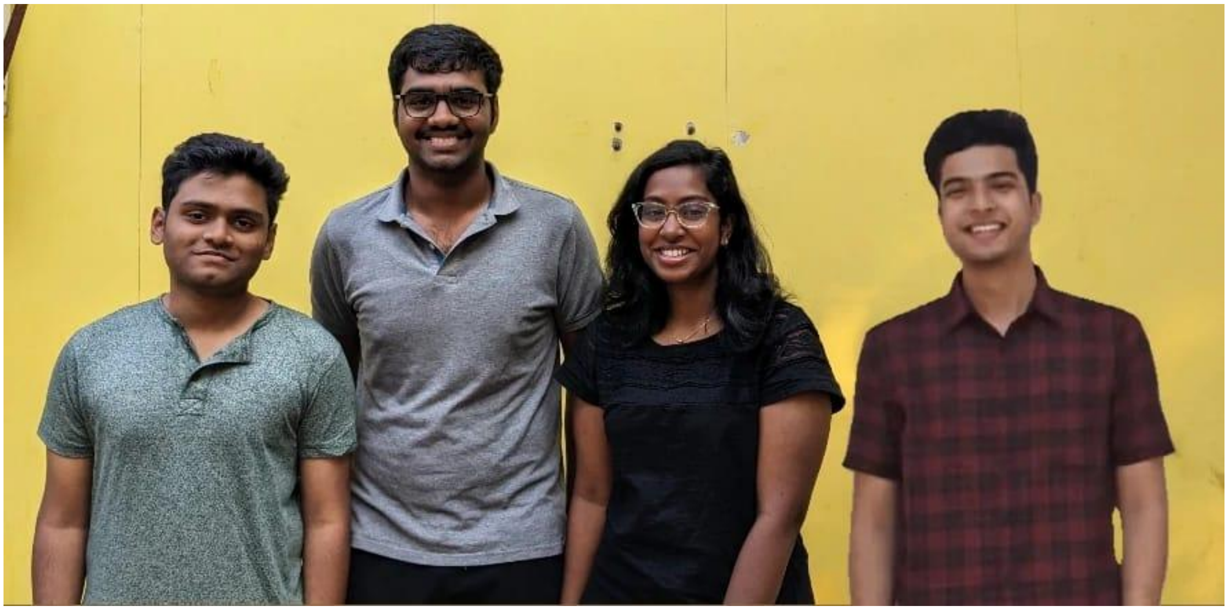
IS-F341 Software Engineering (2022-23)

T10 & <*PoolNRide*>

https://github.com/Rohita2002/PoolNRide.git

Team group photo


Student ID	Name	Role
2019A7PS0056H	Mohan Teja	Product Owner (PO)
2019A7PS0188H	Suresh Ravisankar	Scrum Master (SM)
2019B4A80685H	Varun Bondalapati	Developer
2019B2A71125H	Rohita Sai	Developer

Section 1 – Project Overview

Problem Identified:
Given the large population dispersed across numerous counties, transportation becomes a challenging issue. Public transport can get congested quickly, and given the variable timings, it is unsuitable for most people. Many after-school activities do not include transportation to get back home, making it challenging for people to travel.

Proposed Solution:
Pooling can be one of the solutions to address this transportation issue amongst students and other working professionals. Finding people who live nearby and commute around the same time has always been a struggle.

This project develops a web portal that helps people find groups to travel with and reduce expenditure, thereby saving resources in the following ways:

Users:

- Customers register their vehicle details during their signup.
- Customers can create or join groups with other people.
- Customers can post pool requests or offers that other group members can view.
- Customers can then look at the waypoints for each pool in the group and easily register for the pool that would be most convenient for them.
- All pool members can then interact with each other to further coordinate pick up, drop off and negotiate travel expenses using the built-in comments and chat features.
- Customers can give feedback based on their pooling experience.
- Customers can report any fraudulent pool requests or groups.

Admin:

- The Admin can view the customer's profiles, queries, complaints, and feedback and try to resolve them.
- Admin can take necessary actions like deleting the customer profiles/groups based on the customer feedback received.
- Admin can generate reports of monthly/weekly successful pools and the number of new customers per month/week.

Section 2 – Existing Work System

AS-IS Work System Snapshot

Customers	Product/Services
● Rider (Customers who don’t have their transport)	● Transport.

Major Activities and Processes
● The customers (students and working professionals) approach each other on social media websites to learn about their after-school activities. ● The customers discuss the travel details like transport, time, etc, to the desired location with each other. ● The customers catch public transport and reach their desired location. ● The customers book a cab/ride to their destination. ● The customer who has their transport picks up the other customers. ● The customers pool together and travel to the desired location. ● The customers split the travel charges among themselves.

Participants	Information	Technologies
● Driver (Customers who have their transport).	● Social media profiles. ● Public transport details.	● Social media websites. ● Payment gateway. ● GPS ● Cab booking services.

Problems/Challenges

Participant/ Customer	Description of problems/challenges
Customer(Rider)	● Public transportation can become very crowded, and the timings of their availability are often inconvenient for individuals.
Customer(Rider)	● Having no information about fellow-workmates if they have the same waypoints.
Customer(Rider)	● Finding only a few cabs for a particular drop-off resulting in higher prices.
Customer(Rider)	● At times, the cabs/rides that are booked doesn’t feel safe to travel in.
Customer(Rider)	● More time in reaching the destination due to more stops when public transportation is used.
Customer(Driver)	● Erratic pooling requests by friends/collegues disturb the schedule of his/her activities.
Customer(Driver)	● Delay reaching the destination due to more traffic.

User Personas

Venkatesh (Student-Rider)	**“I want to be on time for my football practice.”**	
	Capabilities ● Have good communication and social skills. ● Good with technology.	**Goals/Objectives** ● I don’t want to be late for my football practice and miss the matches.
Demographics Age: 20 Education: ECE Work: NA Family: Single Location: Hakimpet	**Brief bio** Venkatesh is a student. He is punctual and strict with his schedule. Very hard-working. His after-school activities include football and tuition.	**Frustrations/Pain points** ● Public transport is inefficient, and there are very few shuttles with a large crowd waiting for the buses. ● My schedule gets messed up on heavy traffic days.

Anushka **(Management Staff - Rider)**	**“You don’t get a seat to sit, and a bus/metro will be overloaded so that it’s not even easy to stand.”**	
	Capabilities - Can afford a ride home daily. - Can give good company.	**Goals/Objectives** - Want to feel safe while travelling home. - Want to reach home in less time. - Want to travel comfortably.
Demographics Age:40 Education: BE Grad Work: Management staff Family: Husband and a kid Location: Tirumalgherry	**Brief bio** Anushka works as a management staff. She is an open-minded person and dedicated to her profession. She puts her family first.	**Frustrations/Pain points** - Couldn’t find a bus/metro station nearby. - Lots of stops in a journey and tired of standing for a long time. - A ride from outsiders doesn’t feel safe at times.

Mahesh **(Professor - Driver)**	“**I can give a lift to my student who goes in the same direction, and I can get some company too.**”	
	Capabilities - Can drive both 2-wheelers and 4-wheelers. - Good communicator.	**Goals/Objectives** - Want to converse with someone throughout the ride.
Demographics Age: 44 Education: PhD Work: Professor Family: Wife and 2 kids Location: Secunderabad	**Brief bio** Mahesh is a Professor in Mechanical Dept. He likes to help people. He owns a house far from the college.	**Frustrations/Pain points** - Hate to travel alone. - Hates traffic.

Ana **(Student-Driver)**	**“I hate to admit that the fuel charges are dominating other purchases day by day.”**	
	Capabilities ● Good and safe driving skills in heavy traffic also. ● Can communicate in many languages.	**Goals/Objectives** ● Compensate fuel consumption by offering pools with other people.
Demographics Age: 27 Education: CSE Work: PhD Student Family: Single Location: Tirumalgherry	**Brief bio** Ana is the only earning person in the family. She is currently doing her PhD. She is efficient and always tries to save money or make the best out of it.	**Frustrations/Pain points** ● Spends most of the money on fuel for the car. ● Lots of traffic.

Section 3 – System Scope

TO-BE Work System Snapshot (moderate support)

Customers	Product/Services
● Students ● Working professionals (includes both the teaching and non-teaching staff)	● Transport ● Rating

Major Activities and Processes
● The customers sign up to the website by filling in the details required. ● The customers submit their licenses to the admin through the mail and register their 2-wheeler or 4-wheeler on the website. ● The customers log in to the website and view his/her groups. ● The customers search for already existing groups and join the necessary group. ● The customers create a new group for the other users to join. ● The customers post a pooling request within the group. ● The customers contact/call the specified user to know the pool details such as date, time, charges and no. Of people and confirms them to join the pool. ● The customers show their profile to the driver customer at the beginning of their travel. ● The customers pay the travel charges using credit/debit cards/UPI ids. ● The customers rate the experience of the pool. ● The customer leaves the group and joins the other group. ● The Admin logs in to the system, views the customers' profiles, queries, complaints, and feedback, and tries to resolve them. ● Admin takes necessary actions like deleting the customer profiles/groups based on the feedback received. ● Admin updates all the new pools, groups and customers in excel sheets and analyzes them to take necessary actions.

Participants	Information	Technologies
● Customers (who have vehicles) ● Admin	● Customer details ● Vehicle details ● Location details ● List of groups ● Pool details ● Rating/feedback	● GPS ● Email ● Web portal ● Payment gateway ● Excel sheets

TO-BE Work System Snapshot (maximum support)

Customers	Product/Services
● Students ● Working professionals (includes both the teaching and non-teaching staff)	● Transport ● Rating

Major Activities and Processes
● The customers sign up to the website by filling in the details required. ● **The customers register their vehicles on the website and upload the license.** ● **The customers load the required balance into the wallet through credit/debit cards/UPI.** ● The customers log in to the website and view his/her groups. ● The customers search for already existing groups and join the necessary group. ● The customers create a new group for the other customers to join. ● **The customers post a pooling request within the group specifying the location, date, time, charges, and no. Of people etc.** ● **The customers request a pool within the same group.** ● **The customer looks at the profile of the requesters and approves the ones that he/she feels safe/comfortable with.** ● **The customer closes the pool once the requests equal the number of people that can be accompanied.** ● **The customers within the group chat to negotiate the travel details and fares.** ● **The customer cancels the pool and joins another pool.** ● **The customer reports the fraudulent groups/pools.** ● **The driver customer enters the profileIDs of the rider customers on the confirmation form at the beginning of their travel.** ● The customers pay the travel charges using credit/debit cards/UPI ids/**wallet**. ● The customers rate the experience of the pool. ● The customers leave the group and join the other group. ● The Admin logs in to the system, views the customer's profiles, queries, complaints, and feedback, and tries to resolve them. ● Admin takes necessary actions like deleting the customer profiles/groups based on the feedback received. ● Admin **generates the reports of successful pools and new customers from the database** and analyses them to take necessary actions.

Participants	Information	Technologies
● Users (who have vehicles) ● Admin	● User details ● Vehicle details ● Location details ● List of groups ● Pool details ● Rating/feedback	● GPS ● Email ● Web portal ● Payment gateway ● Excel sheets ● **Wallet**

TO-BE Work System Snapshot (selected for project work)

Customers	Product/Services
● Students ● Working professionals (includes both the teaching and non-teaching staff)	● Transport ● Rating

Major Activities and Processes
● The customers sign up to the website by filling in the details. ● The customers load the required minimum balance into the wallet through credit/debit cards/UPI. ● The customers log in to the website and view his/her groups. ● The customers edit their profile, adds the vehicle details and license number. ● The customers search for already existing groups and join the necessary group. ● The customers create a new group for the other customers to join. ● The customers post a pooling request within the group specifying the location, date, time, charges, and no. Of people, type of vehicle etc. ● The customers request a pool within the same group. ● The customer looks at the profile of the requesters and approves the customers he/she feels safe/comfortable with. ● The customer closes the pool once the requests equal the number of people that can be accompanied. ● The customers within the group comment on the pools created to negotiate the travel details and fares further and confirm the pool. ● The driver customer enters the profileIDs of the rider customers on the confirmation form at the beginning of the pool. ● The customers pay the travel charges using credit/debit cards/UPI ids/wallet. ● The customers rate the experience of the pool. ● The customer reports the fraudulent groups/pools. ● The Admin logs in to the system, views the customers' profiles, queries, complaints, and feedback, and tries to resolve them. ● Admin takes necessary actions like deleting the customer profiles/groups based on the feedback received. ● Admin generates the reports of successful pools and new customers from the database and analyses them to take necessary actions.

Participants	Information	Technologies
● Users (who have vehicles) ● Admin	● User details ● Vehicle details ● Location details ● List of groups ● Pool details ● Rating/feedback	● GPS ● Email ● Web portal ● Payment gateway ● Excel sheets ● Wallet

Section 4 – Product Backlog

As a/an	I want to	so that
Customer	Sign up to the application by filling the necessary details	I can participate in pooling.
Customer	Login to the system	I can view my groups.
Customer	Register the vehicle details on the application	I can offer rides whenever possible.
Customer	Search for a group	I can find one that best suits my requirements.
Customer	Join the group I searched for	I can see the pools available in that group.
Customer	Create a new group	the customers who have the same waypoints can join.
Customer (Driver)	Post for a pool	I can give a ride to the customers who want one.
Customer (Rider)	Request a pool	I could pool and reach my destination more comfortably.
Customer (Driver)	View the profile of the requesters	I can accept the request and form a more secure pool.
Customer (Rider)	Discuss the pool details	I can confirm the pool.
Customer (Rider)	Make a payment through my credit/debit/UPI	I can complete the transaction in less time and in an easier way.
Customer (Rider)	Make a payment using my wallet	I can complete my transaction without giving away my card/UPI details.
Customer	Give feedback about the pool	it can be viewed by other customers when they pool.
Customer	Report a fraudulent group/ pool	the system is authentic.

Admin	Login to the application	I can view the performance of the pools on my dashboard.
Admin	View the list of customers	I can take necessary actions.
Admin	Delete the customers/ groups	the application has authentic customers and groups for pools.
Admin	Generate reports on the efficiency of the website being used	I can address any serious performance issues.

Section 5 - Use case modeling

Use case diagram

Use case description # 1

Name	
Description	
Actors	
Trigger	
Preconditions	
Postconditions	
Main course	
Alter nate courses	
Exceptions	

Use case description # 2

Name	
Description	
Actors	
Trigger	
Preconditions	
Postconditions	
Main course	
Alter nate courses	
Exceptions	

Use case description # 3

Name	
Description	
Actors	
Trigger	
Preconditions	
Postconditions	
Main course	
Alter nate courses	
Exceptions	

Use case description # 4

Name	
Description	
Actors	
Trigger	
Preconditions	
Postconditions	
Main course	
Alter nate courses	
Exceptions	

Use case description # 5

Name	
Description	
Actors	
Trigger	
Preconditions	
Postconditions	
Main course	
Alter nate courses	
Exceptions	

Section 6 – Class diagram

<attributes and operations should be listed on the following pages as a table; about 8 to 10 classes are expected with relationships; domain modeling should follow transaction pattern approach as much as possible>

<class diagram/domain model>

Attributes and operations

Class name	Attributes	Operations

NoSQL documents

<revised table; refer to LAB09 solution for example entries and expected format>

Document name and structure	**Classe(s)**	**Justification(s) for embedding, referencing and denormalization**
		-
		-

Section 7 – System Architecture

<suggest a suitable architecture for your scaled up system for real-life deployment (not the demo system you have implemented - figure>

<justification for the suggested architecture - one paragraph>

Section 8 – Dashboard

<two or three screenshot of dashboard that captures typical information provided to managers or decision maker type of users in your project case>

Section 9 – Conclusion

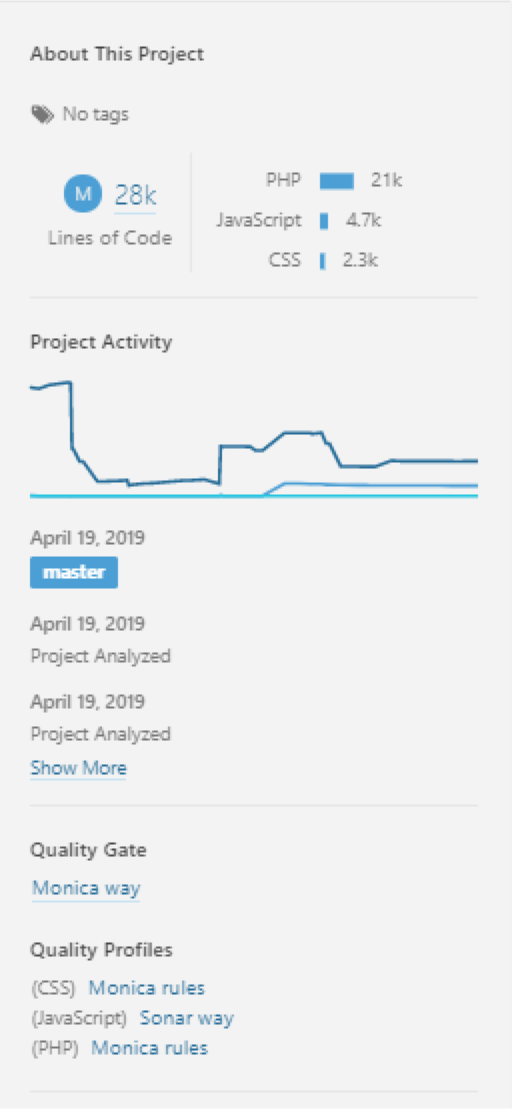
<Summary of the problem and work done (one para)>

<Summary of learning/reflections on project work and project management (two paras)>

<Limitations and possible improvements (one para)>

Appendix A - Code Quality Reports

<2 to 3 pages; add the following items of your code quality report obtained from SonarCloud>



About This Project

No tags

M 28k Lines of Code

PHP	▬	21k
JavaScript	▮	4.7k
CSS	▮	2.3k

Project Activity

April 19, 2019
master

April 19, 2019
Project Analyzed

April 19, 2019
Project Analyzed

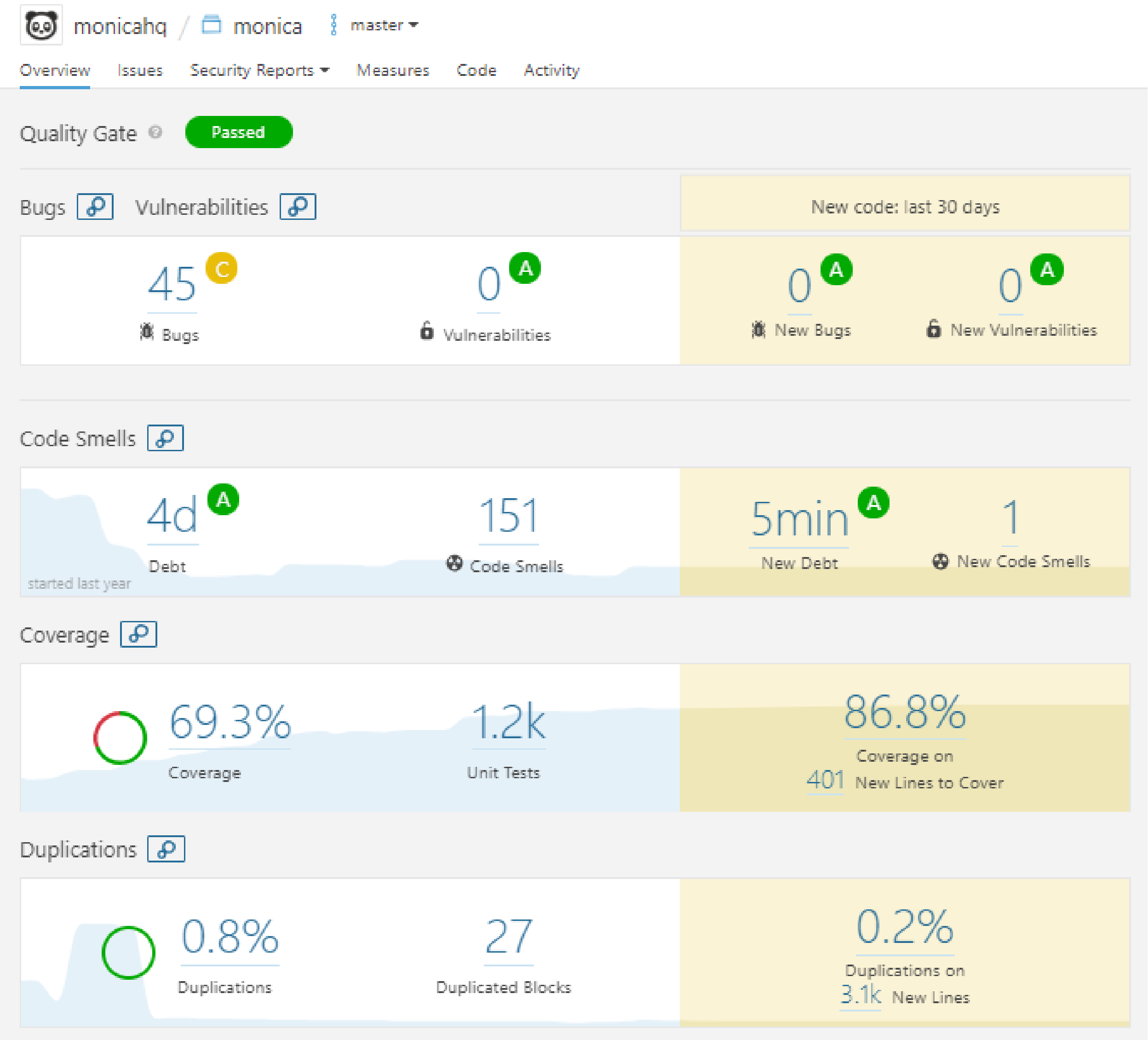
Show More

Quality Gate

Monica way

Quality Profiles

(CSS) Monica rules
(JavaScript) Sonar way
(PHP) Monica rules



monicahq / monica master

Overview Issues Security Reports Measures Code Activity

Quality Gate Passed

Bugs Vulnerabilities

New code: last 30 days

45 C Bugs

0 A Vulnerabilities

0 A New Bugs

0 A New Vulnerabilities

Code Smells

4d A Debt

started last year

151 Code Smells

5min A New Debt

1 New Code Smells

Coverage

69.3% Coverage

1.2k Unit Tests

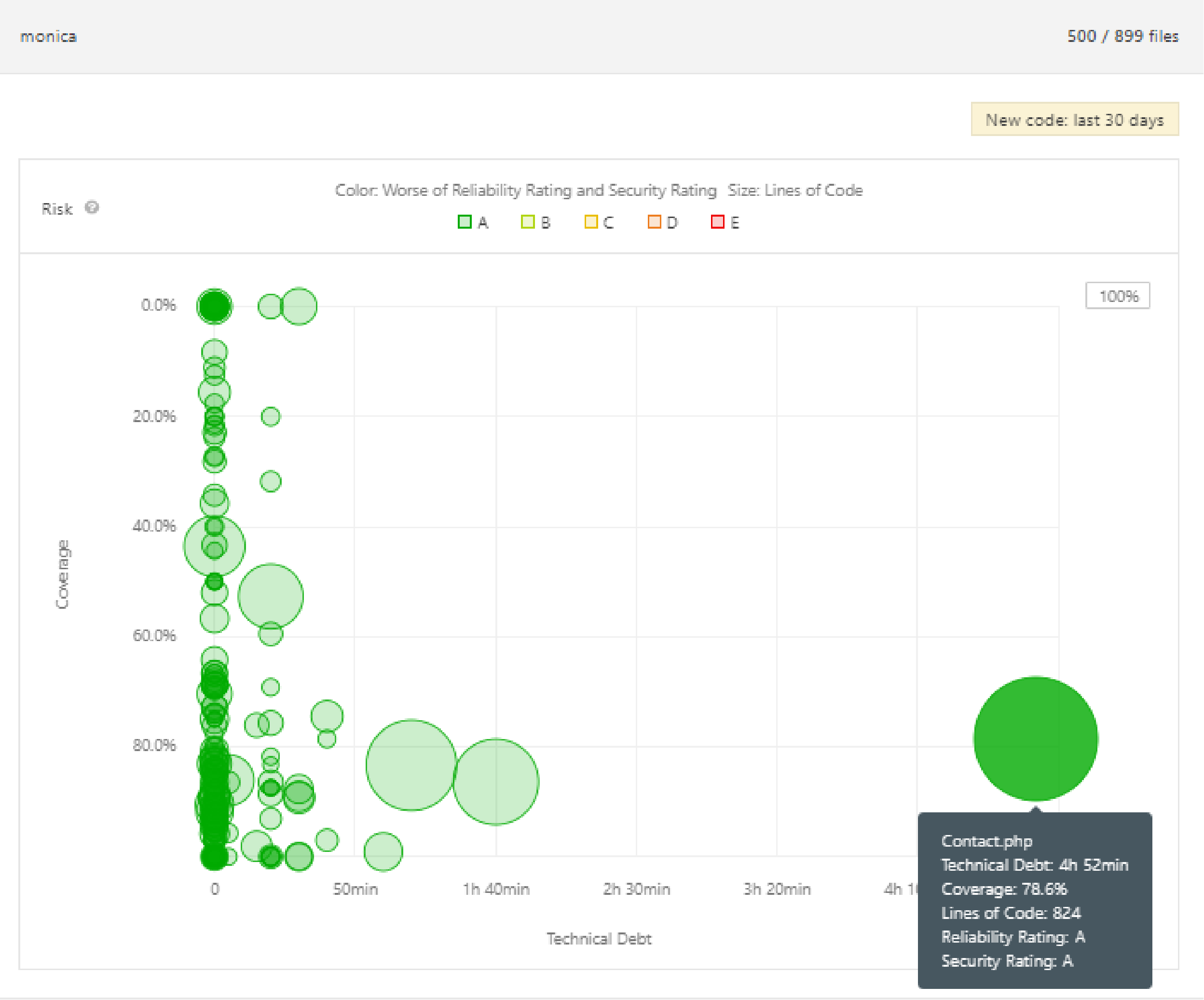
86.8% Coverage on 401 New Lines to Cover

Duplications

0.8% Duplications

27 Duplicated Blocks

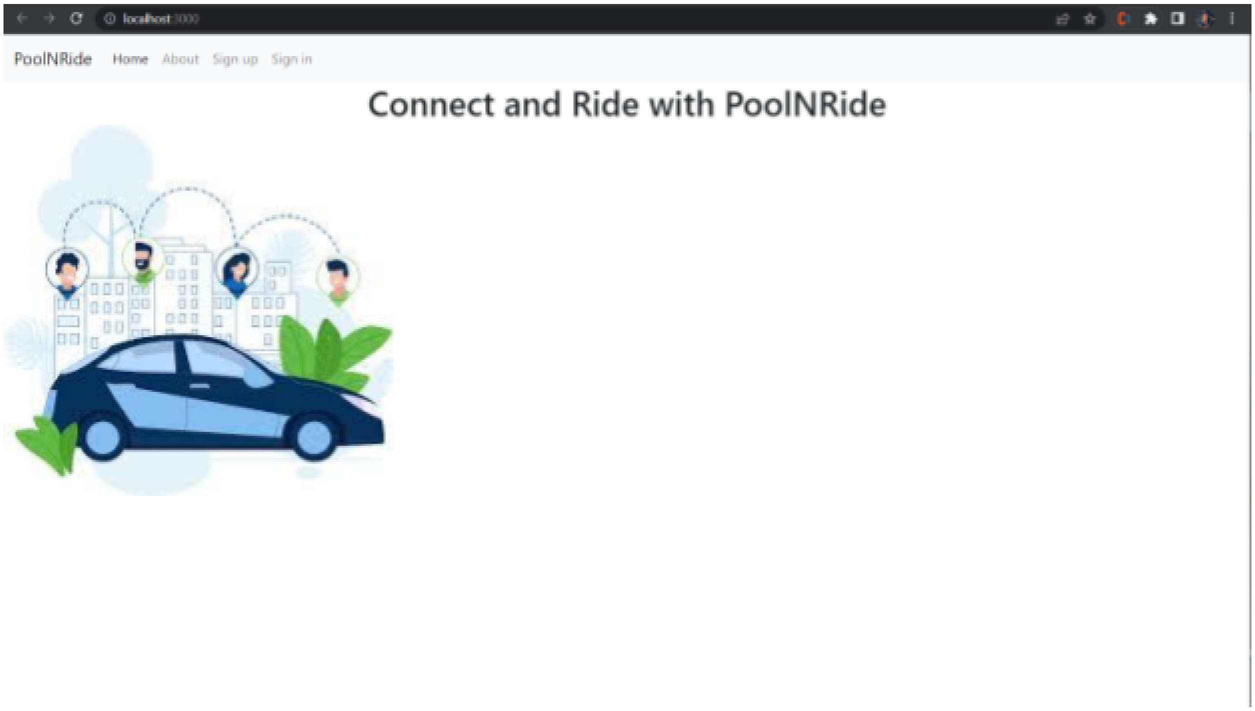
0.2% Duplications on 3.1k New Lines



Contact.php
Technical Debt: 4h 52min
Coverage: 78.6%
Lines of Code: 824
Reliability Rating: A
Security Rating: A

Appendix B - Sample screenshots

→The Homepage of the website:

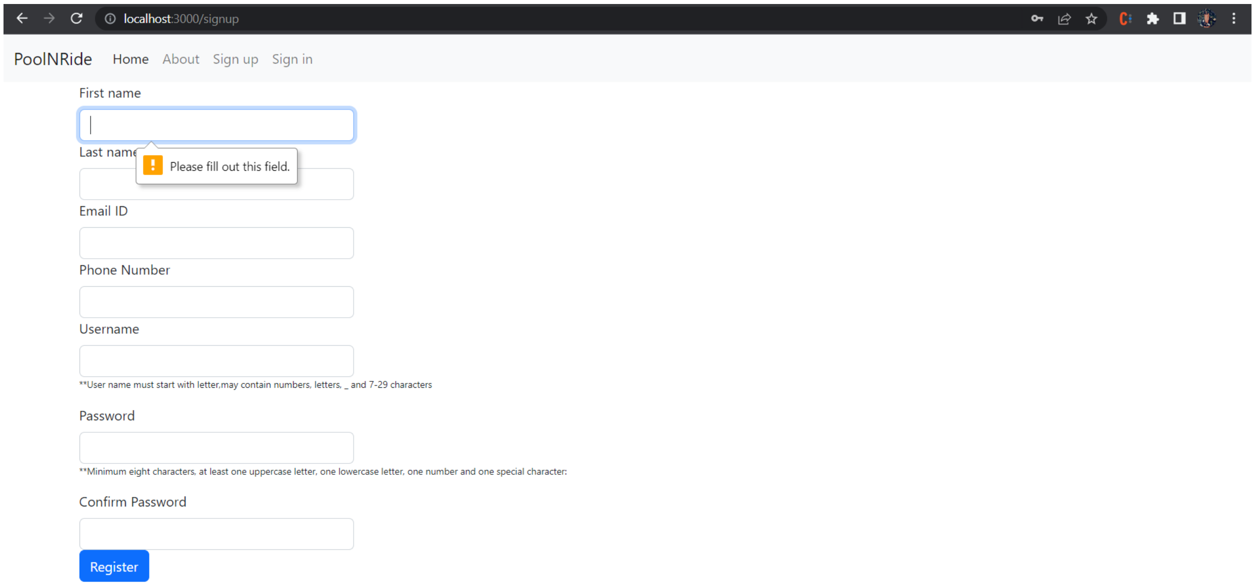


Connect and Ride with PoolNRide

→**CREATE:**

Customer on clicking on SignUp from the Homepage of the website:

Note: All the fields are made required



First name

Please fill out this field.

Last name

Email ID

Phone Number

Username

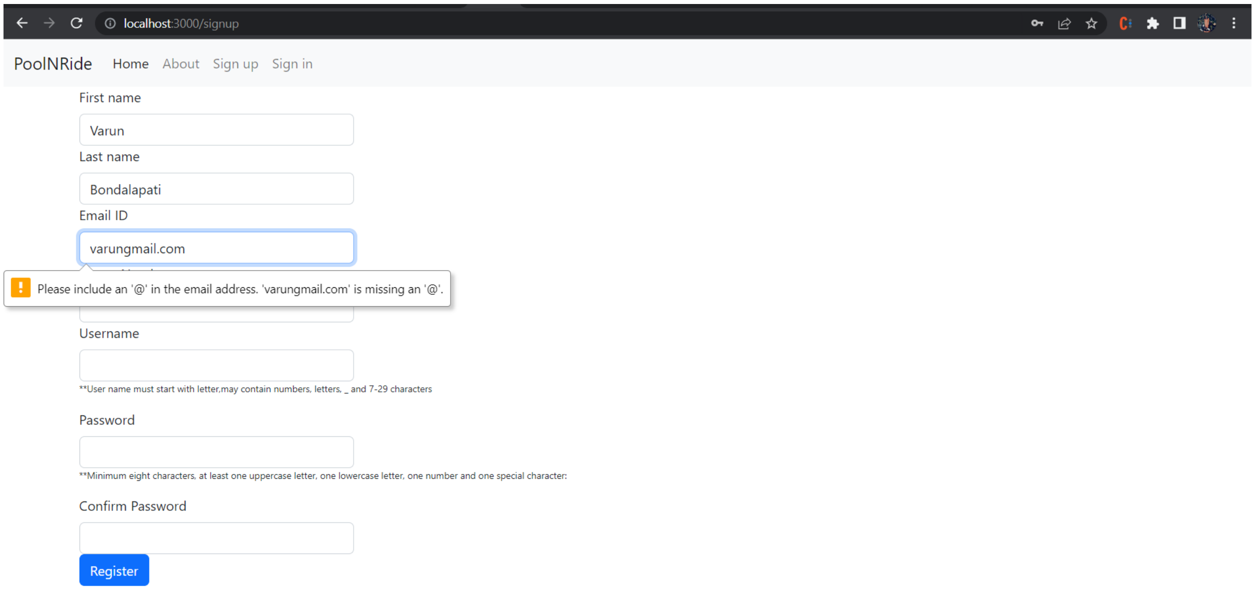
**User name must start with letter,may contain numbers, letters, _ and 7-29 characters

Password

**Minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character:

Confirm Password

Note: Checks for the valid email format.



First name

Varun

Last name

Bondalapati

Email ID

varungmail.com

Please include an '@' in the email address. 'varungmail.com' is missing an '@'.

Username

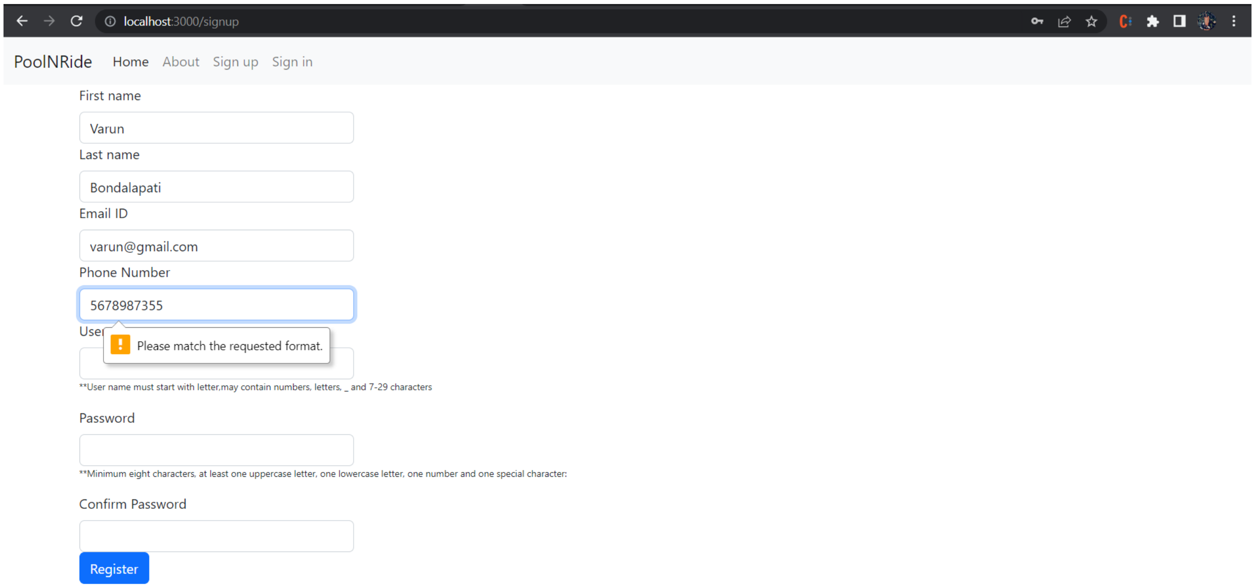
**User name must start with letter.may contain numbers, letters, _ and 7-29 characters

Password

**Minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character:

Confirm Password

Note: Checks for the valid mobile number format



First name

Varun

Last name

Bondalapati

Email ID

varun@gmail.com

Phone Number

5678987355

Please match the requested format.

User

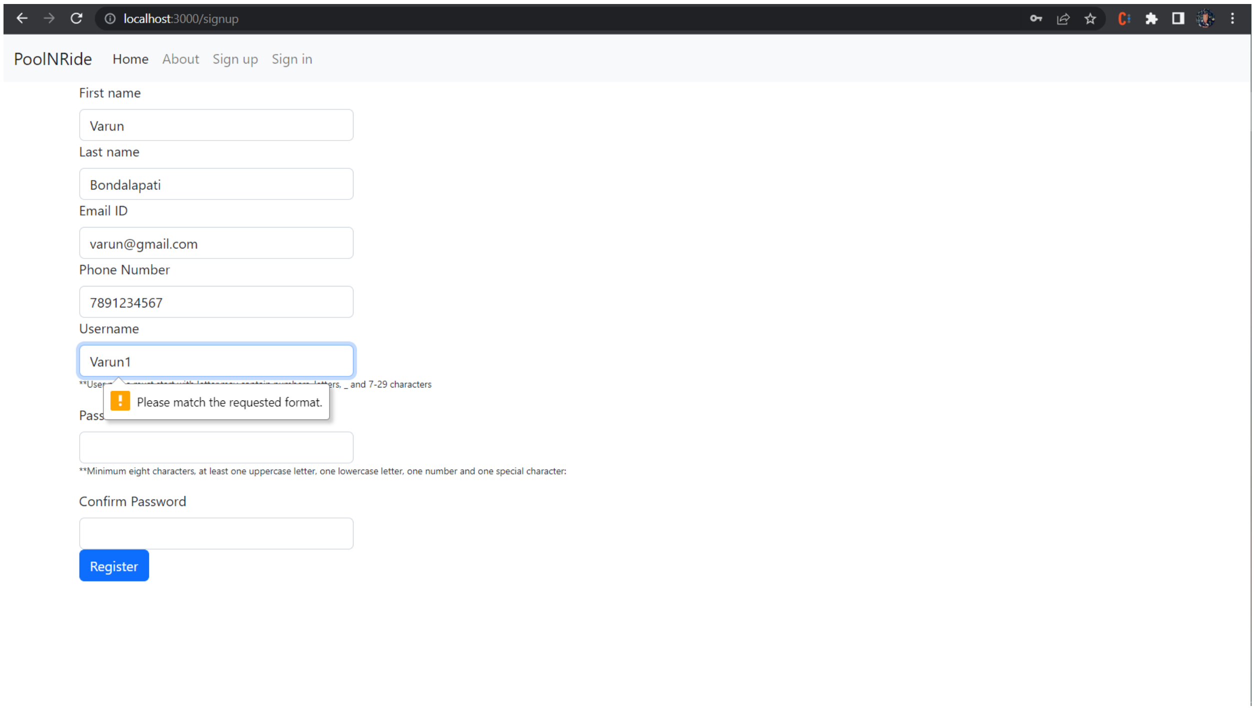
**User name must start with letter.may contain numbers, letters, _ and 7-29 characters

Password

**Minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character:

Confirm Password

Note: Checks for the valid username format



First name

Varun

Last name

Bondalapati

Email ID

varun@gmail.com

Phone Number

7891234567

Username

Varun1

**User ers, _ and 7-29 characters

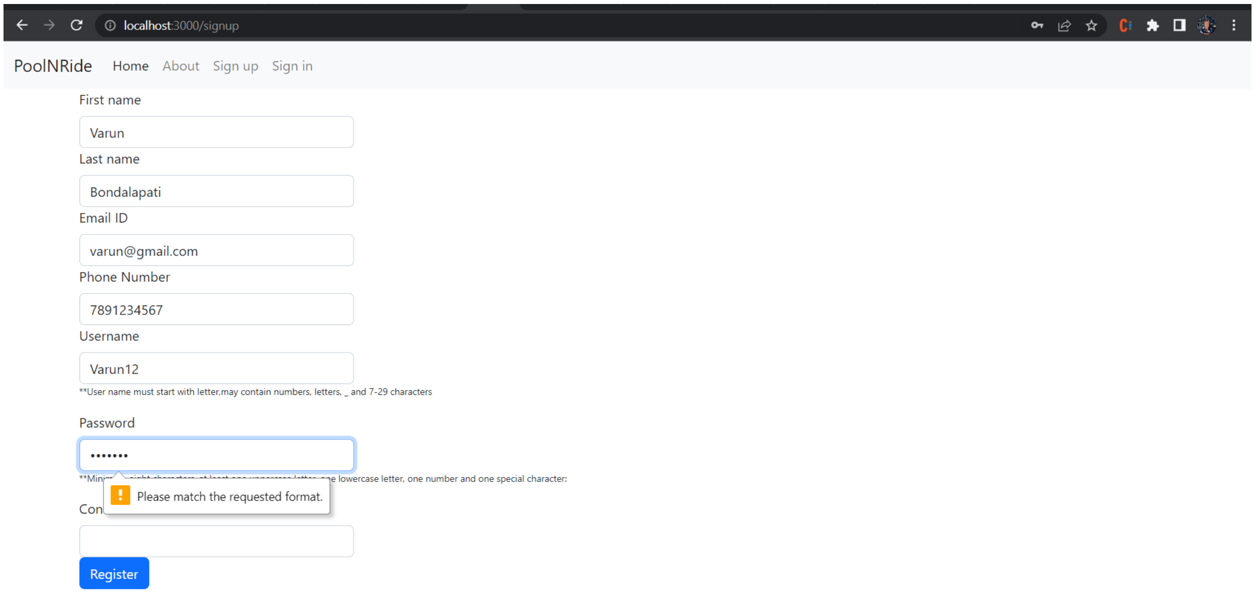
Please match the requested format.

Pass

**Minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character:

Confirm Password

Note: Checks for the valid password format



First name

Varun

Last name

Bondalapati

Email ID

varun@gmail.com

Phone Number

7891234567

Username

Varun12

**User name must start with letter.may contain numbers, letters, _ and 7-29 characters

Password

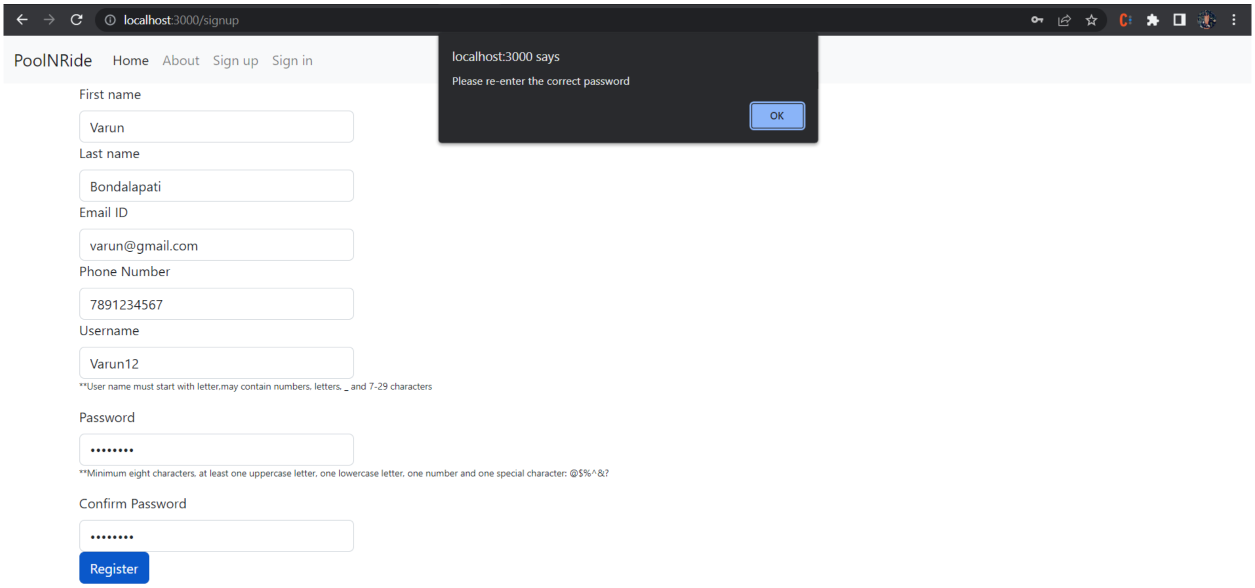
•••••••

**Mir e lowercase letter, one number and one special character:

Please match the requested format.

Con

Note: Checks if the password (Varun@12) == confirmPassword (Varun#12)



localhost:3000 says

Please re-enter the correct password

First name: Varun

Last name: Bondalapati

Email ID: varun@gmail.com

Phone Number: 7891234567

Username: Varun12

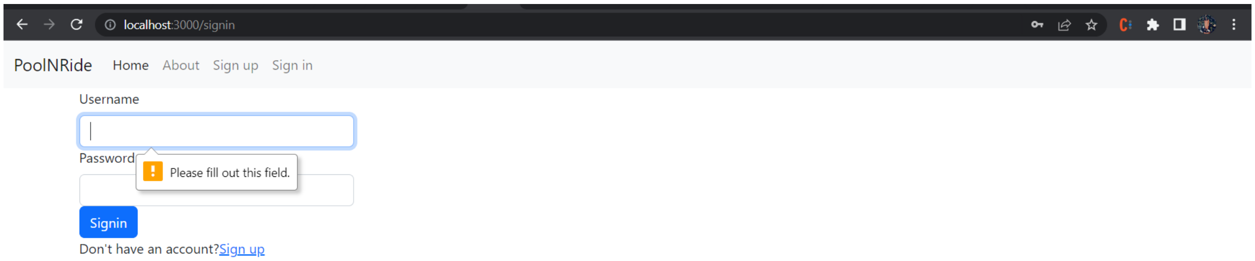
**User name must start with letter,may contain numbers, letters, _ and 7-29 characters

Password: ••••••••

**Minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character: @$%^&?

Confirm Password: ••••••••

→Customer on successful signup, is redirected to the Signin page
(Customer can directly land on signin page from the website home page)



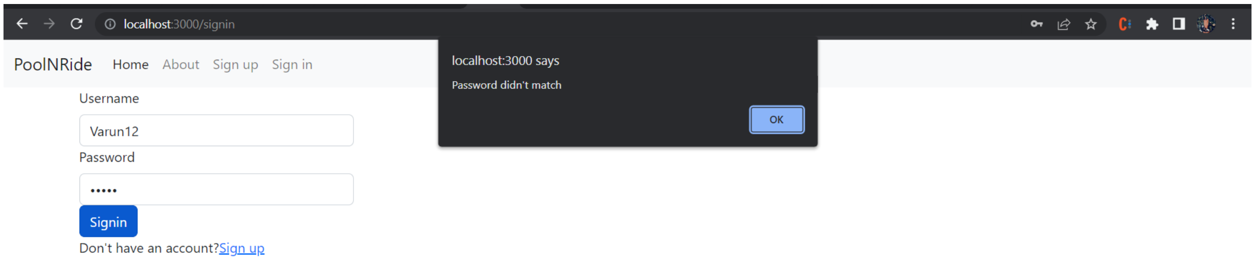
Username:

Password:

Please fill out this field.

Don't have an account?Sign up

Note: if the password doesn't match with the one that is given during registration.



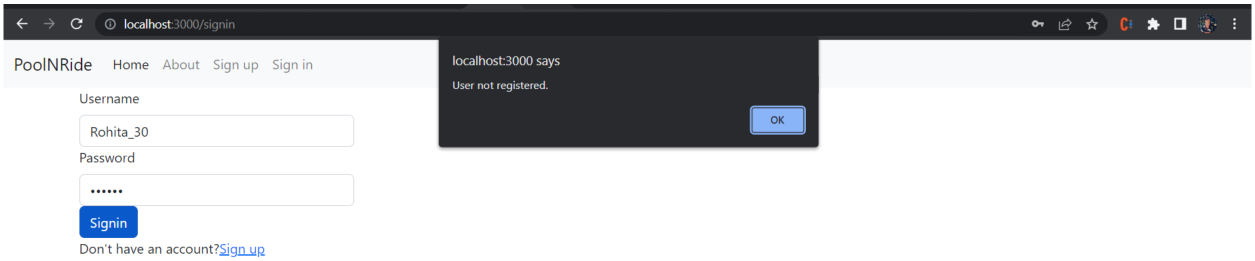
localhost:3000 says

Password didn't match

Username: Varun12

Password: •••••

Note: if the user is here for the first time and tried to signin without registering:



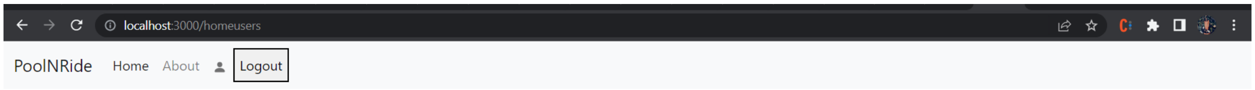
localhost:3000 says

User not registered.

Username: Rohita_30

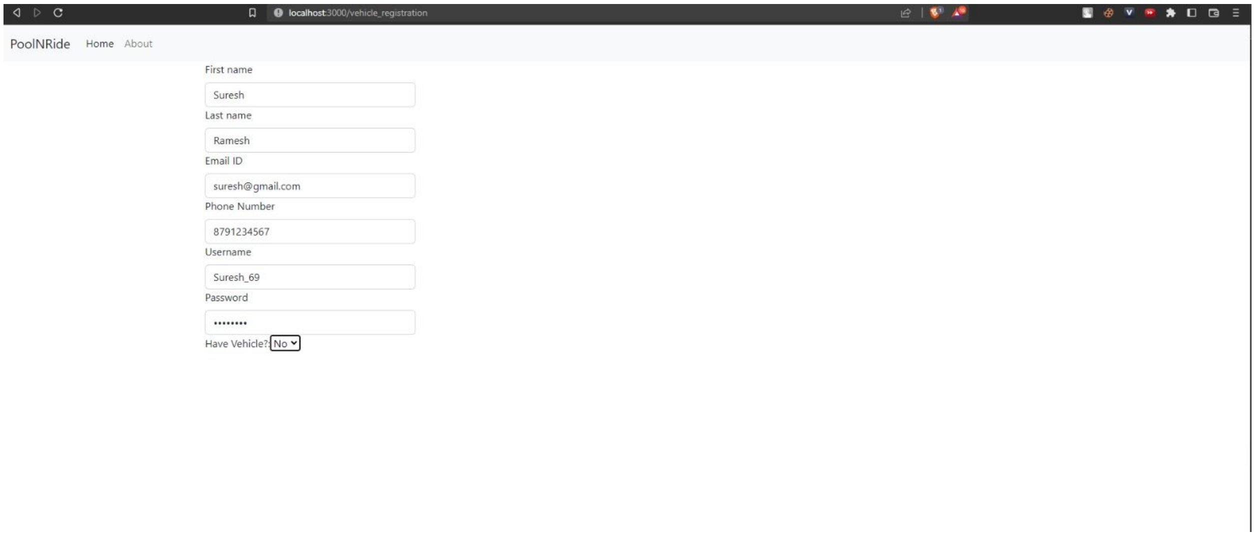
Password: ••••••

→Customer on successful signin, is redirected to the user's home page.

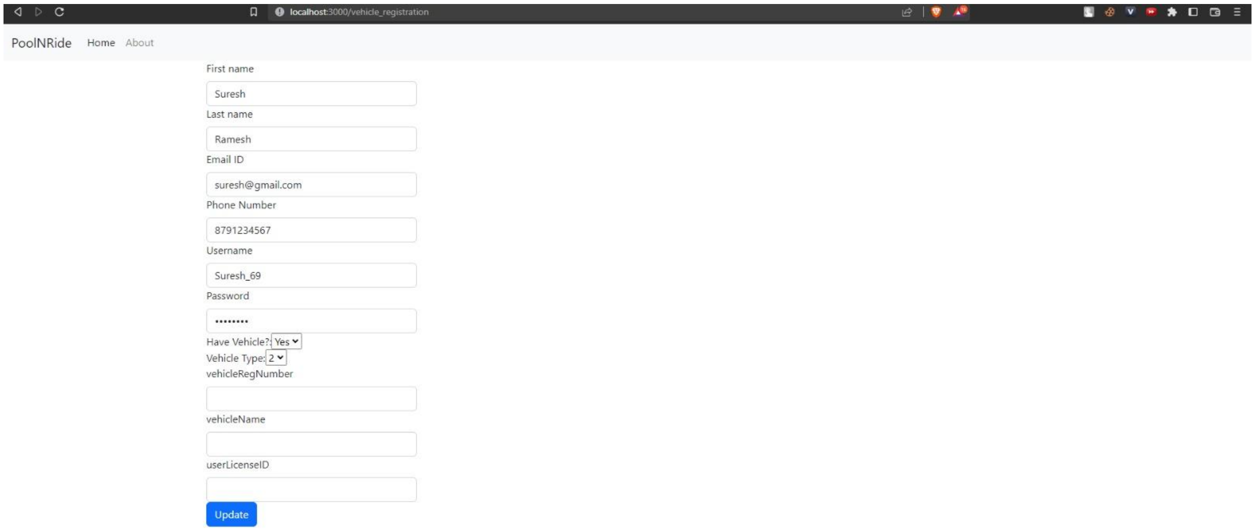


→**UPDATE:**

If Customer has a vehicle, he can update his/her vehicle details on their profile by clicking on the profile icon:



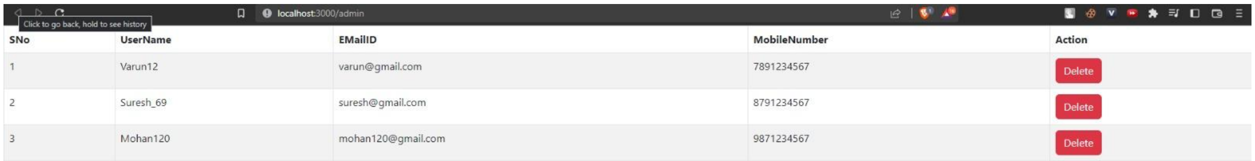
First name: Suresh
Last name: Ramesh
Email ID: suresh@gmail.com
Phone Number: 8791234567
Username: Suresh_69
Password: ••••••••
Have Vehicle?: No



First name: Suresh
Last name: Ramesh
Email ID: suresh@gmail.com
Phone Number: 8791234567
Username: Suresh_69
Password: ••••••••
Have Vehicle?: Yes
Vehicle Type: 2
vehicleRegNumber:
vehicleName:
userLicenseID:

→READ:

Admin on Signing in, views the list of customers that are registered on the website.

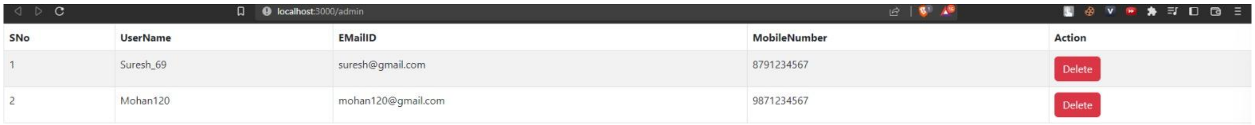


SNo	UserName	EMailID	MobileNumber	Action
1	Varun12	varun@gmail.com	7891234567	Delete
2	Suresh_69	suresh@gmail.com	8791234567	Delete
3	Mohan120	mohan120@gmail.com	9871234567	Delete

(To be implemented: Admin should be able to view the licence number of the customer)

→DELETE:

Admin can delete the customers on his dashboard:

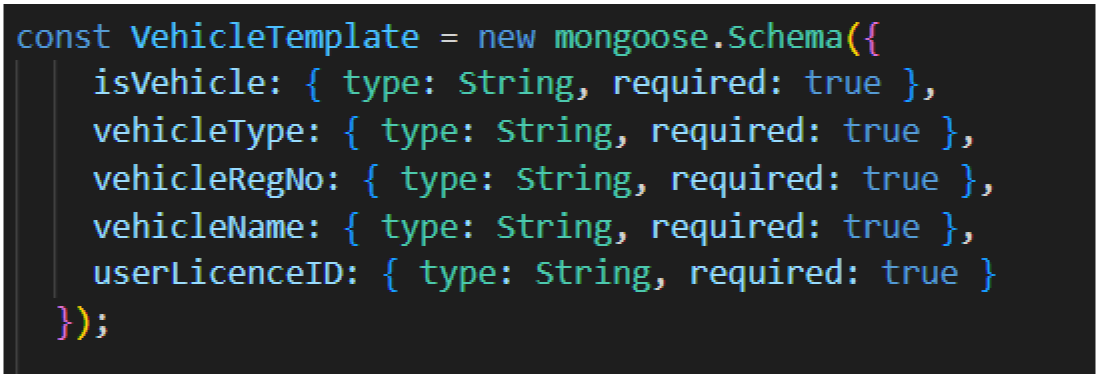


SNo	UserName	EMailID	MobileNumber	Action
1	Suresh_69	suresh@gmail.com	8791234567	Delete
2	Mohan120	mohan120@gmail.com	9871234567	Delete

(All the css styling to be done in the last sprint)

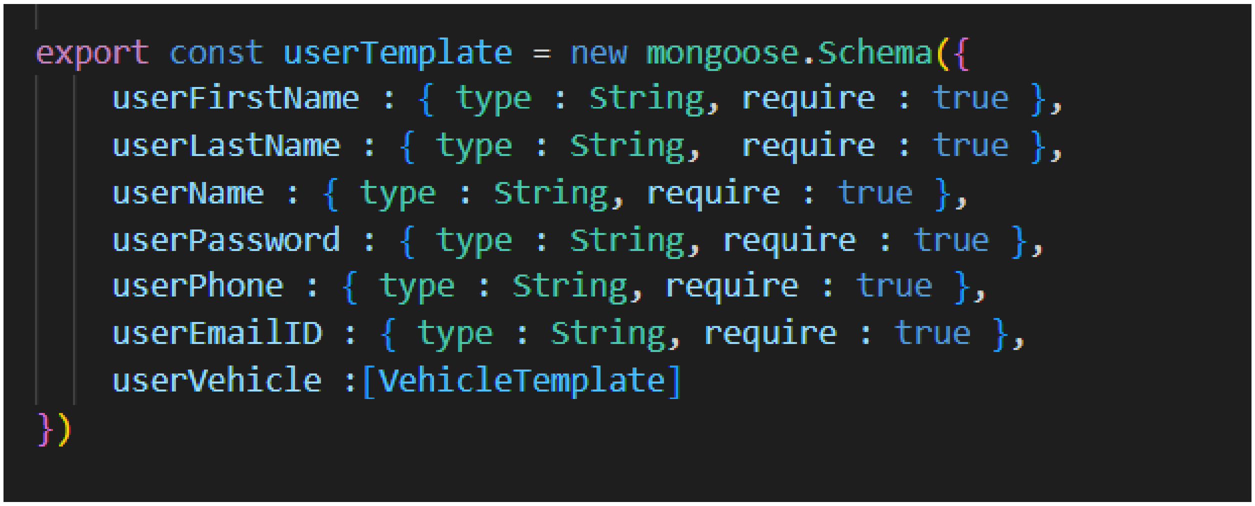
→Schemas

Vehicle Details:



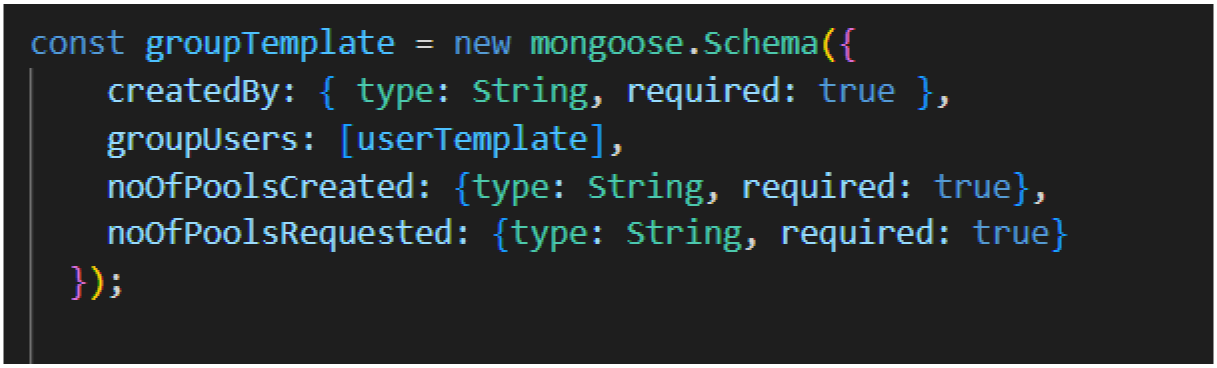
```
const VehicleTemplate = new mongoose.Schema({
    isVehicle: { type: String, required: true },
    vehicleType: { type: String, required: true },
    vehicleRegNo: { type: String, required: true },
    vehicleName: { type: String, required: true },
    userLicenceID: { type: String, required: true }
  });
```

User Details:



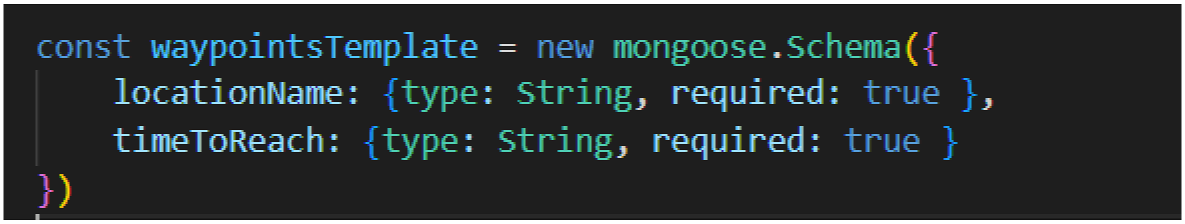
```
export const userTemplate = new mongoose.Schema({
    userFirstName : { type : String, require : true },
    userLastName : { type : String,  require : true },
    userName : { type : String, require : true },
    userPassword : { type : String, require : true },
    userPhone : { type : String, require : true },
    userEmailID : { type : String, require : true },
    userVehicle :[VehicleTemplate]
})
```

Group Details:



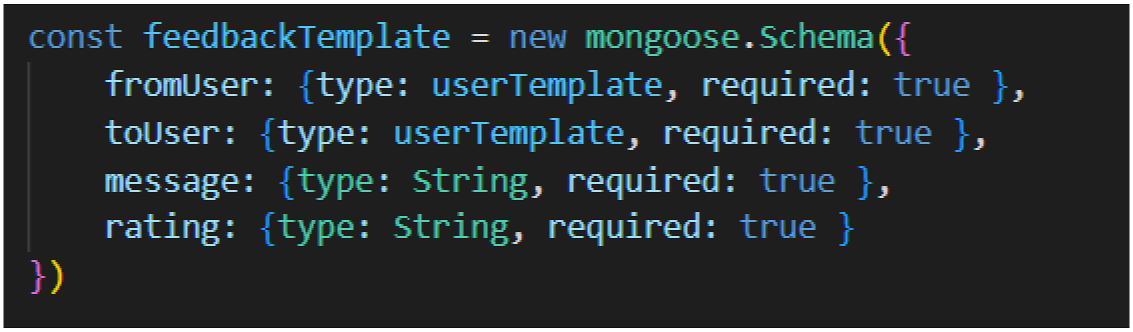
```
const groupTemplate = new mongoose.Schema({
    createdBy: { type: String, required: true },
    groupUsers: [userTemplate],
    noOfPoolsCreated: {type: String, required: true},
    noOfPoolsRequested: {type: String, required: true}
  });
```

Waypoints Details:



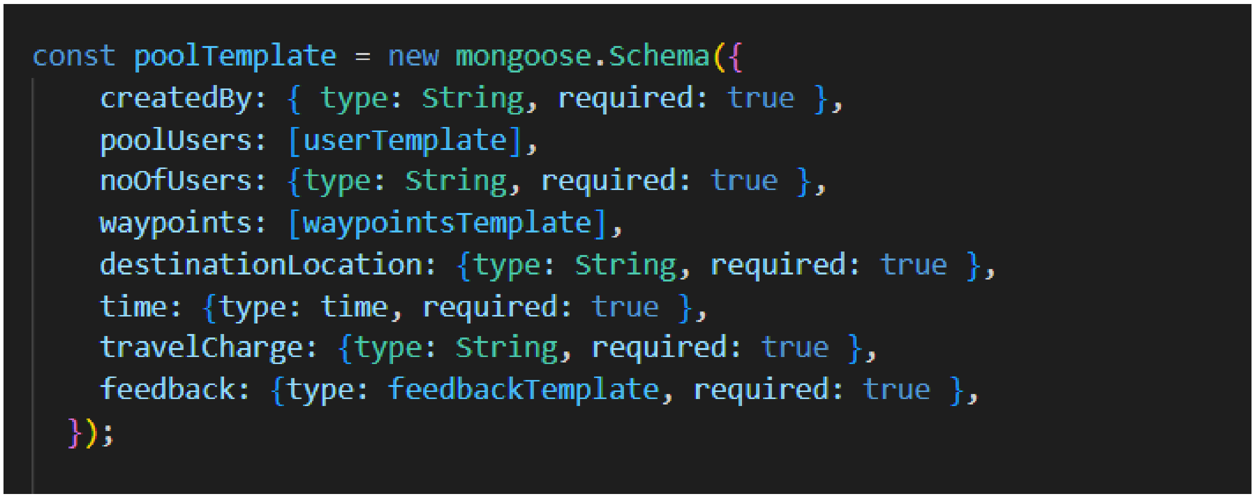
```
const waypointsTemplate = new mongoose.Schema({
    locationName: {type: String, required: true },
    timeToReach: {type: String, required: true }
})
```

Feedback Details:



```
const feedbackTemplate = new mongoose.Schema({
    fromUser: {type: userTemplate, required: true },
    toUser: {type: userTemplate, required: true },
    message: {type: String, required: true },
    rating: {type: String, required: true }
})
```

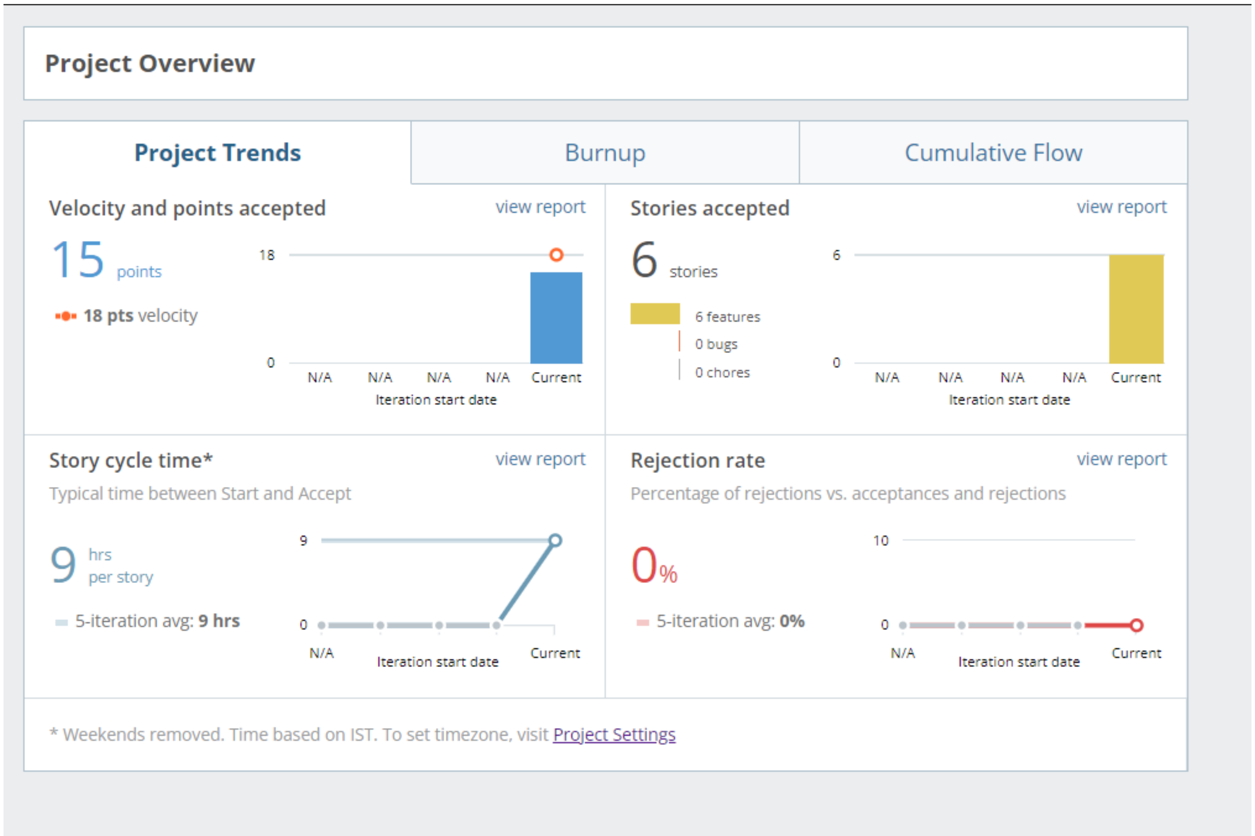
Pool Details:



```
const poolTemplate = new mongoose.Schema({
    createdBy: { type: String, required: true },
    poolUsers: [userTemplate],
    noOfUsers: {type: String, required: true },
    waypoints: [waypointsTemplate],
    destinationLocation: {type: String, required: true },
    time: {type: time, required: true },
    travelCharge: {type: String, required: true },
    feedback: {type: feedbackTemplate, required: true },
  });
```

Appendix C – Project management

Project Overview



Velocity and points accepted

15 points

18 pts velocity

Stories accepted

6 stories

6 features

0 bugs

0 chores

Story cycle time*

Typical time between Start and Accept

9 hrs per story

5-iteration avg: **9 hrs**

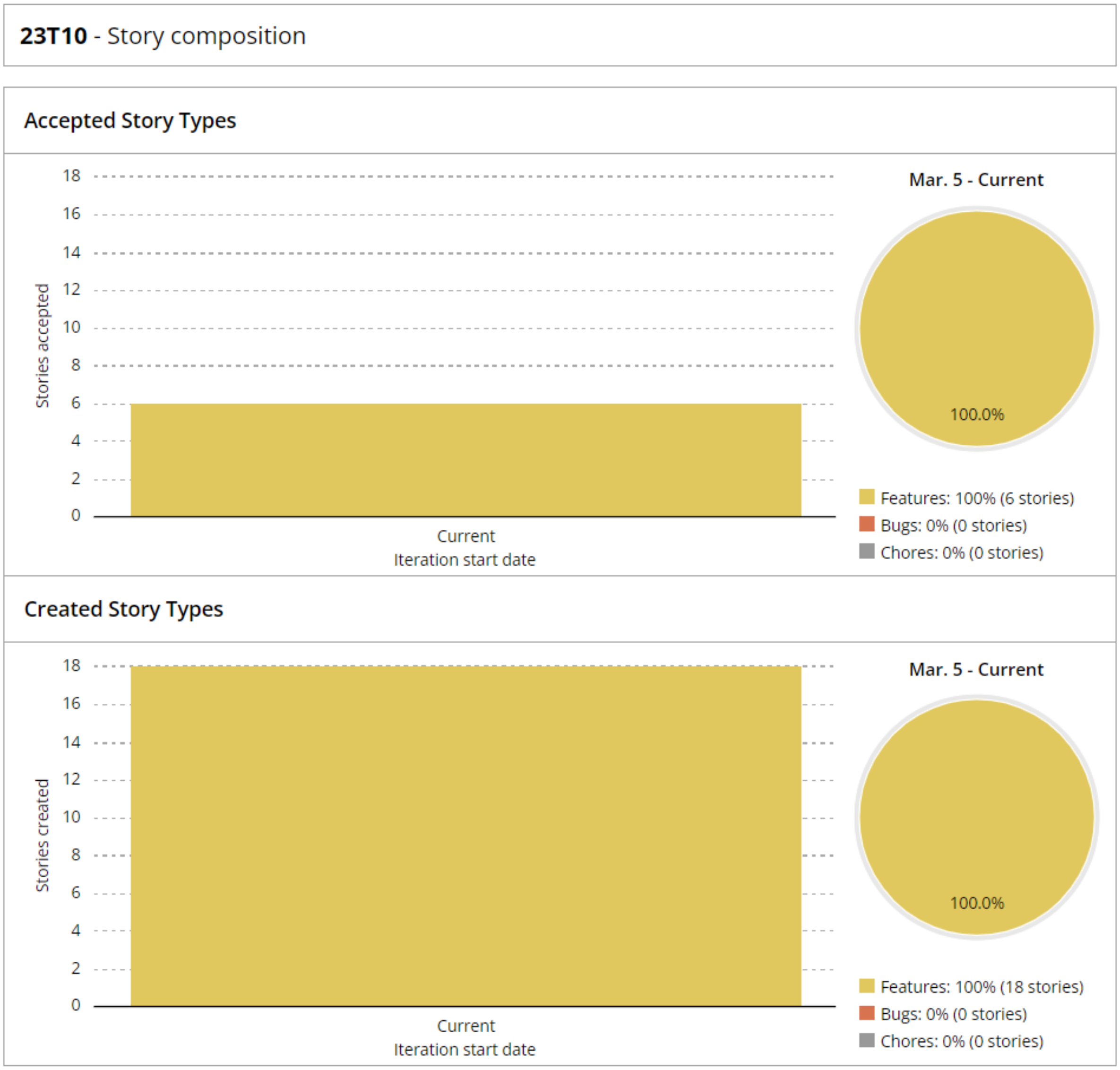
Rejection rate

Percentage of rejections vs. acceptances and rejections

0%

5-iteration avg: **0%**

* Weekends removed. Time based on IST. To set timezone, visit Project Settings

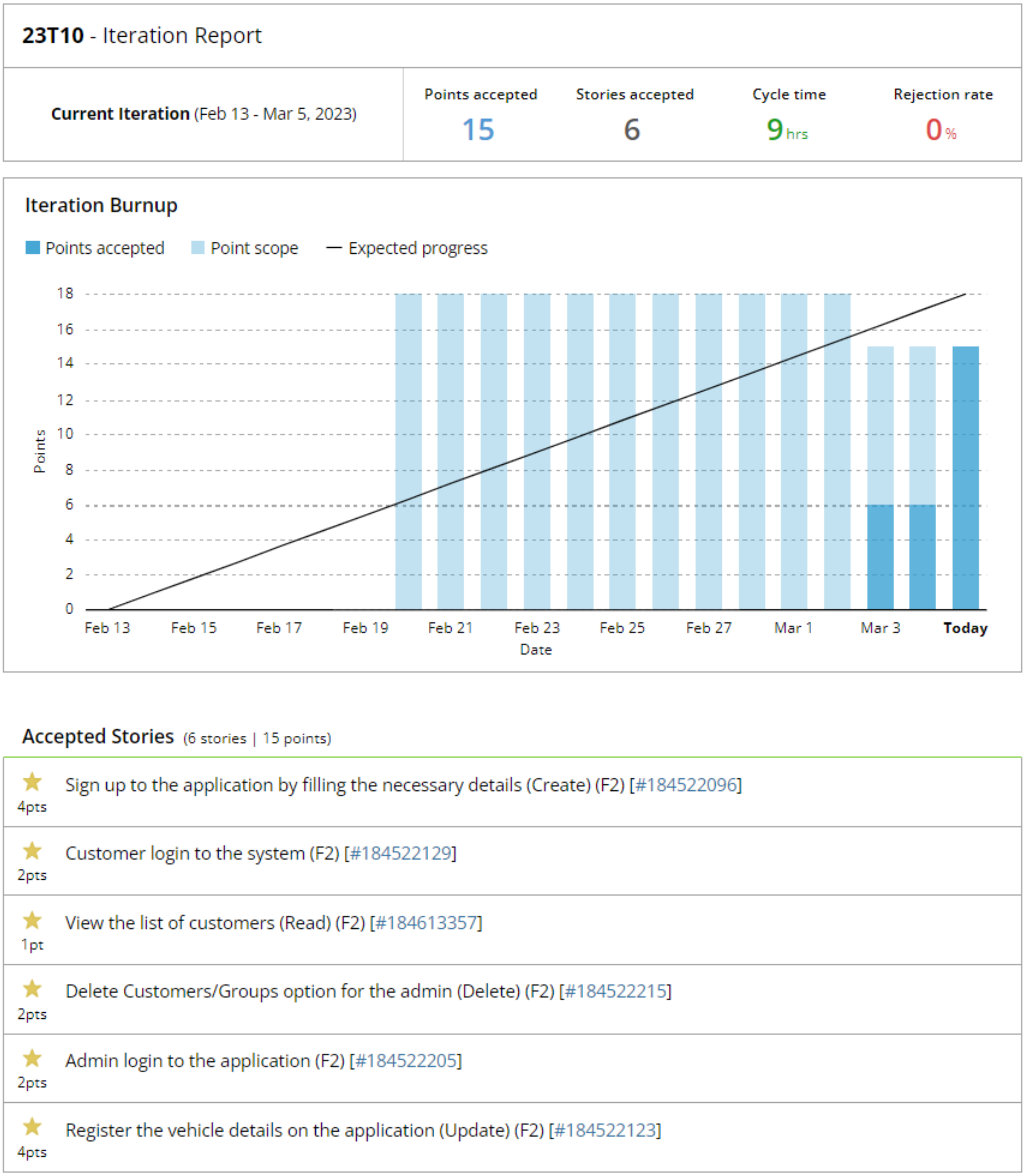


23T10 - Story composition

Accepted Story Types

Created Story Types

Iteration Report



23T10 - Iteration Report

Current Iteration (Feb 13 - Mar 5, 2023)

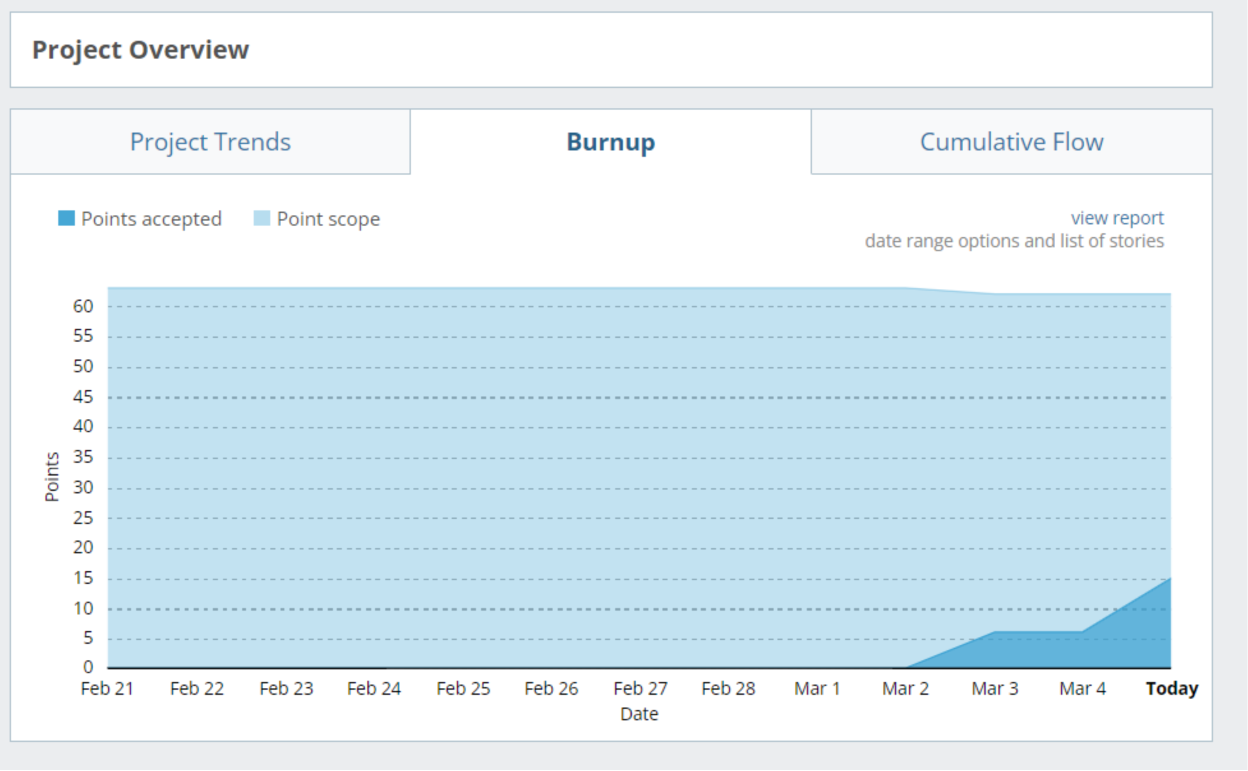
Points accepted	Stories accepted	Cycle time	Rejection rate
15	6	9 hrs	0 %

Iteration Burnup

Accepted Stories (6 stories | 15 points)

★ 4pts	Sign up to the application by filling the necessary details (Create) (F2) [#184522096]
★ 2pts	Customer login to the system (F2) [#184522129]
★ 1pt	View the list of customers (Read) (F2) [#184613357]
★ 2pts	Delete Customers/Groups option for the admin (Delete) (F2) [#184522215]
★ 2pts	Admin login to the application (F2) [#184522205]
★ 4pts	Register the vehicle details on the application (Update) (F2) [#184522123]

Burnup Chart


Project Overview
Project Trends
Burnup
Cumulative Flow
Points accepted
Point scope
view report
date range options and list of stories
Points
Feb 21
Feb 22
Feb 23
Feb 24
Feb 25
Feb 26
Feb 27
Feb 28
Mar 1
Mar 2
Mar 3
Mar 4
Today
Date