Railway tracking and arrival time prediction

June 10, 2021

# Kashifa- Efaj-Mahe

**Ambition IT Solutions**

**122, kazi nazrul islam avenue, kawran bazar, 1215 01783537452**

**Client**

**Labib IT Ltd**

**Service Provider**

**Ambition IT Solutions**

# Project Overview

The project involves creating a online based solution where passengers can track the train timing at what time train departed from a particular station and pass these timing details to other station’s usres where it will display the timing according to train departed from previous station . Passengers can easily registered for this system .The train management software has been designed to support and maintain data for multiple trains on the rail network .The software will show time delay in the train schedule and user’s can get the information about train timings. It will also have an admin module , who enters the detail about trains and its timing and these details will be passed through internet server. This software publishes realtime train schedule events to subscribing multiple client applications.

# Justification

Now a days it has happened so many times that you have been waiting on railway station for someone to arrive and you don’t have any exact information about train timing and other stuff. In this application allows users to accurately track real time based taking train delays .It will reduce passenger’s suffering and waste of time .Using this application it is easy to keep track every train’s time schedule.

# Related projects

1. This application save time .
2. Give updated information time to time .

# Goals

1. The system work on online for any usre’s .
2. In this application users can get the information about train timing .
3. This software made a solution that will provide all kind of information about train and reduce usre’s time .

# Constraints

1. The system has to work both online.
2. This application usable for both desktop and mobile devices.
3. High level security use in this application, to maintain passengers personal information and other stuff.

## Assumptions

1. This application provide web hosting/server and domain registration/static IP to deploy the application.
2. User’s have their individual account. It will keep user’s personal information safe.
3. Admin will provide all train related information in the software.

**Project Duration**

15 week

**Project Start Date**

1st day of the advance payment

## Modules and Milestones/Phases with cost

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phases** | **Modules** | **Description** | **Duration** | **Cost**  **(BDT)** |
| Phase  1 | **Account** | In this first phase ,  account  module will make this phase for keep daily train details, manage user’s information, train fare cost and other stuff. | 3 weeks | 30,000 |
| Phase  2 | **Admin** | Admin module update very information and enter details about departure | 2 weeks | 45,000 |
| Phase  3 | **Registration and login** | User’s have to fillup all required information . | 2 weeks | 10,000 |
| Phase  4 | **GPS** | GPS module indentifies the location with a highest accurate ,dependable,timely information. | 2 week | 45,000 |
| Phase  5 | **Privacy and security** | Increased security for user’s personal information and highly  recommend  usre’s stronge passwords. | 6 weeks | 40,000 |
| Phase  6 | **Search** | In this module usres’s can search station and train |  | 20,000 |
| **Total** | |  | 15 weeks | 190,000 |

**Deliverables**

1. A user manual if applicable.

## Payment Plan

1. An advance payment of BDT 50,000 will be required to start the project.
2. The remaining money must be paid based on phases. Complete payment due for each phase must be paid within 1 week .

### Other Terms and Conditions

1. The Advance payment becomes non-refundable after two weeks of the project initiation.
2. After the final delivery of the product (completion of all phases), the client will have a window of two (2) month to report any issues that may have been caused by the application programming. These issues will be fixed for free.
3. After the end of two month of free support period after final product delivery, any and all works requested by client will incur charges on the client based on negotiated pricing.

## Agreement

|  |  |
| --- | --- |
| **On behalf of the product/service provider**  Kashifa –Efaj-Mahe  CEO  Ambition IT Solutions | **On behalf of the client seeking product/service**  Jashim khan    Labib IT Ltd |

Functional Requirements

1. Software Login:
   1. In this system users will login to the system the use of user ID , password email address .
   2. This system send a 6 digit code to user’s phone number for login confirmation.
   3. If the login successful the home page of the user account will be displayed.
   4. If the user id, password has been inserted wrong, then this system send 6 digit verification code sent to the user’s email address and phone number by the system.
   5. If users want to change his/her password this system send a code to users email address.

1. **Add Train Details:** 
   1. Admin will add information of sation in which train departed .
   2. Admin will add expected arrival at destination.
   3. Admin will add time table of upcoming trains.
   4. If admin revales any delay in schedule , admin will replace in formation.

**Priority Level:** High

**Precondition:** user should have valid user id , password, email address, phone number.

Non-Functional Requirements

* + - 1. In this system trains and its timing and these details will be passed through internet server
      2. This system will track the train timing at what time train departed from a particular station and pass these timing details to usres.
      3. If system will find any delay in train due to signal it will automatically update the train timing in next station and will be displayed to users.
      4. This system is installed on usres phone for usres to view the information.

* + - 1. Admin moduel enters all the relevant details about train , update information.

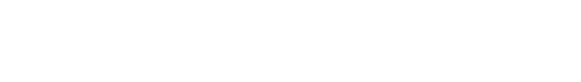
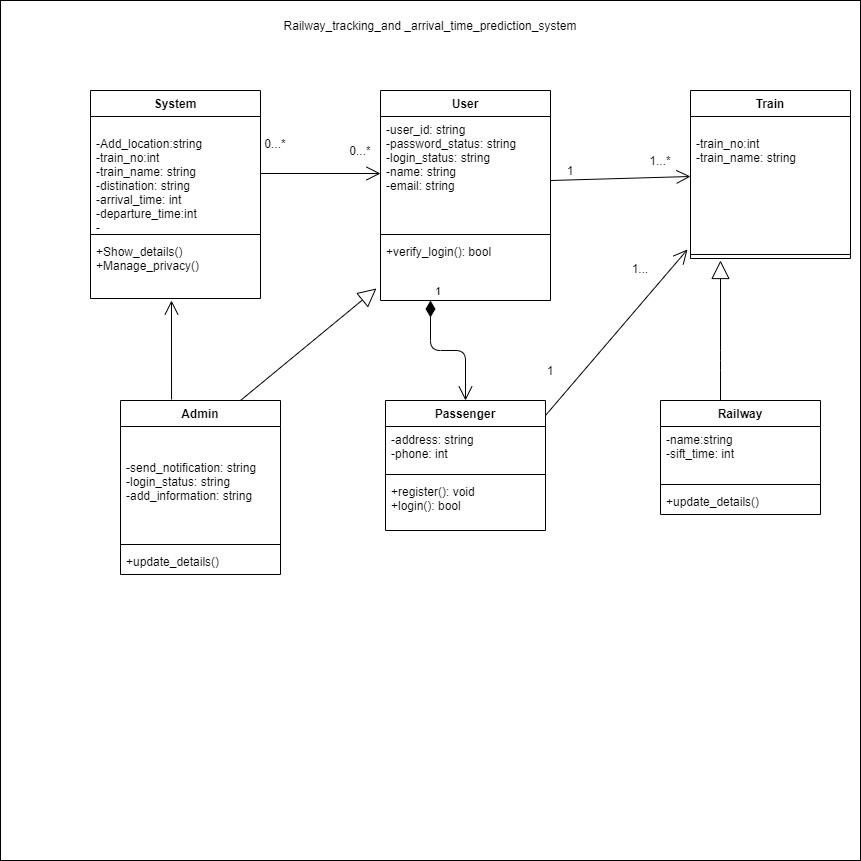
Project Requirements **Tools:**

* + 1. Word oracle
    2. Photoshop
    3. Code blocks

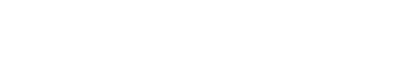
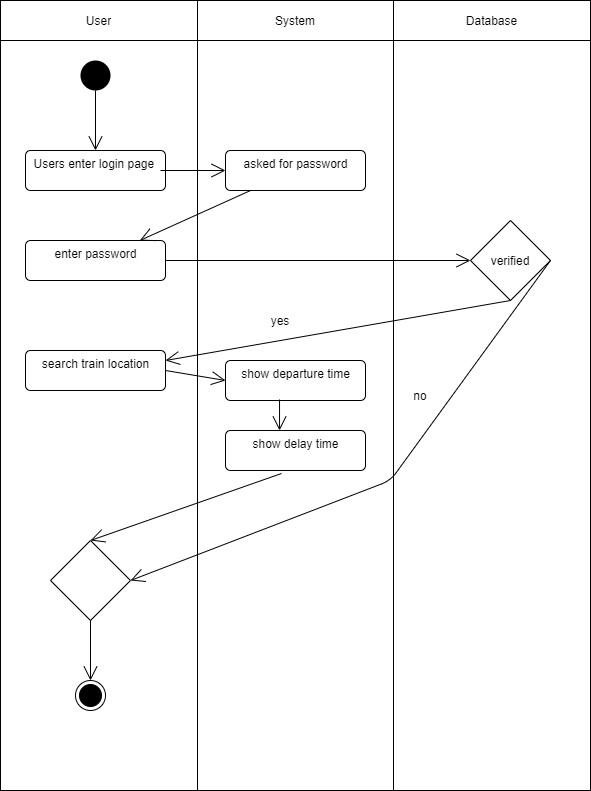
**USE Case Diagram:**



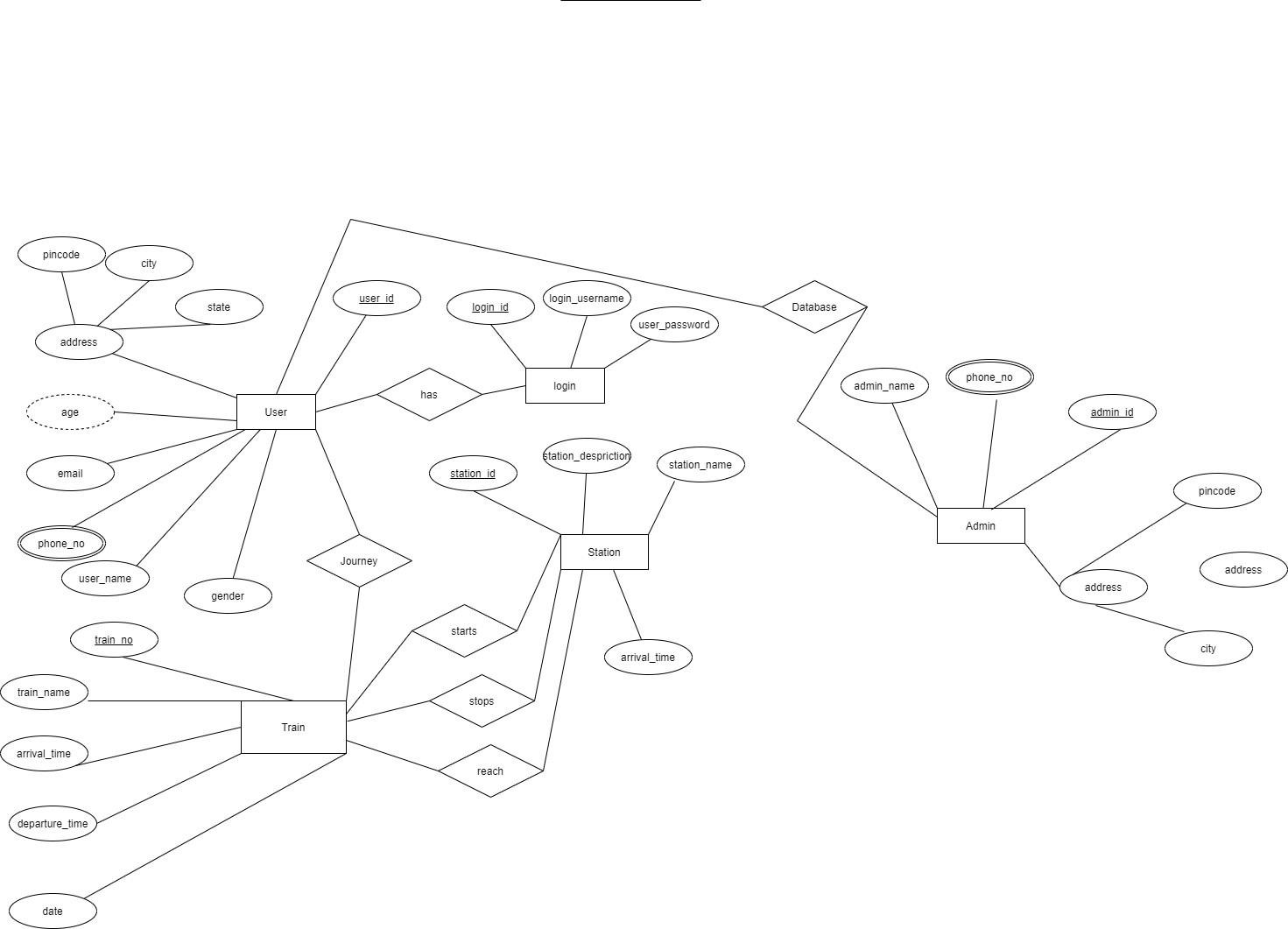
**Class Diagram:**



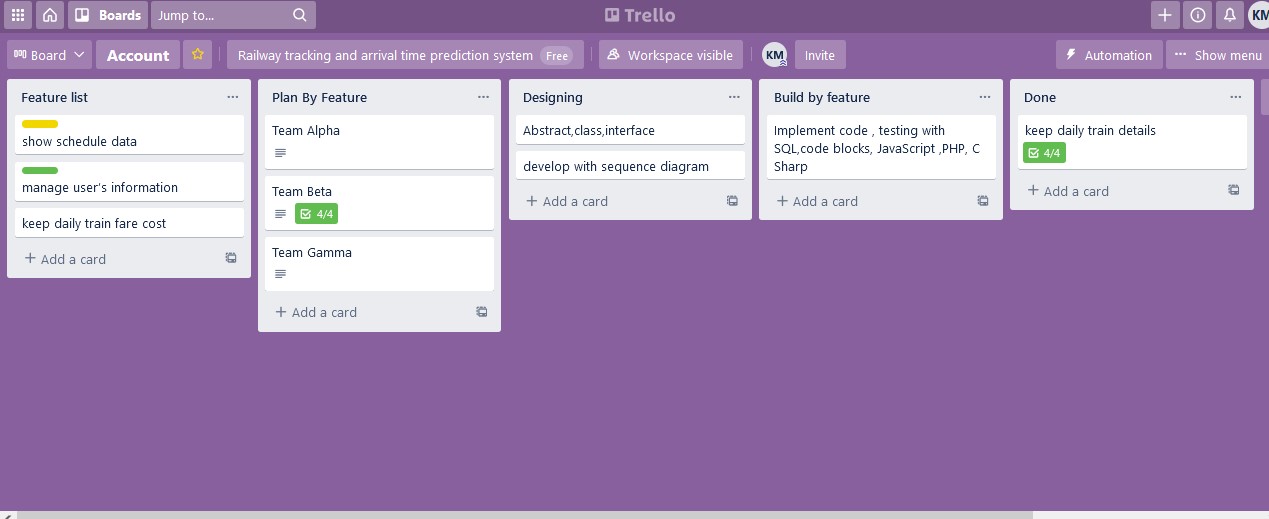
**Activity Diagram:**

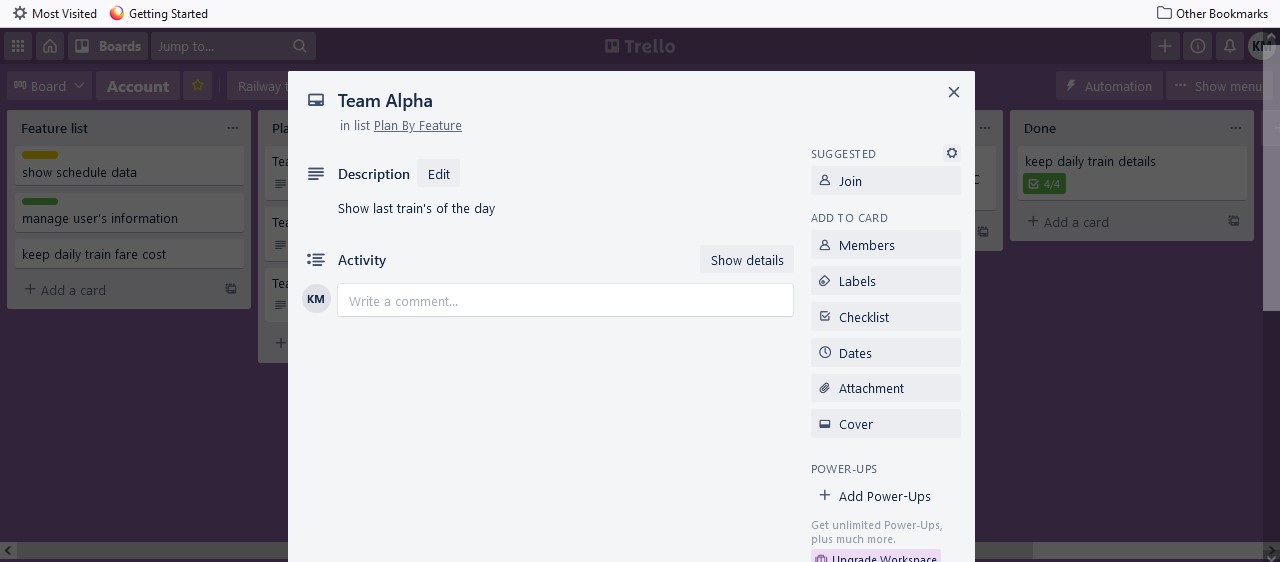


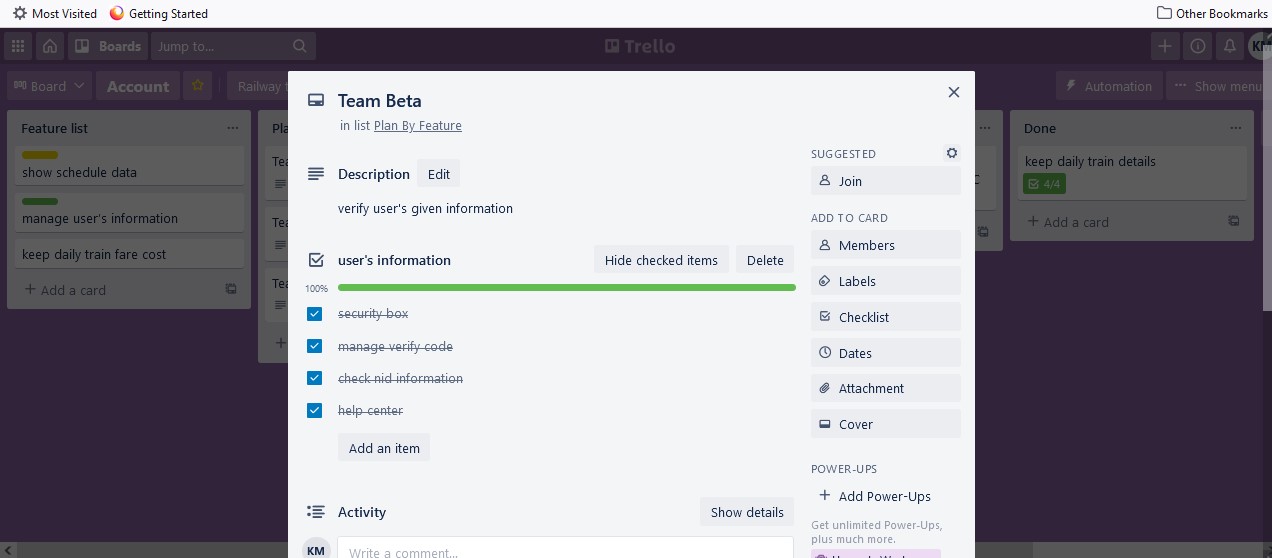
**ER Diagram:**

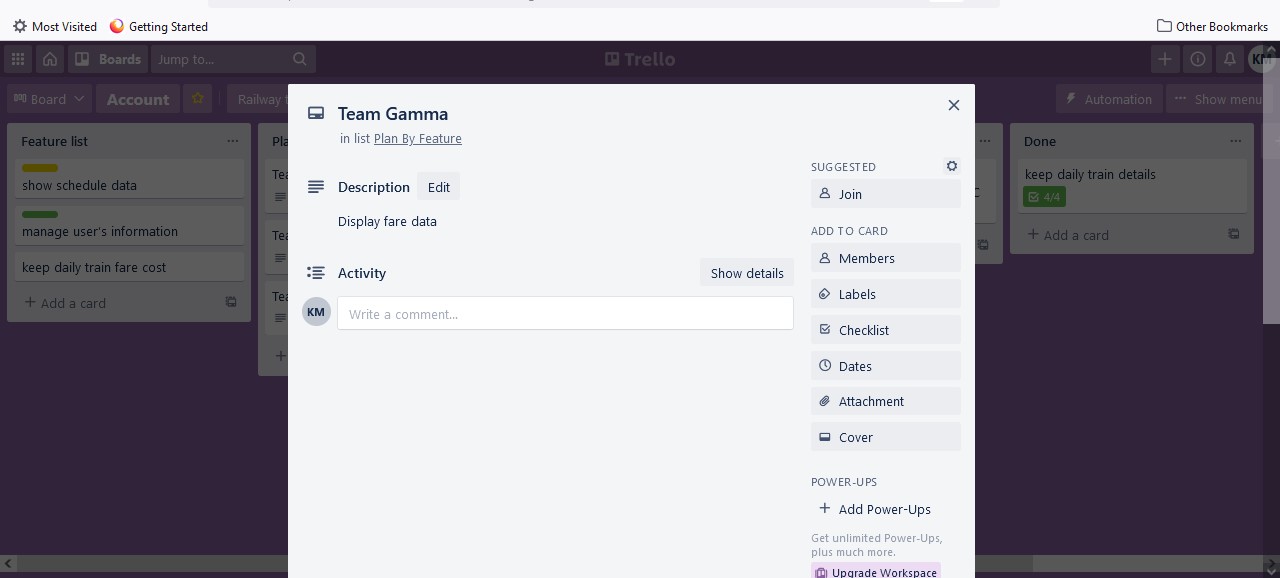


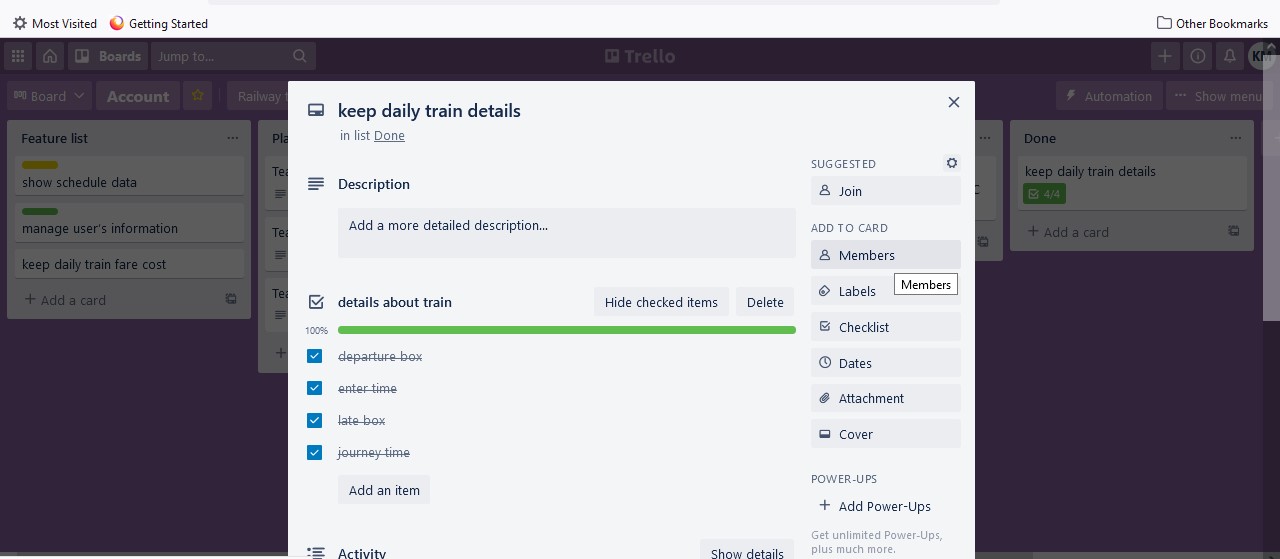
**Trello:**











**Test case:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project Name: Railway tracking and arrival time prediction | | | Test Designed by: Kashifa Efaj Mahe | | |
| Test Case ID: GSS\_45 | | | Test Designed date: 1/07/2021 | | |
| Test Priority (Low, Medium, High): Medium | | | Test Executed by: Steve | | |
| Module Name: User Login Session | | | Test Execution date: 4/07/2021 | | |
| Test Title: verify login with valid username and password | | | | | |
| Description: Test app login page | | | | | |
| Precondition (If any): User must have valid username and password | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app 2. Enter username 3. Enter password 4. Click submit | Username: Luis fard  Password: 7895 | User should login into the application | | As expected, | Pass |
| Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database. | | | | | |

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| --- | --- | --- | --- | --- | --- |
| Module Name: User Registration Session | | | Test Execution date: 5/07/2021 | | |
| Test Title: verify user’s registration with valid mail , phone number, nid no | | | | | |
| Description: Test app Registration page | | | | | |
| Precondition (If any): User must have valid email, phone number, NID no | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app 2. Click on Registration 3. Enter user name, email, phone number, NID no, password 4. Click submit | Username: Luis fard  Email:luis67@gmail.com  Phone :074927549682  NID NO:37593759  Password: 7895 | User should register into the application successful | | As expected, | Pass |
| Post Condition: User have to give validated information and successfully registration to app. | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Module Name: Password change Session | | | Test Execution date: 5/07/2021 | | |
| Test Title: Change user’s previous password | | | | | |
| Description: Test app new password page | | | | | |
| Precondition (If any): User must have valid username , phone number, email | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app 2. Click forget password 3. Enter user name, phone number, email 4. Enter 6 digit code for phone massage 5. Enter new password 6. Enter confirm | Username: Luis fard  Phone:074927549682  Email:luis67@gmail.com  Code:765380  New password:05934y27 | User should enter new password into the application | | As expected, | Pass |
| Post Condition: Password change and new password is updated in database. | | | | | |

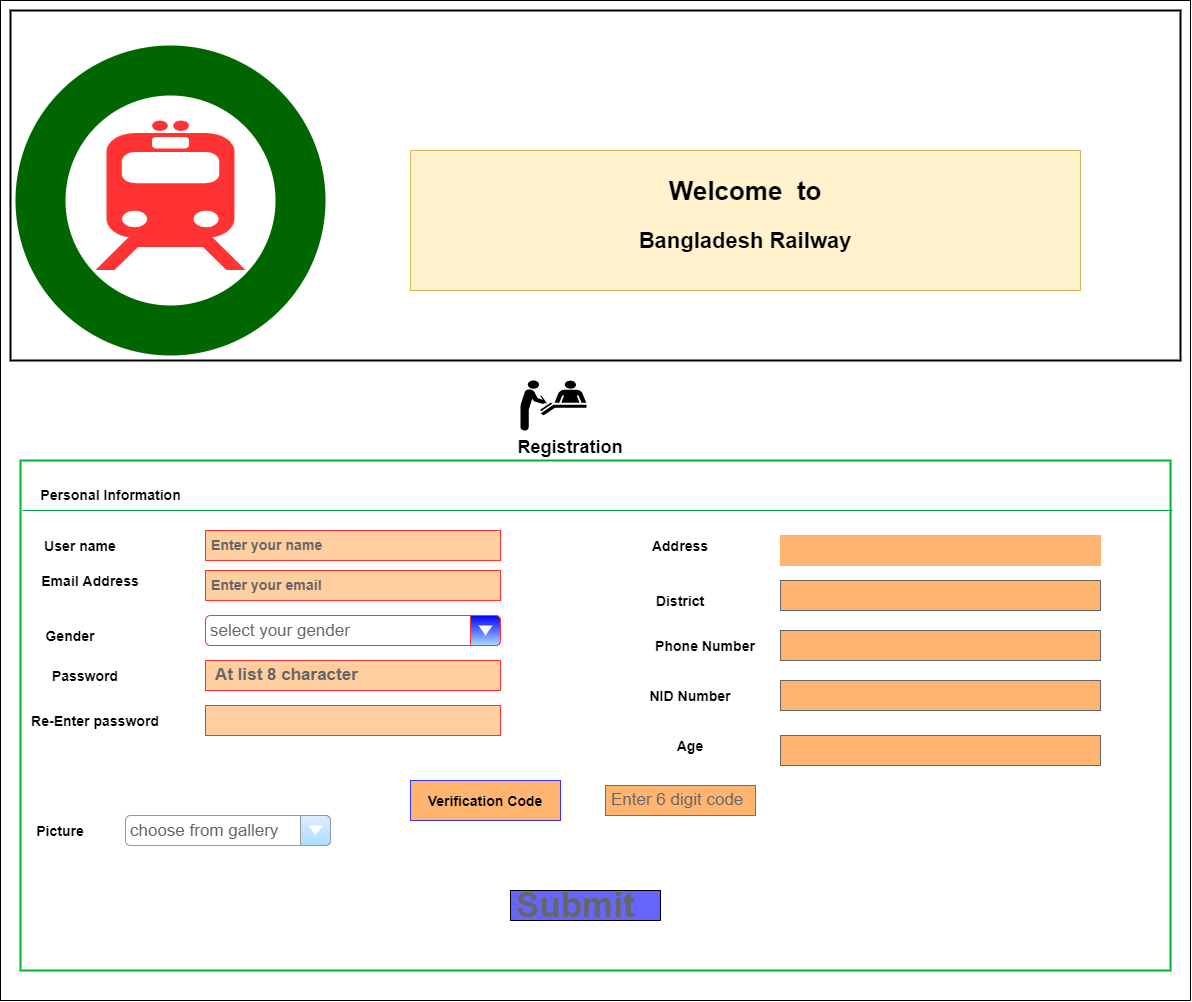
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Module Name: Train Search Session | | | Test Execution date: 6/07/2021 | | |
| Test Title: Verify search result | | | | | |
| Description: Test app search page | | | | | |
| Precondition (If any): User must have write valid train name | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app’s homepage 2. Click search option 3. Enter train name 4. Click search | Search: Mahanagar Probhati | User should enter valid train name into the application | | As expected, | Pass |
| Post Condition: User’s search for specific content on the account database. | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Module Name: Fare Cost Session | | | Test Execution date: 6/07/2021 | | |
| Test Title: verify fare calculator | | | | | |
| Description: Test app fare cost | | | | | |
| Precondition (If any): User must have write valid train name | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app’s home page . 2. Click fare calculator 3. Enter train name 4. Click submit | Train Name: Mahanagar Probhati | User should enter valid train name into the application | | As expected, | Pass |
| Post Condition: User have to enter validated train name and successfully calculate fare cost . | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Module Name: Train Search Session | | | Test Execution date: 6/07/2021 | | |
| Test Title: Verify search result | | | | | |
| Description: Test app search page | | | | | |
| Precondition (If any): User must have write valid train name | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app’s homepage 2. Click search option 3. Enter train name 4. Click search | Search: Mahanagar Probhati | User should enter valid train name into the application | | As expected, | Pass |
| Post Condition: User’s search for specific content on the account database. | | | | | |

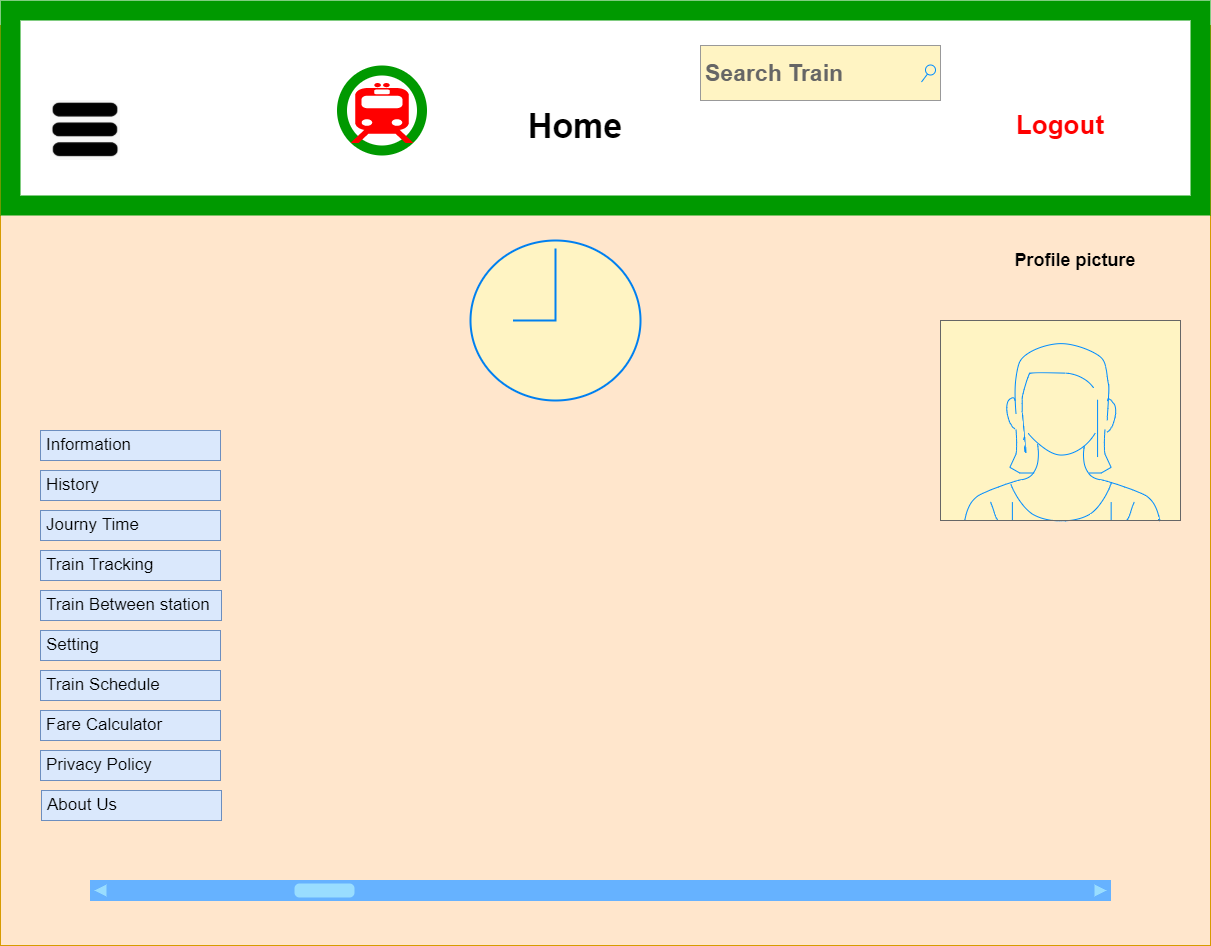
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Module Name: Fare Cost Session | | | Test Execution date: 6/07/2021 | | |
| Test Title: verify fare calculator | | | | | |
| Description: Test app fare cost | | | | | |
| Precondition (If any): User must have write valid train name | | | | | |
| Test Steps | Test Data | Expected Results | | Actual Results | Status (Pass/Fail) |
| 1. Go to the app’s home page . 2. Click fare calculator 3. Enter train name 4. Click submit | Train Name: Mahanagar Probhati | User should enter valid train name into the application | | As expected, | Pass |
| Post Condition: User have to enter validated train name and successfully calculate fare cost . | | | | | |

**UI design:**



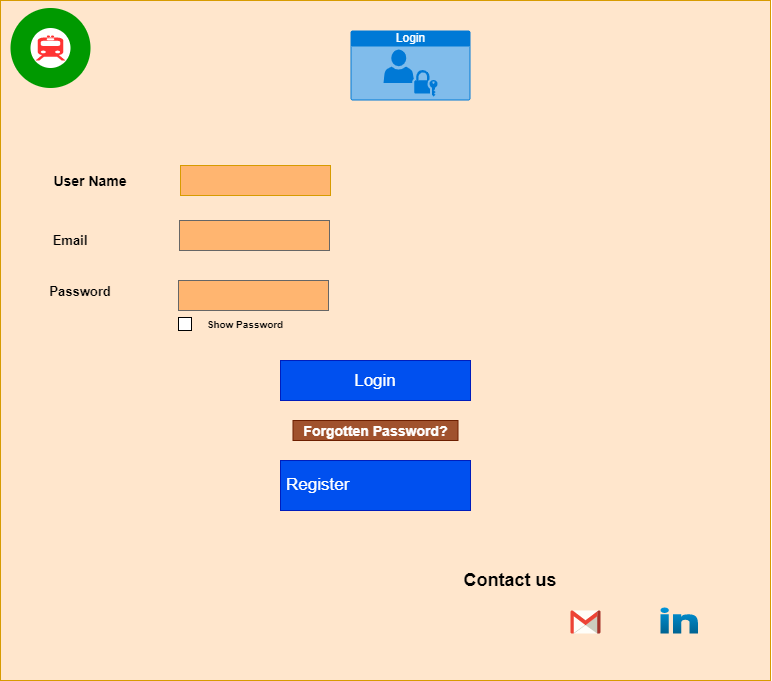
**Description:**

In the registration page user have to insert all kind of information . After complete registration process user can their account and know the train details.



**Description:**

In the home page user can show the train timing at what time train departed from a particular station ,journey time, fare cost, all kind of train information. Users can search train and show their search history. In the setting option user can change their personal information. User can logout from the system.

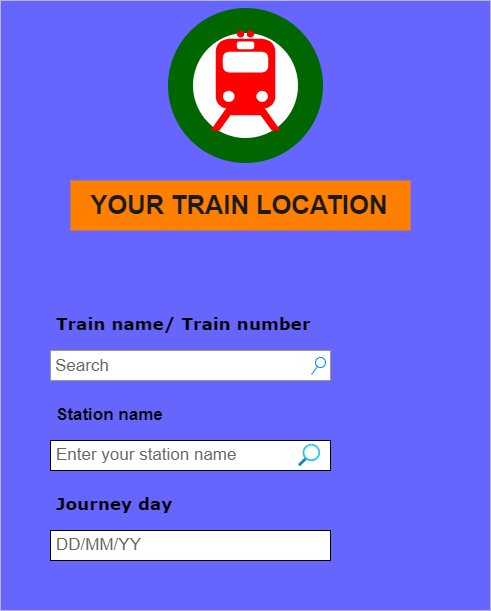


In the login page user can login their account. If they already have login their account , they don’t need to registration. If user forgot their password, they can reset their password.



**Description:**

**In this page user’s will get all information about train.**

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**Description:**

In this page user’s have to give valid train name , station name and which day they journey by train to know train’s exact location.

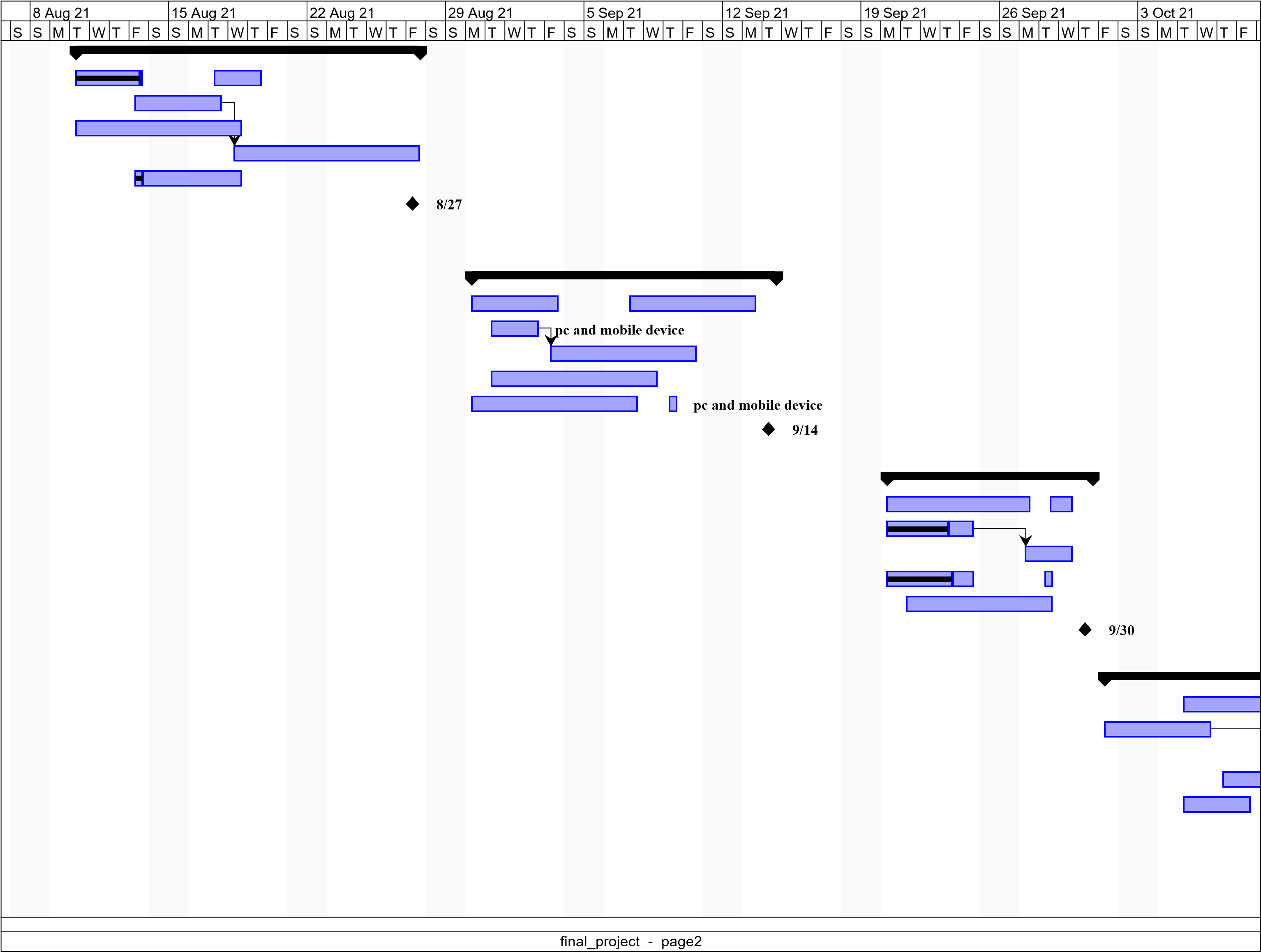
**GitHub link:**

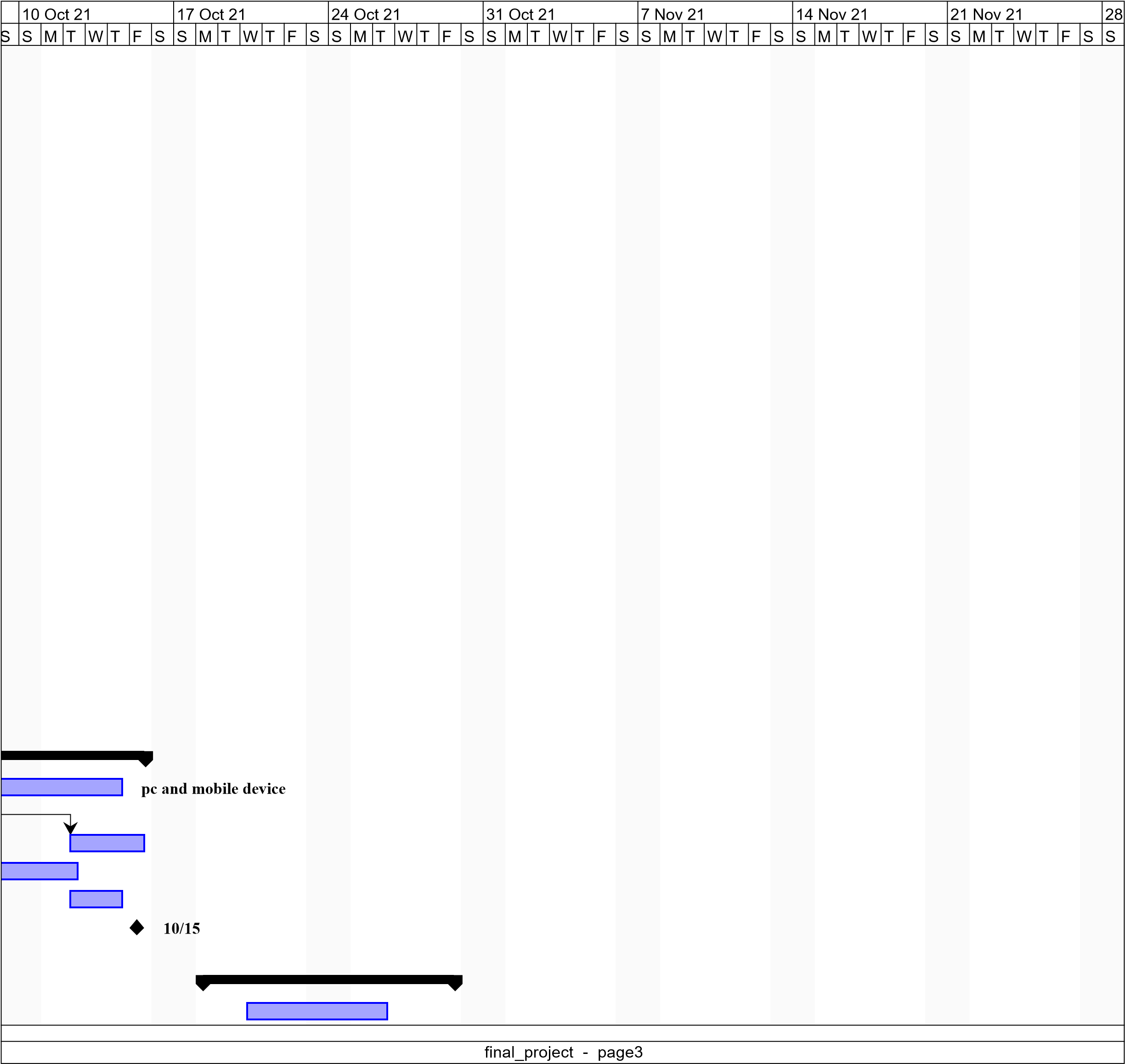
<https://github.com/Kashifa-Efaj/SE_Summer_2021.git>

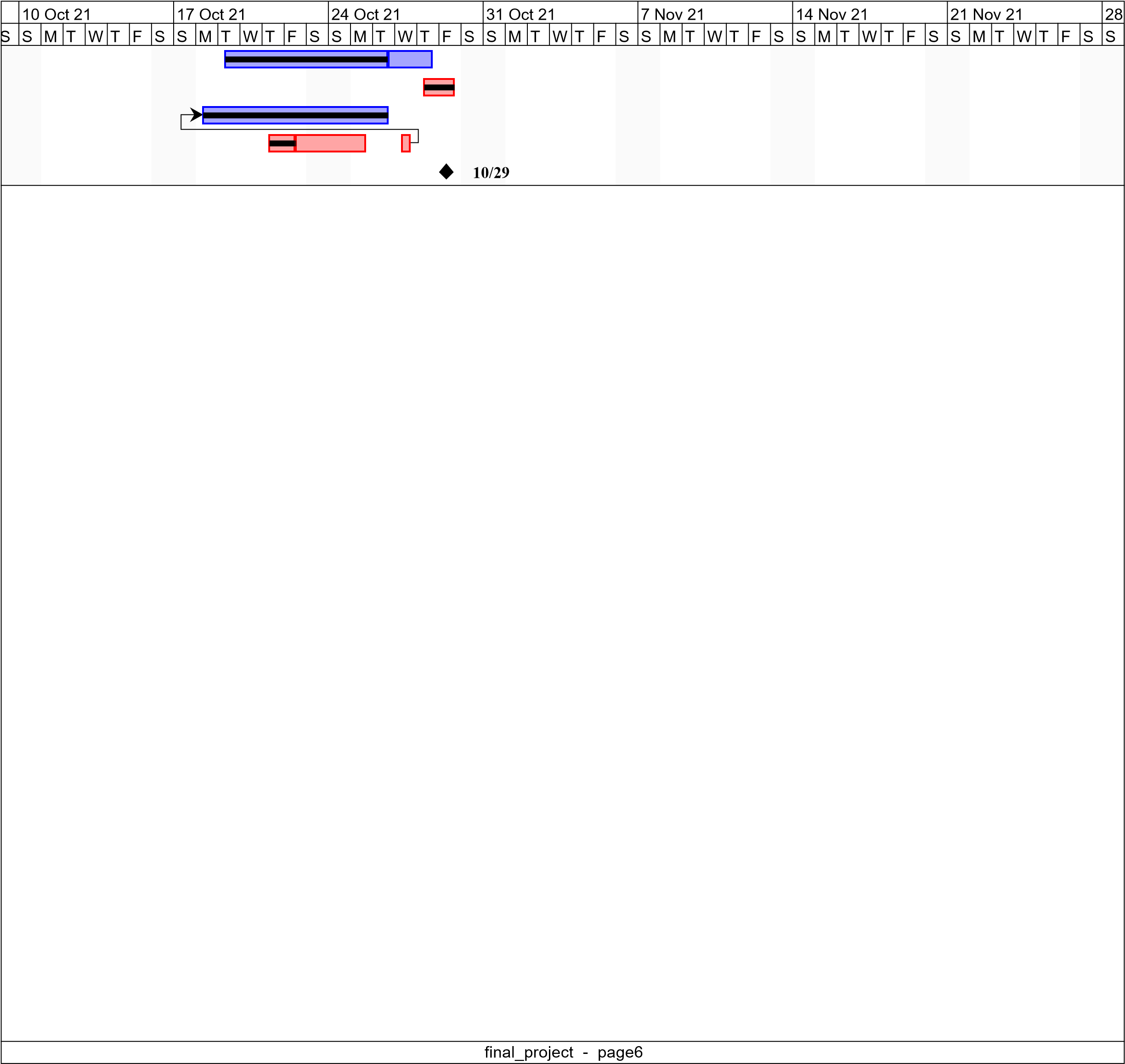
**Gantt Chart:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Name | Duration | Start | Finish |  | Predecessors | Resource Names |  |
| F |
| 1 |  | **Account** | **14 days?** | **8/10/21 8:00 AM** | **8/27/21 5:00 PM** |  |  | **pc and mobile device** |  |
| 2 |  | Train details | 8 days? | 8/10/21 8:00 AM | 8/19/21 5:00 PM |  |  |  |
| 3 |  | User information | 3 days? | 8/13/21 8:00 AM | 8/17/21 5:00 PM |  |  |  |
| 4 |  | fare cost calculation | 7 days? | 8/10/21 8:00 AM | 8/18/21 5:00 PM |  |  |  |
| 5 |  | time- schedule | 8 days? | 8/18/21 8:00 AM | 8/27/21 5:00 PM | 3 |  |  |
| 6 |  | Live dashboard | 4 days? | 8/13/21 8:00 AM | 8/18/21 5:00 PM |  |  |  |
| 7 |  | Milestone: account defined | 1 day? | 8/27/21 8:00 AM | 8/27/21 5:00 PM |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 10 |  | **Admin** | **12 days?** | **8/30/21 8:00 AM** | **9/14/21 5:00 PM** |  |  |  |
| 11 |  | Enter information | 11 days? | 8/30/21 8:00 AM | 9/13/21 5:00 PM |  |  |  |
| 12 |  | Update train time | 3 days? | 8/31/21 8:00 AM | 9/2/21 5:00 PM |  |  | pc and mobile device |
| 13 |  | Upadate station status | 6 days? | 9/3/21 8:00 AM | 9/10/21 5:00 PM | 12 |  |  |
| 14 |  | Manage user | 7 days? | 8/31/21 8:00 AM | 9/8/21 5:00 PM |  |  |  |
| 15 |  | update train status | 9 days? | 8/30/21 8:00 AM | 9/9/21 5:00 PM |  |  | pc and mobile device |
| 16 |  | Milestone: admin defined | 1 day? | 9/14/21 8:00 AM | 9/14/21 5:00 PM |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 18 |  | **Registration and login** | **9 days?** | **9/20/21 8:00 AM** | **9/30/21 5:00 PM** |  |  | **pc and mobile device** |
| 19 |  | required information | 8 days? | 9/20/21 8:00 AM | 9/29/21 5:00 PM |  |  |  |
| 20 |  | valid user database | 5 days? | 9/20/21 8:00 AM | 9/24/21 5:00 PM |  |  |  |
| 21 |  | password confirmation | 3 days? | 9/27/21 8:00 AM | 9/29/21 5:00 PM | 20 |  |  |
| 22 |  | password strength checker | 7 days? | 9/20/21 8:00 AM | 9/28/21 5:00 PM |  |  |  |
| 23 |  | manage register | 6 days? | 9/21/21 8:00 AM | 9/28/21 5:00 PM |  |  |  |
| 24 |  | Milestone :registration a... | 1 day? | 9/30/21 8:00 AM | 9/30/21 5:00 PM |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 26 |  | **GPS** | **11 days?** | **10/1/21 8:00 AM** | **10/15/21 5:00 PM** |  |  |  |
| 27 |  | Location identify | 8 days? | 10/5/21 8:00 AM | 10/14/21 5:00 PM |  |  | pc and mobile device |
| 28 |  | time information | 4 days? | 10/1/21 8:00 AM | 10/6/21 5:00 PM |  |  |  |
| 29 |  | navigation system | 4 days? | 10/12/21 8:00 AM | 10/15/21 5:00 PM | 28 |  |  |
| 30 |  | storing data | 4 days? | 10/7/21 8:00 AM | 10/12/21 5:00 PM |  |  |  |
| 31 |  | signals identifier | 8 days? | 10/5/21 8:00 AM | 10/14/21 5:00 PM |  |  |  |
| 32 |  | Milestone: gps defined | 1 day? | 10/15/21 8:00 AM | 10/15/21 5:00 PM |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 34 |  | **Search** | **10 days?** | **10/18/21 8:00 AM** | **10/29/21 5:00 PM** |  |  | **pc and mobile device** |
| 35 |  | search train name | 5 days? | 10/20/21 8:00 AM | 10/26/21 5:00 PM |  |  |  |
|  | | | | | | |  | | | |
| final\_project - page1 | | | | | | |  | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Name | | Duration | Start | Finish |  | Predecessors | Resource Names |
|  |
| 36 |  |  | journey date | 8 days? | 10/19/21 8:00 AM | 10/28/21 5:00 PM |  |  |  |  |
| 37 |  |  | avilable train | 2 days? | 10/28/21 8:00 AM | 10/29/21 5:00 PM |  |  |  |  |
| 38 |  |  | departure and destination | 7 days? | 10/18/21 8:00 AM | 10/26/21 5:00 PM | 39 |  |  |  |
| 39 |  |  | delay time | 5 days? | 10/21/21 8:00 AM | 10/27/21 5:00 PM |  |  |  |  |
| 40 |  |  | Module:search defined | 1 day? | 10/29/21 8:00 AM | 10/29/21 5:00 PM |  |  |  |  |







29