to review user evaluations for compliance with the platform's guidelines and policies. The purpose of platform audits is to ensure the accuracy and validity of the evaluations provided by users, and to maintain the overall quality of the internship program.

Enterprise Ratings

This use case involves allowing employers to rate the performance of the interns who have worked for them through the platform. The ratings may be based on various factors such as the intern's punctuality, quality of work, and overall professionalism. The ratings can provide valuable feedback to the interns and help them improve their skills and job prospects.

Submit an application

This use case allows users to submit their internship applications to the platform. Users can enter their personal information, upload their resumes, and provide additional details about their qualifications and preferences for the internship.

Search for internship

This use case allows users to search for internships that match their interests and qualifications. Users can filter search results based on various criteria, such as location, industry, and duration of the internship.

User communication

This use case allows students and business representatives to communicate with each other. Students can ask questions about the internship opportunity and clarify their doubts. Business representatives can provide additional information and answer the queries of students.

Learn about the information

This use case provides users with access to information and resources related to internships. Users can access articles, videos, and other educational materials to help them prepare for their internships and improve their skills.

Manage the internship directory

This is a high-level use case that encompasses the functionality of "Apply for internship", "Terminate internship", and "Post for internship". This use case involves managing the overall directory of internships available on the platform, including adding new internships, removing expired or filled internships, and updating internship information. The use case also involves managing the application process for students, termination process for employers and students, and posting process for employers. Overall, this use case ensures the effective management of the entire internship directory on the platform.

Ranking function

This use case is responsible for ranking internships based on various criteria such as relevance, location, compensation, and company reputation. This will help students find the most suitable internships and aid employers in attracting the best candidates.

Internship classification

This use case is responsible for classifying internships based on various categories such as industry, job function, and duration. This will help students and employers to easily navigate through the directory and find internships that meet their specific needs.

Manage user information

This use case allows users to manage their personal information such as name, contact details, and other relevant information. Users can update their information, delete it, or view it as needed.

Enroll

This use case allows users to enroll in the system by creating an account. Users can provide their personal information such as name, email, and password, and create an account to access the system. Once enrolled, users can login to the system and access its features.

Maintain ads

This use case is responsible for managing and updating the advertisements for internship opportunities posted on the platform by employers. This includes creating, editing, and deleting ads.

Advertising investment

This use case is responsible for managing the budget and investment allocation for advertising on the internship platform. This use case includes activities such as budget planning, investment analysis, and performance tracking to ensure effective use of advertising resources."

Maintain communication

This use case is responsible for managing communication between the platform and its users, including sending and receiving messages, notifications, and updates.

Maintain corporate information

This use case is responsible for managing the information of the companies that post internship opportunities on the platform. This includes creating, editing, and deleting company profiles, as well as updating their contact information.

Maintain student information

This use case is responsible for managing the information of the students who use the platform to search for internships. This includes creating, editing, and deleting student profiles, as well as updating their contact information and academic details.

Contributions of Team Members

2051475 Wang Hao

I was responsible for the design, documentation, and drawing of the Use Case Diagram for the **Evaluate**, **Feedback**, and **Iteration** use cases. These use cases are related to the evaluation and feedback process for the internship program. They involve the evaluation of the intern's performance, feedback from the employer, and the possibility of iterating the internship for further improvement. I ensured that the use cases were clearly defined, documented, and visually represented through the Use Case Diagram.

2152814 Zhou Chengjie

I am responsible for **Login**, **Maintain Information**, and **Post Internship** in these use cases. I refined the details of these use cases, designed the corresponding use case diagrams, and completed the corresponding documentation. These use cases are mainly aimed at the background of the system, which is the basis of the normal operation of the system.Although the Publishing Internships is directly related to the participant enterprise, the release practice also needs the system background management and screening.

2053932 Lei Xiang

I primarily work on the **Apply for Internship** and **Terminate Internship** use cases, which are closely related to students looking for internships. Among them, The "Apply for Internship" use case has special requirements, pre-conditions and post-conditions, and also includes some extensible points. I followed the design requirements of the use case, carefully and meticulously completed the description of the internal details of the use case, and ensured that the use case can be well embedded in the use case diagram.

List of References

Domain-Related Books

1. Booch, G., Maksimchuk, R. A., Engle, M. W., Young, B. J., & Conallen, J. (2007). Object-oriented analysis and design with applications (3rd ed.). Addison-Wesley Professional.

   The book provides a comprehensive guide to object-oriented analysis and design using the Unified Modeling Language (UML). It covers topics such as object-oriented concepts, use cases, class diagrams, sequence diagrams, state diagrams, and design patterns. The authors also provide practical examples and case studies throughout the book, which help readers to apply the concepts to real-world scenarios.

   The book is widely used as a textbook for software engineering courses at universities and colleges, and is also used by software developers and designers as a reference guide. It is considered a classic in the field of software engineering and is highly recommended for anyone interested in learning about object-oriented analysis and design.

Reference Articles

1. Islam, S. M. Monzurul, Alam, Mohammad S., and Hasan, Tareq M. "Design and Implementation of a Web-Based Internship Management System." IEEE Xplore, 2016

   The paper presents the design and implementation of a web-based internship management system, which provides a platform for managing internship activities such as student and employer registration, internship posting and application, and evaluation and feedback. The authors discuss the features and functionality of the system, as well as the technologies and methodologies used in the design and development process.

2. Mbugua, J. N., Ngugi, J. W., & Ondieki, F. Y. (2019). Design and Development of an Online Internship Management System for Higher Education Institutions. International Journal of Computer Applications, 181(32), 33-40.

   The article details the features of the system, which include student and employer registration, internship posting and application, and evaluation and feedback. The article provides insights into the design process and implementation of the system, making it a valuable resource for those interested in developing similar systems.