SRS Document

CollApp

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Preface

The purpose of this software requirements specification (SRS) document is to prioritize and list out all the requirements set for the CollApp project. Further, this document will provide a basis for future enhancements and works as an agreement between the project personnel and the customer. It is intended for both users of CollApp and administrators evaluating its potential uses. It is also useful to any maintainers of the application's codebase. The description about the projects is mentioned in this document along with the UML diagrams required to understand the gist of the application. The SRS also consist of the system architecture, along with functional and non functional requirements of the application.

Introduction

Often, during completing a developmental project, be it as students for an assignment, or a big corporation for a business opportunity with a vast scope, we come across disruptions and delays. These are primarily caused by poor inter and intra organizational communications and lack of information regarding the progress of the project and any unexpected interruptions. In order to overcome such disruptions and streamline the processes involved in the developmental stages of such projects, we must simplify this communication interface. Essentially, we must mold what is primarily a complex process in the physical realm into a simple digital interface. With CollApp, this is exactly what we attempt to achieve.

With the various features listed in this document, CollApp will streamline project development and will provide a flexible platform for intra-organizational communications to improve teamwork and eliminate inefficiencies in project management. This will revolutionize the workflow involved in such tasks regardless of scale, be it a small private project or a large undertaking by a public company.

This is an application created to serve the purpose of having a software tracking system for a work/project. It is a software tracking application created where a group of people working on the project can share their progress, are assigned task along with a specific deadline for the task. The information about the assigned task are in activity form, calendar form as well as ticket/card form. It is also be easy for the clients for whom the project is being prepared. The client could be someone from different city/state/country which will make it easier for them to keep a check on the progress and their requirement and if they want to give their feedback or suggest some changes in the design or anything related to that project then CollApp will be the medium where he can suggest or give his feedback directly to the project head. The power search and filter are two features which may look basic but are very important when there are a lot of projects going on in the organisation and someone needs to find a specific project or task to perform an operation then without search and filter it will be difficult and exhausting. It gives fine grain access control where you can create and assign different roles and create different projects. This application also allows you to migrate data from email, along with multiple login providers to connect to this application. It also has a feature of statistical analysis of the project along the statistical analysis of the user about his project and assigned work along with checking on their ongoing and accomplished tasks.

Glossary

Admin	The administration of a business, organization, etc.
Archive	An archive is an accumulation of historical records or the physical place they are located. Archives contain primary source documents that have accumulated over the course of an individual or organization's lifetime and are kept to show the function of that person or organization.
Authentication	The process or action of verifying the identity of a user or process.
Backlog	An accumulation of something, especially uncompleted work or matters that need to be dealt with.
Client	A desktop computer or workstation that can obtain information and applications from a server.
Clone	Copy of something
Dashboard	A dashboard is a type of graphical user interface which often provides at-a-glance views of key performance indicators relevant to an objective or business process.
Deferred	Put off (an action or event) to a later time; postpone.
Feedback	Information about reactions to a product, a person's performance of a task, etc. which is used as a basis for improvement.
Label	Describing someone or something in a word or short phrase
Milestone	An action or event marking a significant change or stage in development

Project Head	Project managers have the responsibility of the planning, procurement and execution of a project, in any undertaking that has a defined scope, defined start and a defined finish; regardless of industry.
Scrum	Scrum is a framework for project management that emphasizes teamwork, accountability and iterative progress toward a well-defined goal.
Server	A computer or computer program which manages access to a centralized resource or service in a network.
Task	A piece of work to be done or undertaken
Toggle	Switch from one effect, feature, or state to another
Un Archive	Unarchive is a term used to describe the process of restoring files from an archive (compressed file) or backup to their original location

User Requirement Definition

Functional:

Progress Tracking :- This feature provides the user with the ability to track the progress of the events relevant to the project. While there is always a group of people working on a project, a person who manages the project needs to look into and assess the amount of work being done. This person can use this feature to keep track of each person's progress.

Board :- It Is a feature where the process of creating a project can be done and will showcase all the projects inside that board of the user who has accessed the application.

Project :- It is a feature to create a project, for tracking the progress of a project a lead has to create a new project assigned to him and his team. A firm can have more than one ongoing project for more than one team and to avoid discrepancy a team lead can create a project in it so he can assign the work to his team members.

Status :- Its sole purpose is to keep track of the project assigned work. It could be that a team is working or it or someone has completed the task and dragged it to completed status so it will be a Smooth transaction of work so that no two person work on same thing or a finished task

Cards :- Cards are used as a way of assigning a specific module of the project to a member or a group of members within a team. This creates a card inside a project with a status attached to it (Open, In Progress, Closed). This card can contain an image of the projected task or a description of it with a list of the team members currently working on it. It will also contain labels. This helps by making sure different members/groups don't end up working on the same task and thereby eliminates chances of redundant work being done.

Milestone :- It is used to create a milestone for a card, which will contain a due date for the task required to be completed. These will be color coded for different priority levels.

Imports/Exports :- This feature provides a way to the users to acquire important data or get a database onto the application.

Graphical Representation :- A graphical representation of the statistics of the amount of work completed and the amount of work left in the form of various types of graphs, such as bar graphs, histograms, line graphs, etc.

E-tickets :- This feature will make it easier for users who do not have access to add a ticket/card to the application to be able to do so by creating cards directly through typed emails.

Non-Functional

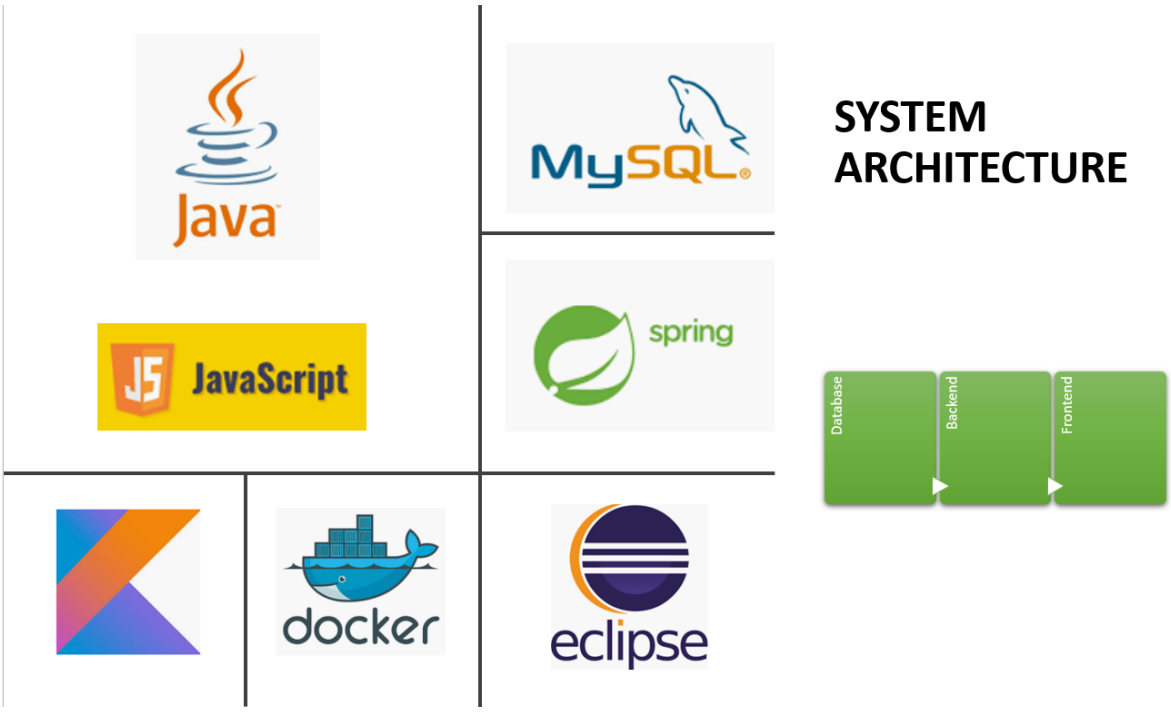
Portability :- The CollApp application is portable and is compatible with various desktop and mobile web browsers.

Performance :- The GUI of the application is simple to understand and very user friendly. It works seamlessly even with a slow network connection.

Reliability :- All the data displayed is accurate. The project, cards, feedback and other features will work as described with little to no errors.

Serviceability :- This application is very easy to setup and maintain. It is not required to possess high level of expertise to service this application thus making it very easy to fix any bugs or add new features.

System Architecture



Database – The database being used is MySQL. You can also use MariaDB or PostgreSQL. We have chosen to use MySQL as we wanted to emphasise our work more on the object-oriented programming and lesser on the query and scripts for which we chose MySQL.

Backend – The coding for all the features, API and service connectivity and the web application designing using Java with Spring framework and Kotlin using the Eclipse web IDE. We have majorly used Java (OOP) concepts to create the application.

Frontend - The dashboard and UI will be designed using JavaScript. The UI created in this application is user-friendly making it easier for the user to understand the system and make it simpler for them to use the application.

Delivery - The app can be launched using Docker as we plan to create a Docker container of the application.

The web application is created inside the web container which contains the java servlets which

helps in connecting the URL to specific servlets and URL requester is given the access of the content asked. As java servlets are used to create the software, we use this component of web server. Presently the code gets executed in the JDK 1.8.

System Requirement Specification

Functional:

1. Login and profile management.

1.1 Login details can be changed by the user, but the basic profile of the person is managed by the admin.

1.2 Administrator checks the details of the user and gives access controls and permissions for the users.

2. Projects are created and assigned a column.

2.1 Project shall be shown in the specific column on the dashboard according to the status.

2.2 Each project shall allow you to create cards required to show them to the people which the card is referred to.

2.3 Status of each project can only be changed by the authorized user who created the project and is restricted by the rest.

2.4 Columns can be colored in different colors according to the column names.

2.5 The projects can be ongoing and completed. Completed projects will be inactive and still be shown on the dashboard.

3. Cards are the means to stay aware of the progress of the project. Each project has cards which include the amount of work assigned and the amount of work currently being worked on.

3.1 Cards are supposed to keep track of work, also it generates the percentage of work done or being done.

3.2 You can choose to put cards all together or objective required to a specific column.

3.3 Cards contain labels (Hashtags) for each work assigned. These hashtags will be used to filter the search. For example, this can help search for the card regarding a high priority bug fix without wasting the user's time.

3.4 Description, due dates and assigned users are assigned to keep discrepancy between cards and make it more explanatory for clearer overview of instances.

3.5 You can perform one or bulk of operations on a card. You can drag and drop the cards directly into different statuses/columns.

4. Filtering the contents using keywords and labels.

4.1 Data can be filtered when you have a lot of data and you need to check specifics. For example, the user can use filtering to check how many tasks did a person get specifically.

4.2 Specific keywords need to be typed with a hashtag to filter the labels.

4.3 Labels are colored in different colors to differentiate between priority levels and avoid discrepancies.

5. Project statistics are shown in the project tab.

5.1 Charts are generated based on the requirements. Users can check the charts for which they are authorized to access.
5.2 Pie Charts are displayed based on the status. These charts can be filtered as needed.

6. Import/Export are allowed and executed by the users to acquire important data or get a database onto the application.

6.1 The Trello app can be linked to import the required data. Trello is another application which is similar to this project which makes the process of accessing and importing easier.
6.2 Data can be directly transferred to your email if you need to export the database.

7. Administrations are the only one who are allowed to add and edit users.

7.1 Admin login is required to add or edit the users. They have to specify parameters and configure them.
7.2 Admin has the access to see both active and inactive users. There are 2 types of admin, global and project.
7.3 Permissions are set by the global admin himself and no one else, not even project admin.

8. External Integrations can be done by the administrators using JavaScript.

8.1 External Integrations are done on the slack channels by the admin so that they can notify and share the files and projects.

9. Access Control of the card menu in a board.

9.1 Cards can be cloned for changing the assigned work or for other purposes.
9.2 Users can be assigned to only watch at certain times during the project. The clients, however, can be made full-time watchers (read-only).

Non-Functional:

1. Searching date, milestones or specifics on different pages.

1.1 There are two types of search first is the single board, which searches in the specific project or card and another one is the global search which will search in all.
1.2 There are pre-installed keywords which makes search easier and also are to be used to search those filtered related words.

1.3 If the search does not include keywords, it will directly be free speech text, where keywords doesn't matter and can be searched in milestones, due date, labels.
1.4 Milestones can be edited, saved, archived and closed when completed.

2. Users can insert dates and details of the projects inside the calendar tab

2.1 Creates a calendar view to showcase dates and short names of the projects where the dates are the due dates which are mentioned by the authorized users.
2.2 It also generates the percentage when milestones are taken into the considerations instead of the project name or due dates.

3. Creating cards via email. Configuration is required and could also be disabled for certain reasons. Notifying users by email can be done by them as well

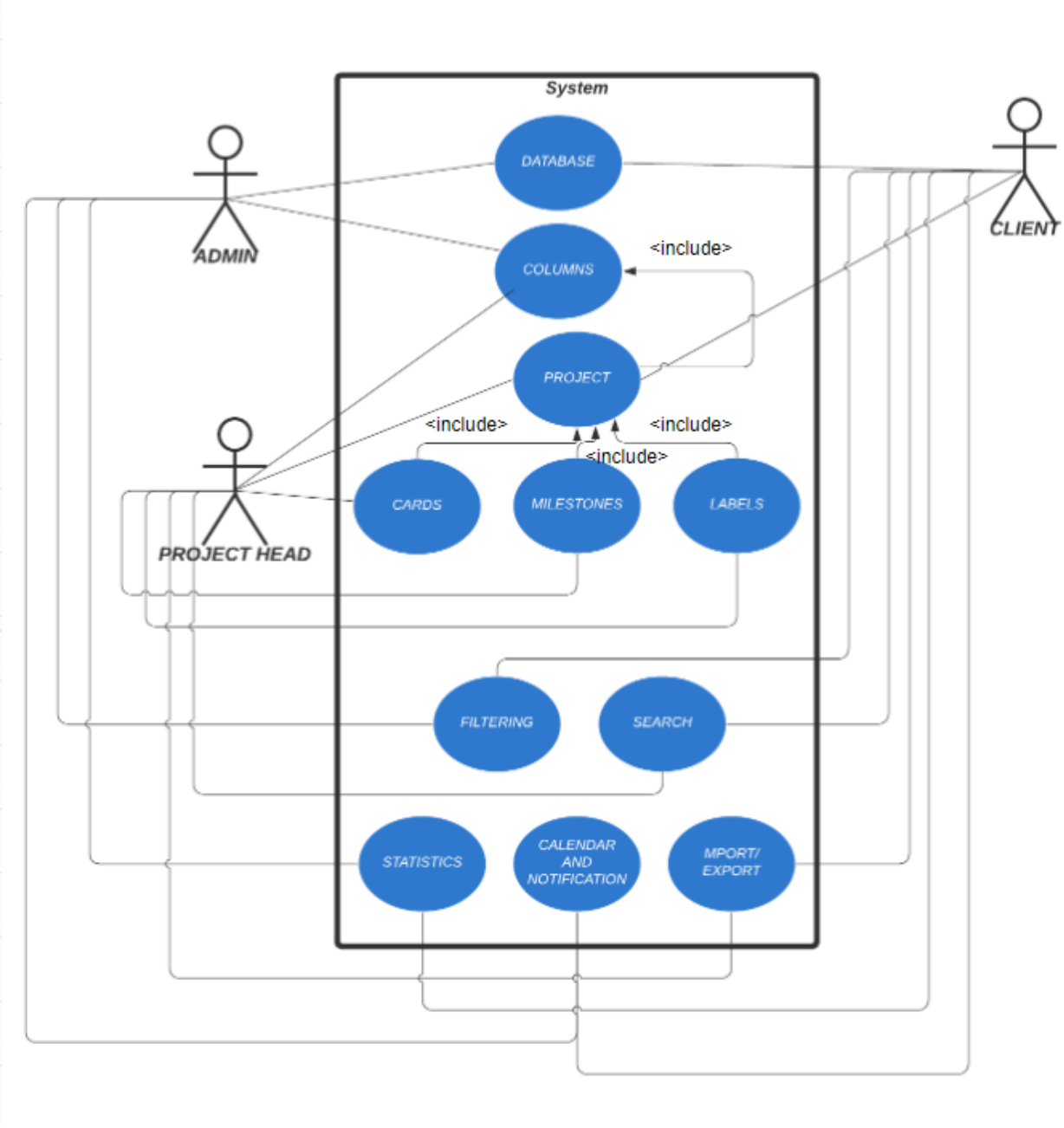
3.1 Configuration is done and then cards can be created by the authorized users.
3.2 Administration side can handle the configuration where a SMTP connection to the application is required for checking users.
3.3 Notification can be sent by the authorized admin

4. Feedbacks and comments are shared with the team.

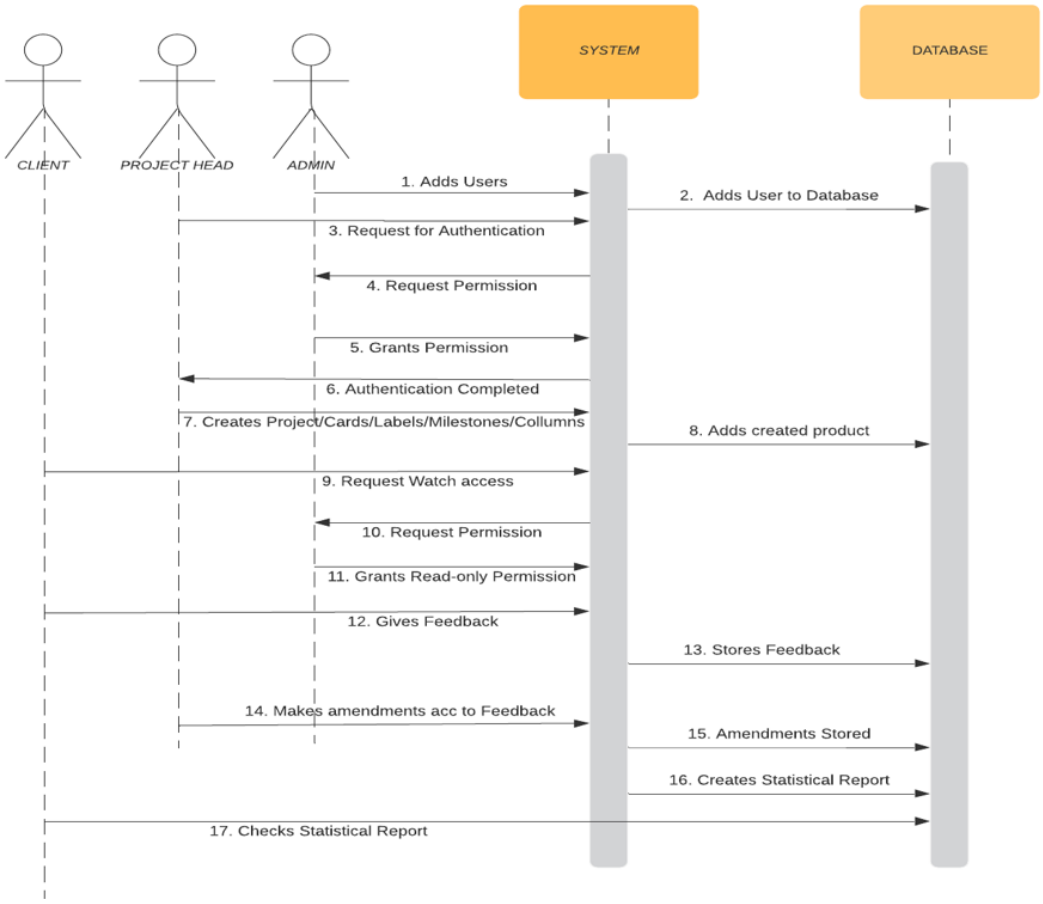
4.1 Feedbacks are allowed by everyone. Posting of the feedback and comments can be in various forms text, photos, progress reports, screenshots, videos.
4.2 Attachments can be shared where the modules of the project can be shared in the group to everyone working on it.
4.3 Only the 10 most recent comments are shown. Scrolling the page further down will reveal the remaining comments.

System Models

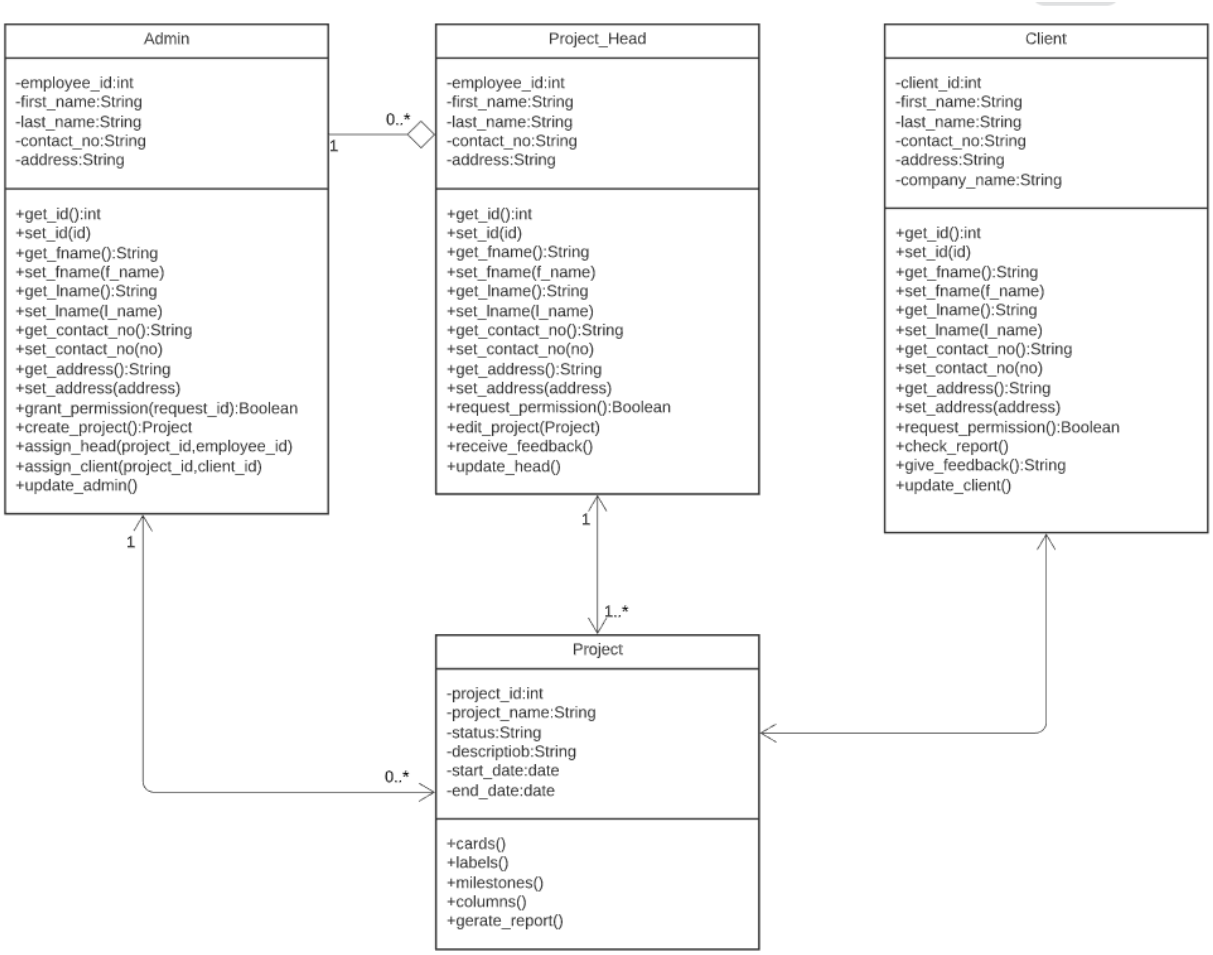
Use Case Diagram:



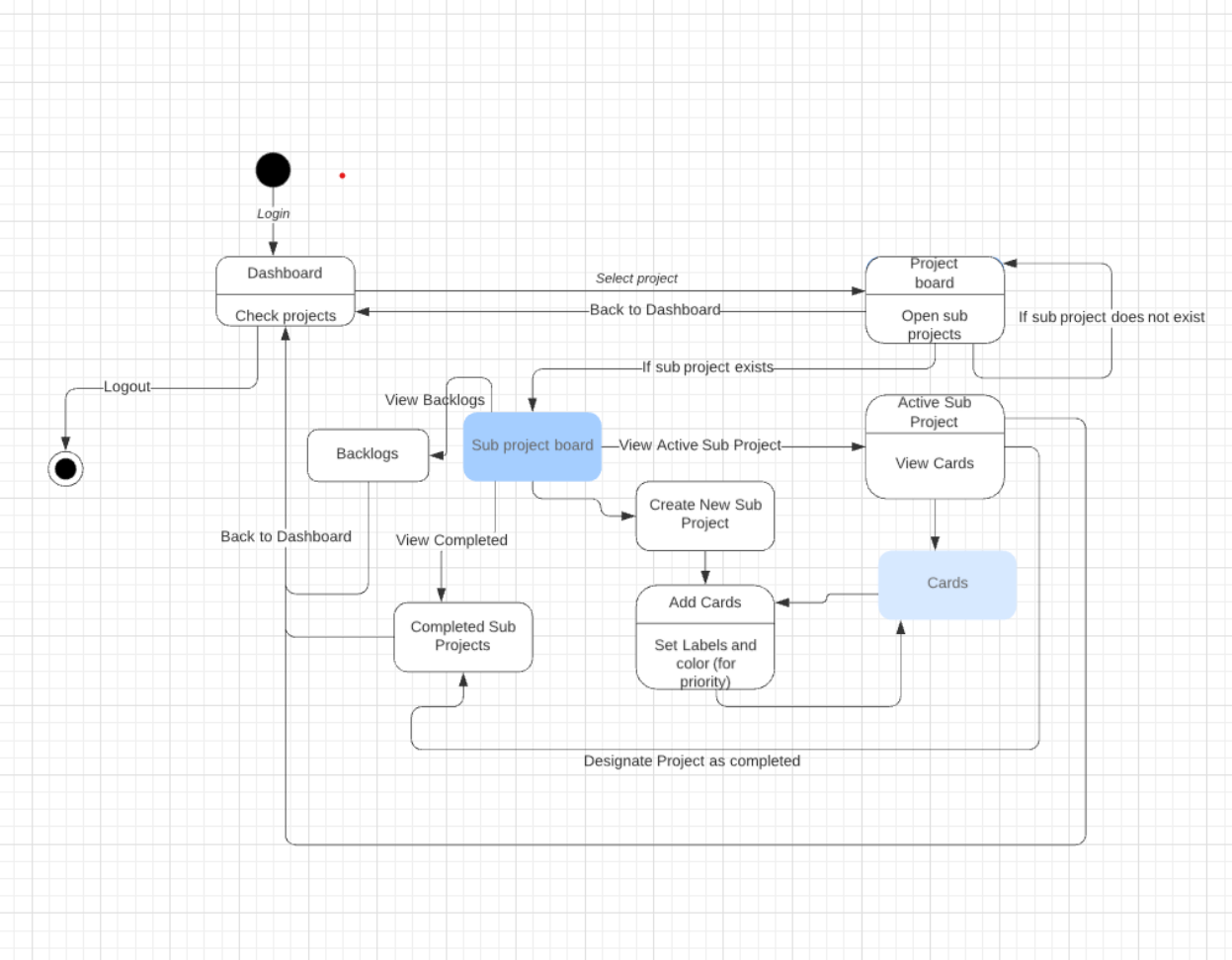
Sequence Diagram:



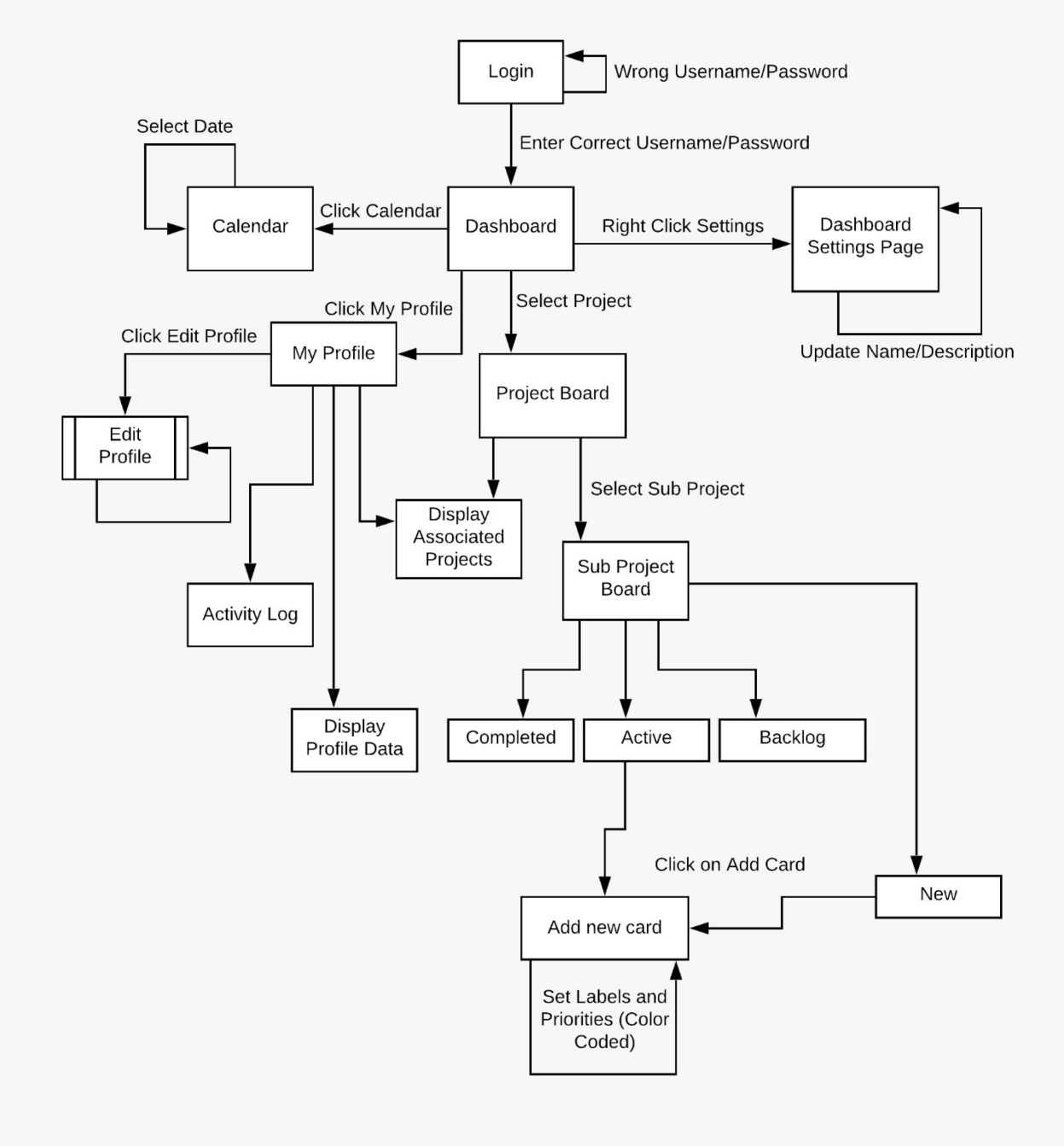
Object Model:



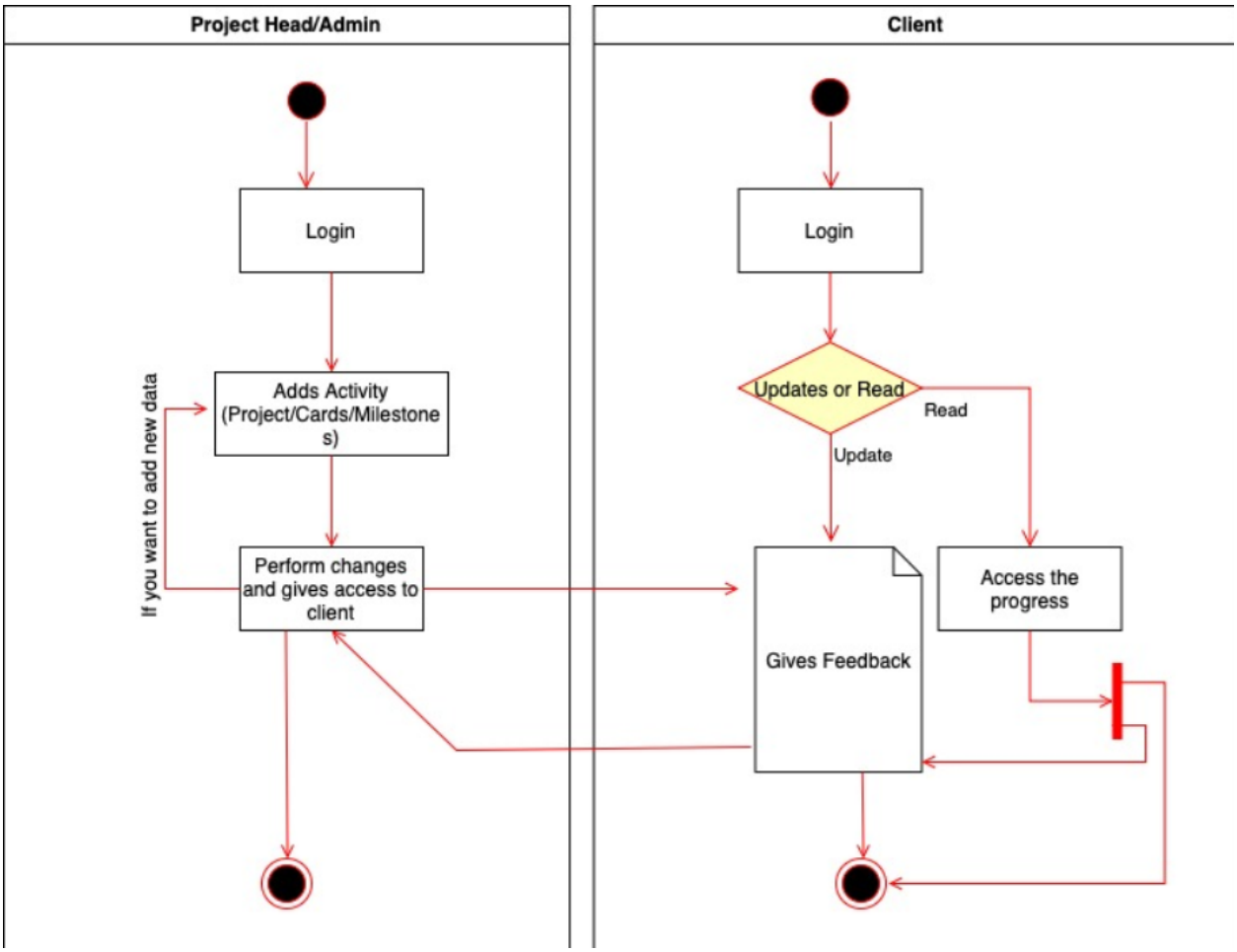
State Diagram:



Data-Flow Diagram:



Activity Diagram:



Appendices

➢CollApp requires Java 8 or better and optionally a database: MySQL, MariaDB or PostgreSQL. It can be deployed in a Java servlet container or as a self-contained war.
➢It will be able to support MySQL (at least 5.1), MariaDB (tested on 10.1), PostgreSQL (tested on 9.1) and HSQLDB (for small deploy).
➢It's distributed in 2 forms, firstly simple war for deploying in your preferred web contained and self-contained war with embedded jetty web server.
➢It will run on a Java 8 JVM. Some parts of CollApp are made with Kotlin.