American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

One Touch Renting and Riding System

A Software Engineering Project Submitted
By

Semester: Fall 2022-23		**Section: B**	**Group Number: 7**	
SN	**Student Name**	**Student ID**	**Contribution (CO1+CO2)**	**Individual Marks**
1	**Bhuiyan, Fahim Mahmud**	**20-42970-1**		
2	**Basak, Shanto Kumar**	**20-42945-1**		
3	**Tanzin, Effat Ara**	**20-42000-1**		
4	**Mahin, Mosaddek Hossain**	**20-43905-2**		
5	**Maliyat, Muntaqa**	**20-43248-1**		

The project will be evaluated for the following Course Outcomes

CO1: *Analyze* the impact of software engineering models over various contexts of software development to assess societal, health, safety, legal and cultural issues.	Total Marks	
Project Background Analysis and Feasibility (needs, goal, benefits, etc.)	[5 Marks]	
Analysis of the impact of societal, health, safety, legal and cultural issues	[5 Marks]	
Review of Existing Studies and Relevant Examples	[5 Marks]	
CO2: *Explain* appropriate software engineering model, project management roles, and their skills in the context of professional engineering practice and solutions to complex engineering problems in a software development environment.	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5 Marks]	
Evidence of Argumentation Regarding Process Model Selection	[5 Marks]	
Submission, Defense, Completeness, Spelling, grammar, and Organization of the Project report	[5 Marks]	

Description of Student's Contribution in the Project Work

Student Name: Bhuiyan, Fahim Mahmud
Student ID: 20-42970-1
Contribution in Percentage (%):
Contribution in the Project:

- Contribution Description 1:
- Contribution Description 2:

____
Signature of the Student

Student Name: Basak, Shanto Kumar
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Contribution in Percentage (%)
Contribution in the Project:

- Contribution Description 1:
- Contribution Description 2:

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- Contribution Description 1:
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1. PROJECT PROPOSAL

1.1 Background to the Problem

For their everyday tasks, people must travel a short distance to various locations. Nowadays, people summon a car to take them to their location using a ridesharing app on their smartphone. The car arrives and picks them up after some waiting. The driver may accept the journey, take a longer and more congested route to the destination, lose a lot of time, and then demand a considerably higher charge. Additionally, the passenger may occasionally see that the driver does not possess the qualifications required to operate a car safely in urban areas. This problem affects a lot of individuals often. As a result, we require a system that can compare all of the existing online ridesharing applications, including Uber, Pathao, Shohoz, Obhai, and others. Additionally, the passenger can rent a car or bike by using this app.

The major reason for this problem at present time is that ride-sharing programs are not yet comparable. As a result, people waste a lot of time and money sitting in traffic and lose a lot of money by not comparing their applications. The likelihood of encountering an unprofessional driver is likewise very high. This is a serious issue that requires an immediate fix.

1.2 Solution to the Problem

The major goal of this project is to help customers locate all of the answers to their problems in one location while also determining the best bargain and path for them to take. OneTouch System, a user-friendly piece of software that can address all of the user's pre- and post-travel problems, is what we are offering as a solution to this issue.

The OneTouch system can offer the ability to compare costs with several organizations and select the best choice. Customers, on the other hand, may evaluate the ride they've taken. The system can provide clients with a favorable impression by using a rider's positive evaluation. As a consequence, the professional rider will receive more rides and the organization's service will increase. They may also take advantage of our software's transportation features, which will make their travel simple and fun. Additionally, they have the option of selecting a cheap ride share. Therefore, our system would be the finest answer for these issues and also practical to achieve the desired business results.

Saving time and money is the major objective of this initiative. Therefore, whether they are affluent or poor, young or old, domestic or foreign, our target demographic is everyone who uses ride-sharing applications. Young individuals are energetic and adventurous. Young tourists thus rank high when it comes to the target audience. International students must frequently move from one country to another. Therefore, the software we've provided for them may be of tremendous use. Again, high-end inhabitants travel frequently, making them potential users of our system who can benefit from taking holidays.

Applications like Uber, Pathao, Shohoz, Obhai, and others exist to make the ride-sharing procedure simple. They do not, however, offer all amenities, such as the ability to compare prices and a system for rewarding drivers. In Bangladesh, our OneTouch System is the only ride-sharing platform that can offer all these amenities simultaneously. Customers may choose a rider using this program based on their preferences and budget. The transportation options that other software does not offer are also available to them, along with the ability to design their own route. Once more, the user may compare and view driver rankings in addition to booking them, assisting in making the best choice. Therefore, it is clear that our OneTouch System is unquestionably an improved and upgraded version of the current program.

2. SOFTWARE DEVELOPMENT LIFE CYCLE

2.1 Process Model

Our idea primarily focuses on making daily transportation easier for those who utilize ride-sharing applications. Our team members put a lot of effort into expanding the functionality of this program. One of them is to consolidate all ride-sharing platforms so that we can compare them and choose the best journey. This is a first for our nation. We wouldn't be able to alter the functionality of the program to satisfy user wants if we attempted to design it using a plan-driven methodology. It's not good for customers that we can't even update the software. Additionally, comparing several rides and demonstrating which one is the finest is what we do best. In order to make the program user-friendly and up-to-date, we decided to create it using the Agile Method.

Agile development methodologies are commonly used in modern software development. The capacity to innovate and adapt to change is necessary for success in a turbulent business environment. Agile software development methodologies are widely used. The Scrum process model, however, is what we have opted to use in their place. A project management approach like Scrum makes it possible to successfully integrate all of the parties involved. Participation in and administration of the Scrum process is very simple and straightforward across all phases. The scrum framework relies heavily on heuristic decision-making and continuous learning in order to adapt to shifting conditions. That acknowledges that the team won't be fully known at the start of the project and that they will develop competence as the project go along. The main focus of Scrum is how to manage tasks in a team-based development environment. Re-prioritization is also incorporated into the Scrum method, and the short release cycles let teams automatically adjust to changing conditions and user needs, which is essential for our project. Your team will be able to learn and grow as a result. Scrum allows teams to self-organize as they take on a task and gain knowledge through mistakes.

Because the user's wishes and how they would access our new features are so important to our project, we decided to employ an agile methodology. Changes to the prerequisites are not permitted. You won't be able to make decisions that are ideal for you if you adhere to a precise procedure. While waterfall projects are carried out one at a time, agile projects are carried out repeatedly in cycles. Your clients will be able to deploy their base software before the entire suite thanks to agile. A waterfall or V-model, however, is not permitted. Iterative development is a process. The project follows an iterative process rather than a waterfall or V model, and the stages are substantially larger than the iterative process. The test plan is reviewed in the agile paradigm following each sprint. The test plan is examined in the waterfall model after the entire project has been developed, though. In other words, it will cost us a lot of money if a mistake in the waterfall model occurs after the entire project is completed. Contrarily, under an agile approach, clients frequently view the final result and make decisions or amendments to the project. You may correct any error in a project. Agile models, unlike other models, may be disassembled into their component elements. Agile approaches need constant communication between testers, developers, and requirements planners, whereas waterfall and V-models necessitate a delay between testing and coding since developers are not involved in the planning and requirements stages. In contrast to waterfall and V-models, which divide testers and developers, agile teams collaborate amongst them.

2.2 Project Role Identification and Responsibilities

Since we've chosen to use the Scrum Rapid Method to extend our product, we must realize that some roles and responsibilities are created by means of agile teams. Scrum essentially comprises three phases: Pre-game, Development, and Post-game. With regard to our project, we have four roles: Administration as the Scrum Master, Management Team as the Scrum Team, and Volunteer & Client. Below, each position's responsibilities are listed for each.

Scrum Master: The scrum master is the project manager who directs and oversees the whole scrum team. They are responsible for ensuring that the project is completed in accordance with Scrum's principles, values, and rules and that it proceeds according to schedule. In addition to interacting with the customer and the control during the project, they also do so with the project team. The Scrum Master and the Product Owner are often exceptional individuals. However, in a few unique situations, the Scrum Master is setting the agenda similarly to how the Product Owner could. In our project, the administrator fulfills the duties of both the scrum master and the product owner. In order to meet the demands of our customers, they are formally responsible for the project, managing, regulating, defining, and prioritizing requirements. Therefore, the control might be used to make any final decisions.

Scrum Team: The Scrum Team is the mission group with the power to choose the critical actions and prepare for them so that each Sprint's objectives may be achieved. The scrum group is responsible for determining how long a work will take, creating and evaluating the Sprint Backlog, and identifying issues that need to be resolved in the project. The scrum team must practice self-organization. Our purpose is created and managed by the scrum team. No member is required to be an engineer, but they can all join the team if their abilities are required to keep the task moving forward at the correct speed. Additionally, developers—who perform the coding—might have a unique talent that benefits the group. For the benefit of customers who are hungry, the management team gathers and plans work. The group, however, is equally accountable. Every day, the Daily Scrum is a stand-up meeting where team members and the Scrum Master discuss and receive feedback on the status of a project. The volunteers for our mission are also under the scrum group's supervision.

Product Owner: In the Scrum methodology, the project's Scrum Product Owner is frequently the system's primary user, a representative from product management, or someone from marketing. They have a deep understanding of the market, competitors, and trends.

Customer: In addition to their other duties, the client serves as the project's glue by coordinating with other stakeholders, giving user stories, and carrying out acceptance testing.

Management: The Scrum Guide states that in order to help the Product Owner, management should educate them on high-value aspects of products and systems.

3. SYSTEM FEATURES

1. Sign Up

Functional Requirements:

1.1 The user must provide personal information in order to create an account (Name, Profile Photo, DOB, Location, Mobile Number, Gender, Email).
1.2 Users can also join up fast by logging into their Google or Facebook accounts.
1.3 In order to ensure security, they must create a robust, secure, and strong password and retype it on the form.

Level of Priority: High

Precondition: All required information must be entered accurately, and a secure password must be chosen.

2. Login

Functional Requirements:

2.1 By clicking a login or Sign In link on the home page, most websites' or services' login pages may be reached (usually in the upper-right corner)
2.2 Then, in the "Email" text area, we must enter our email address (or other usernames).
2.3 Likewise, in the "Password" text field, we must enter our password.

Level of Priority: High

Precondition: All required information must be correct.

3. Change the Password

Functional Requirements:

- **3.1** In order to update your password, you must first enter your old password in this field.
- **3.2** After that, we must enter the new password we wished to update here.
- **3.3** Next, we must retype enter the new password, and press "Confirm".

Level of Priority: High

Precondition: Old Password must be correct. New Password and Confirm Password must be the same.

4. Choosing a Ride

Functional Requirements:

- **4.1** The user has the option of selecting a ride to their location. The user may choose their chosen ride choice by removing the exclusions from all the rides and comparing the prices to the destination they want to go to with their desired budget.
- **4.2** The user must choose the ride button after inputting all the necessary data.
- **4.3** The data, requirements, and choices will all be verified by the system. Post it there after that in the ride list area.

Level of Priority: High

Precondition: The software's coverage database must contain the pick-up and drop-off locations. The available transports must be added by the user to the system. A smartphone is necessary for the user.

5. Riding Package Completion

Functional Requirements:

- **5.1** Only those rides on the available ride list will pick up passengers in under five minutes (max).
- **5.2** The user will be the only one to decide which ride to take, and they will then declare the chosen bundle.
- **5.3** The interested user only needs to select their payment method following the notification.

Level of Priority: High

Precondition: After the final package announcement, the user must select the proper package.

6. Payment Method

Functional Requirements:

6.1 bKash Payment Method:

6.1.1 Click "Wallet" or "Payment" from the drop-down menu.

6.1.2 Tap "Add Payment Method."

6.1.3 Press "bKash," then enter your account details.

6.1.4 Receive a notice after successfully connecting your bKash account to the online program or website.

6.2 Nagad Payment Method

6.2.1 Click "Wallet" or "Payment" from the drop-down menu.

6.2.2 Tap "Add Payment Method."

6.2.3 Press "Nagad," then enter your account details.

6.2.4 Receive a notice after successfully connecting your Nagad account to the online program or website.

6.3 Card Payment Method

6.3.1 Click "Wallet" or "Payment" from the drop-down menu.

6.3.2 Tap "Add Payment Method."

6.3.3 Activate your digital wallet.

6.3.4 Connect your bank account, debit card, or credit card that offers rewards after downloading the app.

6.3.5 At the checkout, pick PayPal. For a quick and safe checkout at millions of online retailers, tap the PayPal button.

Level of Priority: High

Precondition: After selecting the proper package, make a payment right away.

7. Ride Confirmation

Functional Requirements:

7.1 Only the rides the user has selected from the list of available rides will arrive at their destination in no more than five minutes.
7.2 After the system determines which package needs to be run, he will announce the chosen packages.

Level of Priority: High

Precondition: After selecting the proper package, make a payment right away.

8. Ride Cancellation

Functional Requirements:

8.1 Package cancellation is an admin and user-controlled feature.
8.2 The admin may cancel a ride if a customer doesn't answer after five minutes of confirmation.
8.3 The system sends an email to interested customers asking them to choose another ride if a ride is canceled.

Level of Priority: Low

Precondition: If the customer does not reply within five minutes, then the Admin and User can cancel the package.

9. Choose for Rent

Functional Requirements:

9.1 The user has the option of selecting a rent for some hour. The user may choose their chosen renting choice by removing the exclusions from all the rents and comparing the prices to the destination they want to go to with their desired budget.
9.2 The user must choose the renting button after inputting all the necessary data.
9.3 The data, requirements, and choices will all be verified by the system. Post it there after that in the renting list area.

Level of Priority: High

Precondition: The software's coverage database must contain the pick-up and drop-off locations. The available transports must be added by the user to the system. A smartphone is necessary for the user.

10. Renting Package Completion

Functional Requirements:

10.1 Only those rents on the available rent list will collect by the passenger under the selecting time.
10.2 The user will be the only one to decide which rent to take, and they will then declare the chosen bundle.
10.3 The interested user only needs to select their payment method following the notification.

Level of Priority: High

Precondition: After the final package announcement, the user must select the proper package.

11. Rent Confirmation

Functional Requirements:

11.1 Only those rents on the available rent list will be collected by the passenger under the selecting time.
11.2 After the system determines which package needs to be run, he will announce the chosen packages.

Level of Priority: High

Precondition: After selecting the proper package, make a payment right away.

12. Rent Cancellation

Functional Requirements:

12.1 Package cancellation is an admin and user-controlled feature.
12.2 The admin may cancel a rent if a customer doesn't answer after the selected deadline time of confirmation.
12.3 The system sends an email to interested customers asking them to choose another rental if the rent is canceled.

Level of Priority: Low

Precondition: If the customer or renter does not reply within the selected deadline time, then the Admin and User can cancel the package.

13. Update Profile Info

Functional Requirements:

13.1 A brief introduction seen in your resume or CV is known as a personal profile.

Level of Priority: Low

Precondition: Not needed.

14. Forget Password

Functional Requirements:

14.1 If the user forgets their password, they must input their user ID.

14.2 The user's email address will get a message. The user may change his password in this email.

Level of Priority: Low

Precondition: Not needed.

15. Feedback and Report

Functional Requirements:

15.1 Users can provide feedback and reports, and they will receive a response to those submissions later.

Level of Priority: High.

Precondition: If the user saw any bugs on app, then user can report on app. If user want to appreciate or criticize, then user can feedback on app or Play Store.

16. Update profile photo

Functional Requirements:

16.1 Select a picture or include a frame. Choose the image you want to use, then tap utilize this photo and confirm.

Level of Priority: Low.

Precondition: Not needed.

17. View Transaction History

Functional Requirements:

17.1 By choosing this option, you may view the passenger's history of transactions.

Level of Priority: Low.

Precondition: Not needed.

Non-Functional requirement:

1. In order to spare the user's precious time, we will offer the fastest service feasible.

2. Our server will be protected to ensure that user personal information is kept private and secure from prying eyes.

3. This app will be accessible on all major mobile platforms, including Android, iOS, etc.

4. This app will have a database entry. Thus, it will be simple to monitor a user's number and address if they spam by making unnecessary phone calls. We'll let the cops know about it.

5. For the developer, this software is simple to maintain. To decrease bugs, a firmware upgrade mechanism that is customizable for the user will be available.

6. Last but not least, the user will have access to a support desk where they may phone, email, or utilize live chat to communicate with our representative, where user can report their feedback. The user comments section will be open for a number of hours.

4. System Diagram Against the Specification

i. Use Case Diagram:

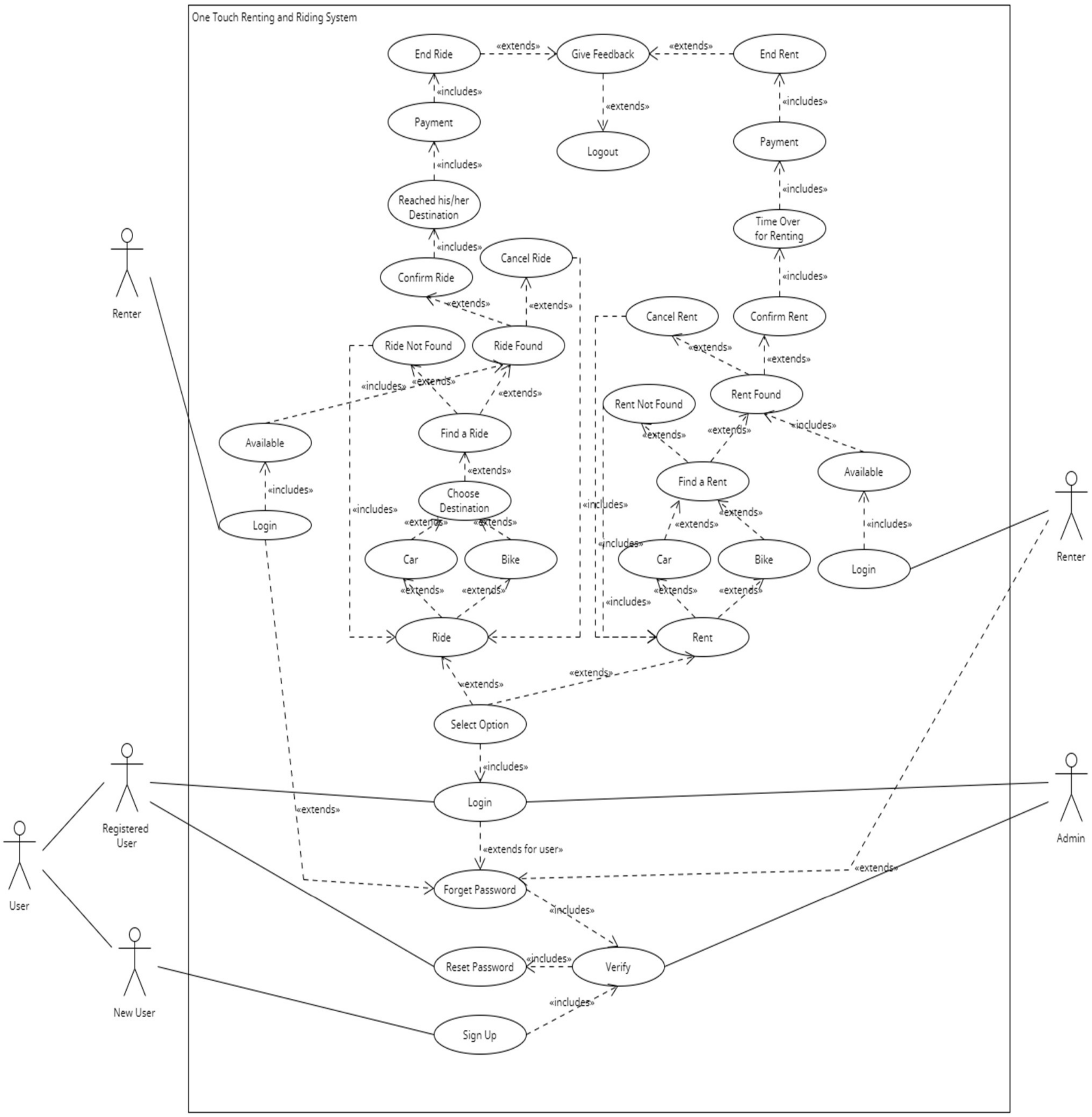


Figure: Use Case Diagram

ii. Class Diagram:

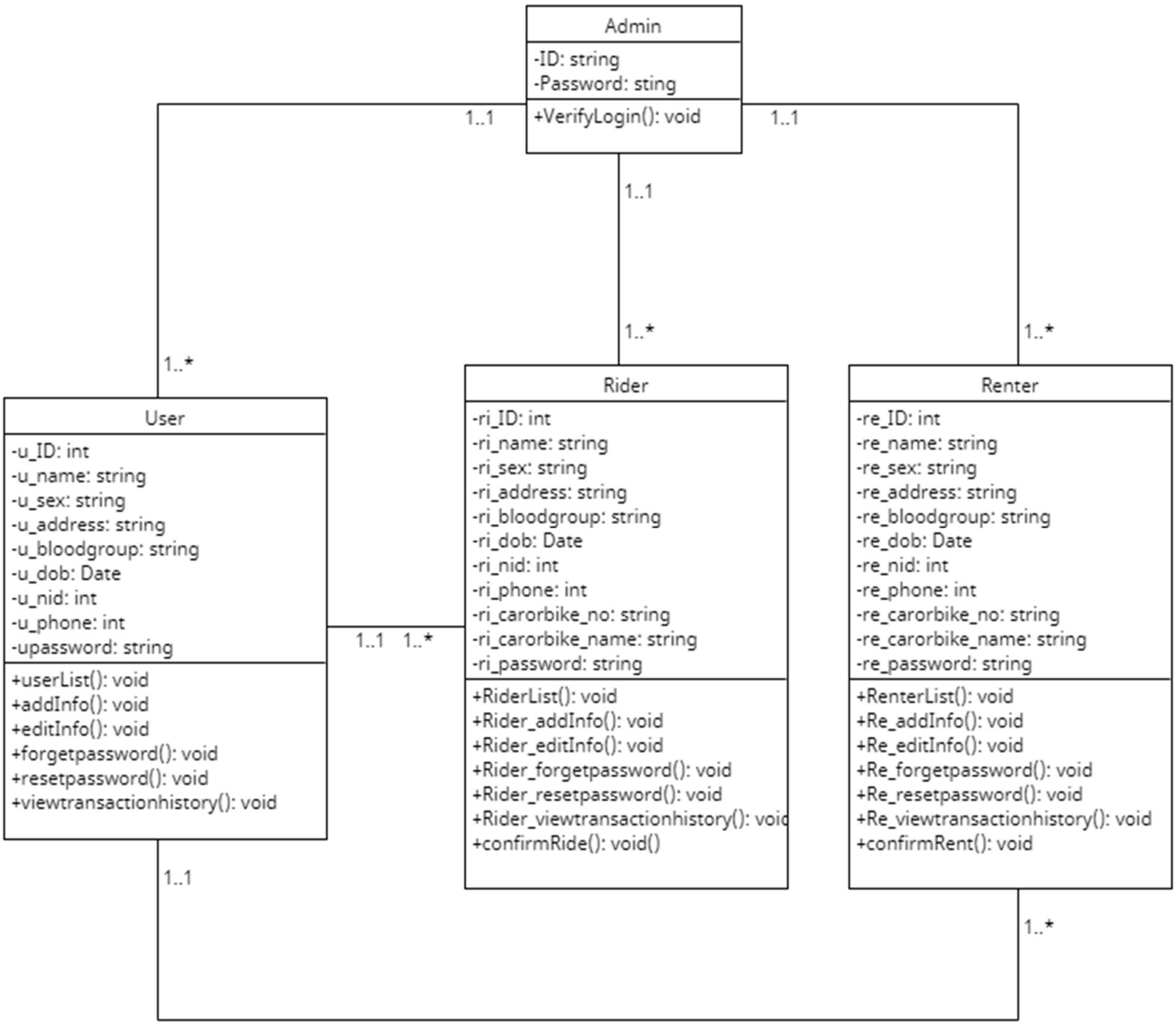
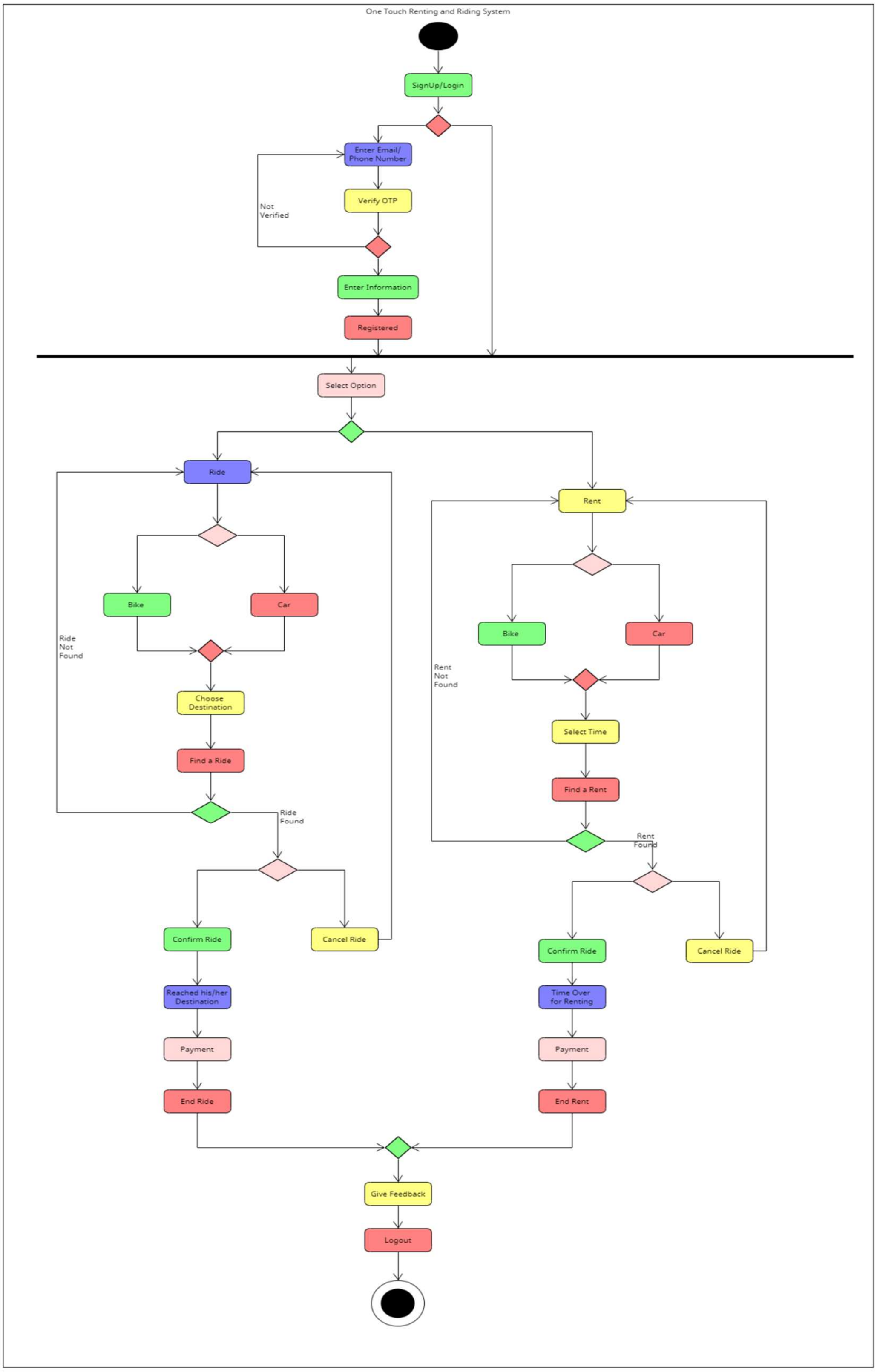


Figure: Class Diagram

iii. Activity Diagram:



iv. Sequence Diagram:

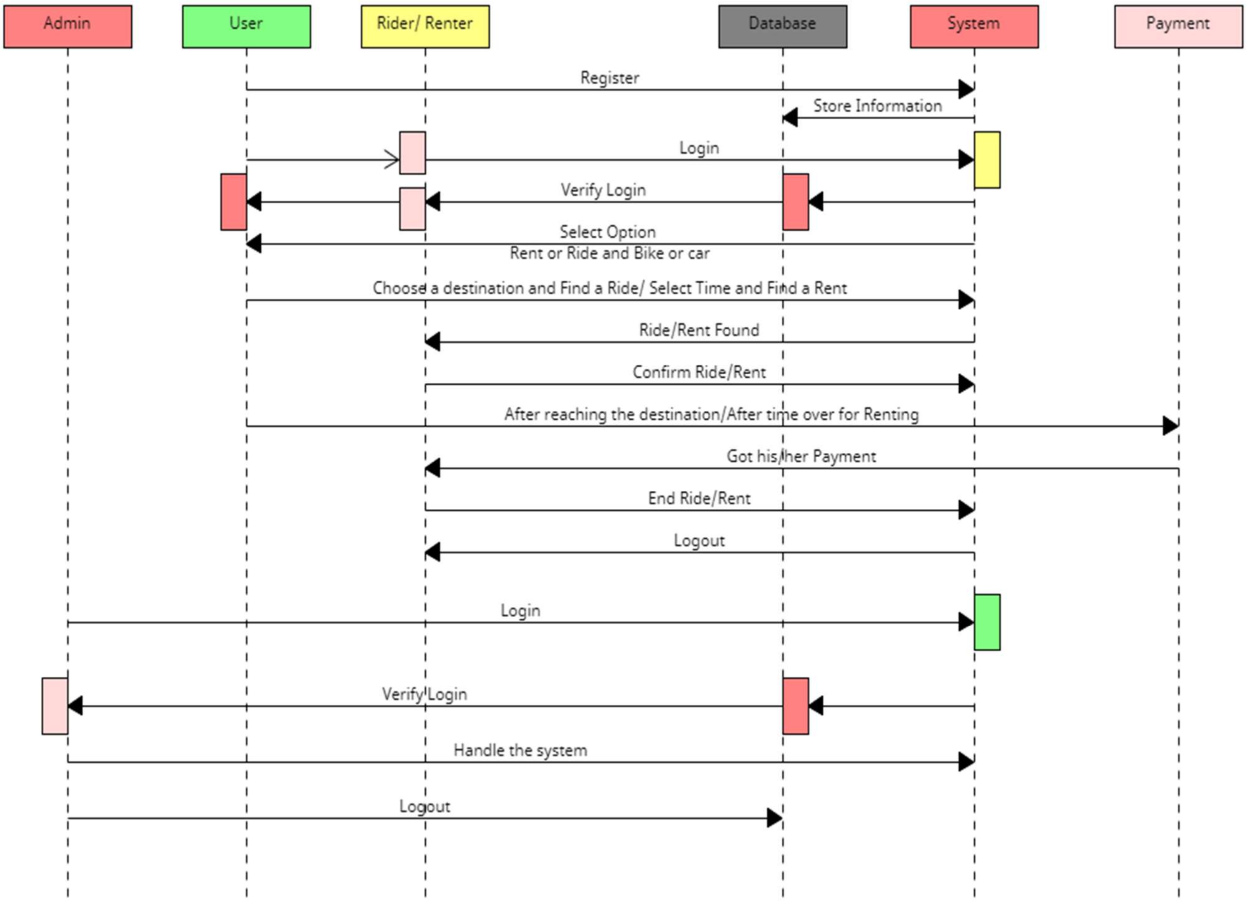


Figure: Sequence Diagram

v. ER Diagram:

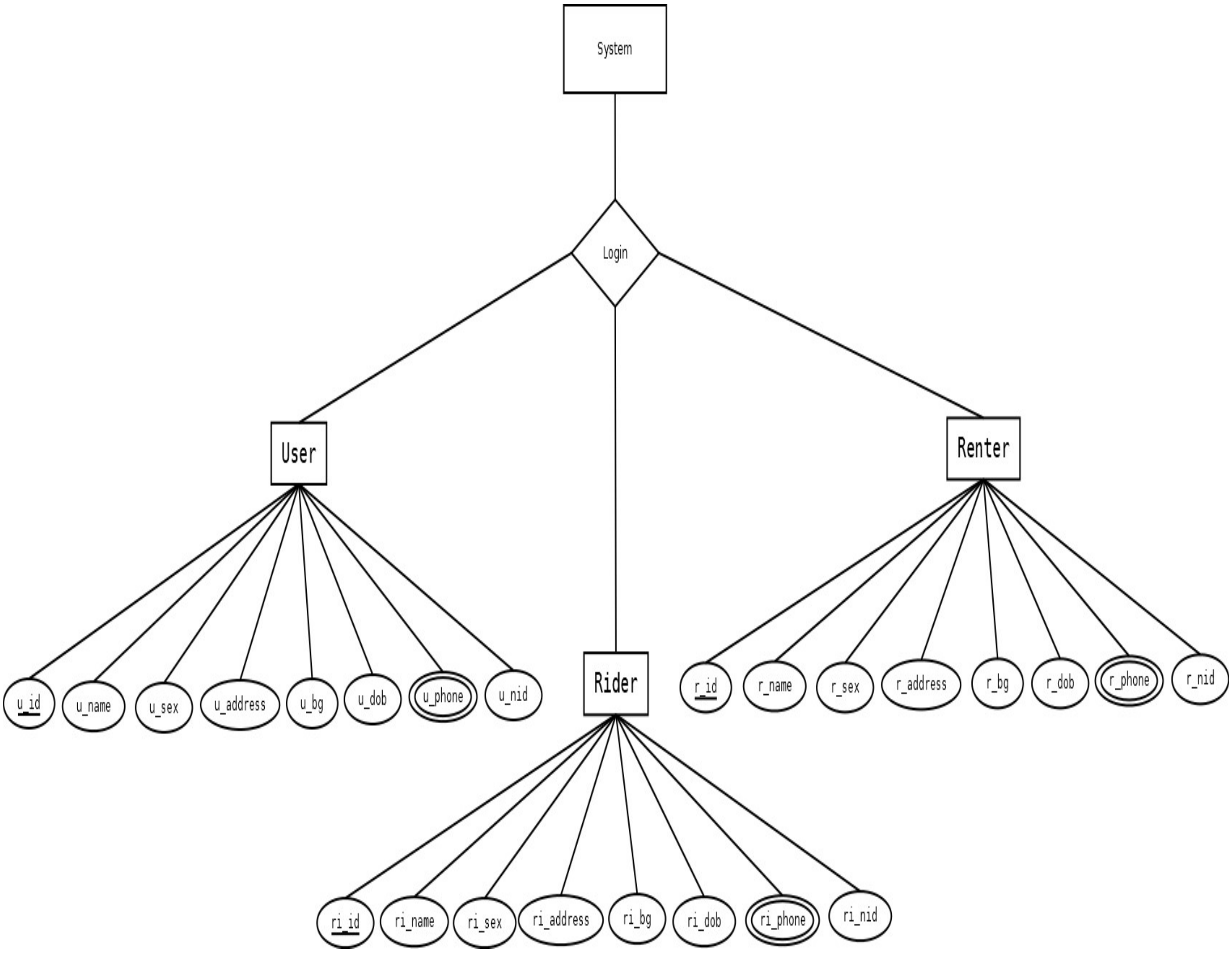


Figure: ER Diagram

Rubric for Project Assessment (CO1)

Marking Criteria	Marks Distribution (Maximum 3X5=15)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Background Analysis	No background information regarding the project is given; project goals and benefits are missing.	Insufficient background information is given; project goals and benefits are poorly stated	Sufficient background information is given; the purpose and goals of the project are explained.	Thorough and relevant background information is given; project goals are clear and easy to identify.	
Analysis the impact of societal, health, safety, legal and cultural issues	Student vaguely discuss the impact of societal, health, safety, legal and cultural issues in their project	Student provided with partial relevance to the impact of societal, health, safety, legal and cultural issues in their project	Student fairly provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project	Student comprehensively provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project	
Existing Studies and Relevant Example	Ambiguous representative example.	Partially identify / indicate towards real-life example.	Real-life example is fairly connected towards the definition.	Comprehensively defend with real life example.	
				Acquired Marks:	
				CO Pass / Fail:	

Rubric for Project Assessment (CO2)

Criteria	Marks distribution (Max 3X5= 15)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Argumentation of Model selection with Evidence of Argumentation	Does not articulate a position or argument of choosing appropriate model. Does not present any evidence to support the arguments for the choice of the model	Articulates a position or argument for choosing models that is unfocused or ambiguous. Presents incomplete/vague evidence to support argument for model choice	Articulates a position or argument of choosing models that is limited in scope. Does not present enough evidence to support the argument for the choice of the model	Clearly articulates a position or argument for the choosing software engineering models. Presents sufficient amount of evidence to support argument for the model selection	
Role identification and Responsibility Allocation	The project has poor project management plans for identifying roles and assigning the responsibilities	Identify few roles in the project management where some of the roles are left alone with any project responsibilities	Identify most of the roles in the project management and assign their responsibilities	Well planned project with proper role identification and responsibility allocation in the project management activities	
Submission, Completeness, Spelling, grammar and Organization of the Project report	Project report is not complete and Several errors in spelling and grammar. Present a Confusing organization of concepts, supporting arguments, and real-life example. Sentences rambling, and details are repeated.	Some errors in spelling and grammar. Some problems of organizing the answer in a logical order of defining, elaborating, and providing real-life examples.	Few errors in spelling and grammar. Presents most of the details in a logical flow of organization in definition, details, and example.	Project report is complete and No errors in spelling and grammar. Consistently presents a logical and effective organization of definition, details, and real-life example of the topic.	
				Acquired marks:	