Cover page

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# Student list

|  |  |  |  |
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Because we have not implemented the design yet so that the project might have some conflicts, which is inevitable. We are looking forward to receiving all the comments of the teachers to help our limited knowledge better.

Sincerely thanks.

# Preface

The present report is the outcome of the course Object-Oriented Software Design. It is our pleasure to share knowledge and experience with everyone. The objectives of this project are to design a system applying the waterfall methodology. We covered every functional requirement with UML diagrams.

We would like to implement what we learned to a project called “Simple Android Project Application (SAP)”.

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# Introduction

## Purpose

We are inspired by Jira – a software that provides an environment that enterprises need to manage the workflow of the teams, members, and other objects inside the projects. But by the current time, we pretend to make a simple app that has some basic features but meet the command of the users like being able to observe the working board, manage the member of the project, manage the active tasks in the system.

## Scope

* Suitable for small scale projects. We recommend there should be less than 10 teams and less than 10 members each. The developing period should not be more than 6 months.
* Create different users with varied roles and scopes.
* A team member can be invited into a project.
* A project leader can manage all project tasks.
* Assign different tasks to different members.
* Provide backlog and sprint to prioritize tasks.
* Provide the board to keep track of the current sprint.
* Maintain the start date and end date of each sprint.
* Increase member's interaction by allowing comments on each task.

## Definitions, Acronyms, and Abbreviation

A **task** is typically used by any team member to describe planned work.

A **sprint** is the actual period when the team works together to finish an increment.

A **backlog** is a prioritized list of work for the development team. The most important items are shown at the top of the product backlog, so the team knows what to deliver first.

## References

* Jira Software
* IEEE SRS Format
* Atlassian Community (<https://community.atlassian.com/t5/Jira-Core-questions/epic-vs-story-vs-task/qaq-p/204224>)

## Technologies to be used

* OS: Android R
* DBMS: DynamoDB
* IDE: Android Studio

## Overview

Our project is to create an application that can run on the Android platform, this application is the solution for those who find a tool for keeping tracking the work of the entire system.

However, this is might be fit with small scale projects, such as several teams with tens of people. It is required to make sure that all members of the teams must understand the standard conventions like naming, tagging, etc.

# System Design

## Usecase diagram



Figure Usecase diagram

## Scenarios

|  |  |
| --- | --- |
| Name | Log In |
| Brief Description | A guest of the System logs in to the System. |
| Actor(s) | Guest |
| Flow of Events | |
| Basic Flow | |
| 1. System displays the login form to the user. 2. User enters username and password and presses log in button. 3. System checks whether the username and password are correct. 4. User is authenticated and navigated to the project dashboard form. | |
| Alternate Flows | |
| Title | Description |
| User Fails Authentication | If step 2 of the basic flow fails:   1. System informs the authentication failure message to the user. 2. System recommends some method to the user to pass authentication. 3. Continue step 2 of the basic flow. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success | The User is authenticated and the system displays a board form based on the user type. |
| Failure | The user is unable to log in for one or more reasons. |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Sign up |
| Brief Description | A guest of the System signs up to the System. |
| Actor(s) | Guest |
| Flow of Events | |
| Basic Flow | |
| 1. The system displays the signup form to the user. 2. Users can either enter username and password or Sign up with Google/Facebook. 3. User press sign up button. 4. The user is authenticated and navigated to the project dashboard form. | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | If step 3 of the basic flow fails:   1. System informs failed message. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success | The User is authenticated and the system displays a board form based on the user type. |
| Failure | The user is unable to log in for one or more reasons. |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Change task status |
| Brief Description | User can change status of a task that are assigned to he/she |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. User select the task 2. The system displays an Edit Task form 3. User select new status for the task 4. System save that changed information to the database | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | 1. The user touches the task 2. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | Changed data is saved |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Add comment |
| Brief Description | User can add comment to a task |
| Actor(s) | Team member, project member |
| Flow of Events | |
| Basic Flow | |
| 1. The user touches comment field 2. User type in content 3. User press post button 4. System add that comment to the task | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | If step 3 fails:   1. The system display error message |
| Pre-Conditions | |
| Title | Description |
| Task selection required | User must select a specific task |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | The comment is added successfully |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Edit comment |
| Brief Description | User can edit their comment |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The user touches their comment 2. The system displays a form to edit the comment 3. The user types in new content and presses Save button 4. System save changed comment | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | If step 3 fails:   1. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Task selection required | User must select a specific task |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | The comment is changed successfully |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Delete comment |
| Brief Description | User can delete their comment |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The user touches and holds their comment 2. The system displays delete button 3. The user presses the delete button 4. System delete comment | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | If step 3 fails:   1. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Task selection required | User must select a specific task |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | The comment is deleted successfully |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | View board |
| Brief Description | User can see the workflow of the project |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The user touches the board button 2. The system displays board form | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | The system announces to the user that the connection is lost |
| Pre-Conditions | |
| Title | Description |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | Navigate user to board form |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Edit sprint |
| Brief Description | User can change information of sprint |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. User press Edit sprint button 2. The system displays a form for the user to edit sprint 3. User presses Save button 4. The system saves changed information | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | If step 4 failed:   1. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | Changed data is saved |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Edit task |
| Brief Description | User can change information of a task |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. User selects the task 2. The system displays an Edit Task form 3. User change information and hit the Save button 4. System save that changed information | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | 1. User selects the task 2. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | Changed data is saved |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Create task |
| Brief Description | User can create a task |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. User press add task button 2. The system displays an add task form 3. User types in the information of the task and hit Create button | |
| Alternate Flows | |
| Title | Description |
| Connection Lost | 1. The system displays an error message |
| Pre-Conditions | |
| Title | Description |
| Login Required | User must log in to the system to perform the use-case |
| Post-Conditions | |
| Title | Description |
| Success | The task is created successfully |
| Failure | The system displays the error message |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Log out |
| Brief Description | A user of the System logs out of the System. |
| Actor(s) | General User |
| Flow of Events | |
| Basic Flow | |
| 1. User press Account button.  2. User choose the option Logout.  3. System sends a notification to confirm.  4. Users choose Yes, the systems log the user out.  5. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| User chooses other option | If step 2 of the basic flow fails:  1. User is navigated to the page respecting the selected option.  User is still in the system. |
| User does not confirm logging out | If step 3 of the basic flow fails:  User is still in the system. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Create new project |
| Brief Description | A user creates a new project |
| Actor(s) | General User |
| Flow of Events | |
| Basic Flow | |
| 1. User logs in the system and chooses New Project.  2. User fills in project name and project key.  3. User presses Create button.  3. System sends a notification to confirm, user agrees.  4. A new project is created. The user is the Project manager of that project.  5. User is navigated to project dashboard form.  6. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| User does not fill all required fields. | If step 2 of the basic flow fails:  1. System sends a notification to announce that user must fill all required fields.  Continue step 2. |
| User does not confirm. | If step 3 of the basic flow fails:  1. User is navigated back to the user page.  Project is not created. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Edit project information |
| Brief Description | The project manager edits the information of the project |
| Actor(s) | Project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager opens “Edit Project” form.  2. The project manager changes necessary information.  3. The project manager saves changes.  4. New information is updated.  5. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not save. | If step 3 of the basic flow fails:  1.Project manager is navigated to the dashboard page.  2. Old information is not changed. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Delete project |
| Brief Description | The project manager deletes an existing project |
| Actor(s) | Project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager chooses delete project and confirms.  2. The selected project is deleted  3. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not delete the project. | If step 3 of the basic flow fails:  1.Optional menu disappears. The project manager is navigated to the dashboard page.  The project is not deleted. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Invite member |
| Brief Description | The project manager invites people to join the project. |
| Actor(s) | Project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager touches Account icon.  2. A menu appears with some options.  3. The project manager chooses the option Invite people by entering their email. The project manager confirms the invitation.  4. The system sends the invitation letter to the receiver.  5. The system displays an invite successfully message.  6. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not confirm. | If step 3 of the basic flow fails:  1.Return to the Invite people page.  Continue step 3. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Remove member |
| Brief Description | The project manager deletes members of the project. |
| Actor(s) | Project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager touches and holds the name of the member.  2. A menu appears with some options.  3. The project manager chooses the option Remove this member and confirms.  4. The system removes the selected person.  5. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not eliminate member. | If step 3 of the basic flow fails:  1.Return to the previous page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Delete future sprint |
| Brief Description | The project manager deletes the sprint that is not happening. |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager touches and holds the name of the sprint.  2. A menu appears with some options.  3. The project manager chooses the option Delete and confirms.  4. The system removes the selected sprint.  5. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not delete the sprint. | If step 3 of the basic flow fails:  1.Return to the previous page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Create sprint |
| Brief Description | The project manager creates new sprint. |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager chooses the option Create new sprint.  2.The project manager is navigated to the Create new sprint page.  3. The project manager fills all required fields and confirms.  4. The system creates new sprint.  5. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not confirm creating new sprint. | If step 3 of the basic flow fails:  1. Return to the previous page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Start sprint |
| Brief Description | The project manager start sprint. |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager choose a sprint.  2.The project manager chooses the option Start sprint and confirm due time.  3. The system start the sprint.  4. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not confirm starting sprint. | If step 3 of the basic flow fails:  1. Return to the Edit sprint page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Complete sprint |
| Brief Description | The project manager marks a sprint as finished. |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager chooses the page Active sprints.  2.The project manager choose the option Complete sprint and confirms.  3. The system updates the Sprint report and empties the Active sprint.  4. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not confirm complete sprint. | If step 3 of the basic flow fails:  1. Return to the Active sprints page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

|  |  |
| --- | --- |
| Name | Delete task |
| Brief Description | The project manager deletes a task. |
| Actor(s) | Team member, project leader |
| Flow of Events | |
| Basic Flow | |
| 1. The project manager chooses a task.  2.The project manager touches and holds to select the option Delete, and then confirms.  3. The system deletes the task.  4. The use case ends. | |
| Alternate Flows | |
| Title | Description |
| Project manager does not confirm deleting task. | If step 3 of the basic flow fails:  1. Return to the Active sprints page. |
| Pre-Conditions | |
| Title | Description |
| (none) |  |
| Post-Conditions | |
| Title | Description |
| Success |  |
| Failure |  |
| Extension Points | |
| None | |

## Sequence diagrams



Figure . Login sequence diagram



Figure . Sign up sequence diagram.



Figure . Add comment sequence diagram



Figure . Change task status sequence diagram



Figure . Complete sprint sequence diagram



Figure . Create task sequence diagram



Figure . Create new project sequence diagram



Figure . Create sprint sequence diagram



Figure . Delete comment sequence diagram



Figure . Delete future sprint sequence diagram



Figure . Delete task sequence diagram



Figure . Delete project sequence diagram



Figure . Edit comment sequence diagram



Figure . Edit task sequence diagram



Figure . Edit project information sequence diagram



Figure . Edit sprint sequence diagram



Figure . Invite member sequence diagram



Figure . Log out sequence diagram



Figure . Remove member sequence diagram



Figure . Start sprint sequence diagram



Figure . View board sequence diagram

## Class diagram



Figure . Class diagram

## Communication diagrams



Figure . Login communication diagram



Figure . Signup communication diagram



Figure . Complete sprint communication diagram



Figure . Invite member communication diagram



Figure . View board communication diagram

## State diagrams



Figure . Login state diagram



Figure . Change task status state diagram

## Component diagram



Figure . Component diagram