

AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH

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Department of Computer Science
Faculty of Science Technology (FST)



"QuickJai" A Transportation System

A Software Engineering Project Proposal Submitted

to

DR. S. M. HASAN MAHMUD

by

Group: 2

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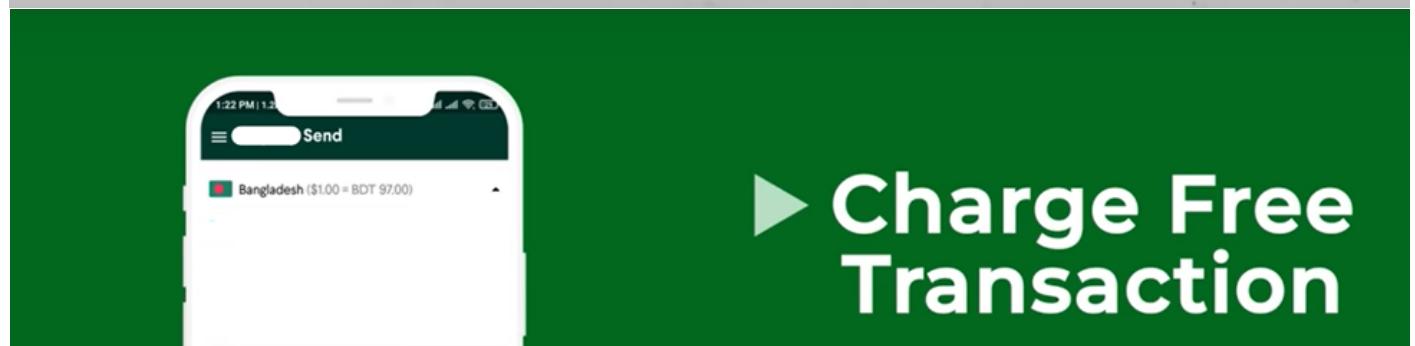
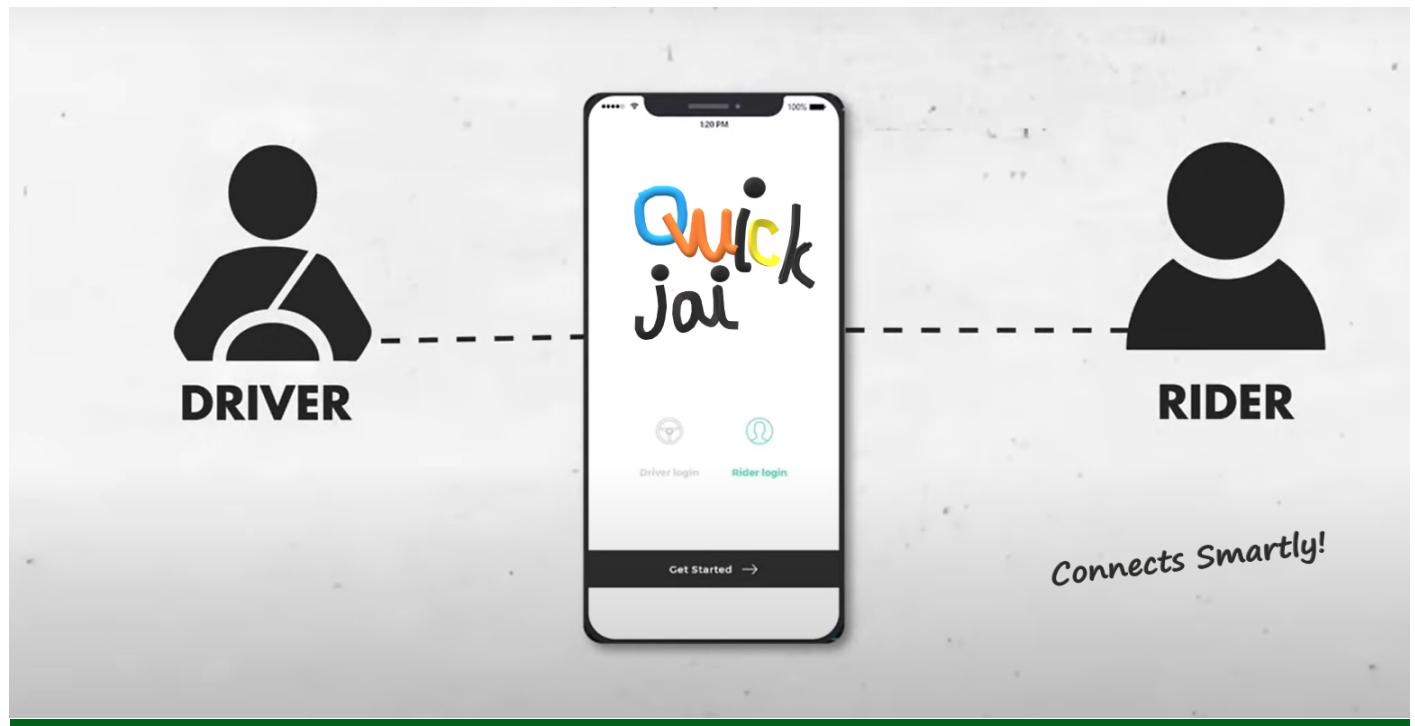
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Chapter 1

Problem Analysis [Proposal]



1.1 Description:

Nowadays, the majority of individuals suffer from transportation issues. Some companies are working on it to make people's travel more convenient. However, in the end, consumers face numerous issues, and many do not understand how to utilize the software or websites. Furthermore, because such companies are international, the relationships between drivers and agents are not as excellent as envisioned. We provide software that is simple to use, obtains the best fare rate, takes less time, and allows for effective communication.

This initiative will make travel easier or more practical for everyone and provide the best possible price for both drivers and passengers. It will save them time because sometimes passengers have to wait a long time for the driver at the pickup location. If there aren't any cars around, we'll recommend all the cars close by. Because there are numerous third-party apps for payment systems that make operations more difficult, our system has a 0% fee for payment conversions.

1.2 Background to the Problem:

What Happened to Taxi Service



TAXIS WERE FIRST INTRODUCED IN BANGLADESH IN 1997

HISTORY OF TAXI SERVICE

Taxis were first introduced in Bangladesh in 1997. Initially, 11,260 cabs -- 4,513 AC and 6,747 non-AC -- hit the streets in Dhaka and Chittagong. But most of those went bust within a couple of years.

Since 2010, the government repeatedly tried to introduce more taxicabs. But it could not be done due to some legal complications and bureaucratic tangles.

Of the 11,000 cabs with permits, mainly in Dhaka, only 3,000 are currently in operation, according to the Bangladesh Association of Taxicab Operators.

Cover Story

**Taxi Cab Service:
Promises
Unfulfilled**



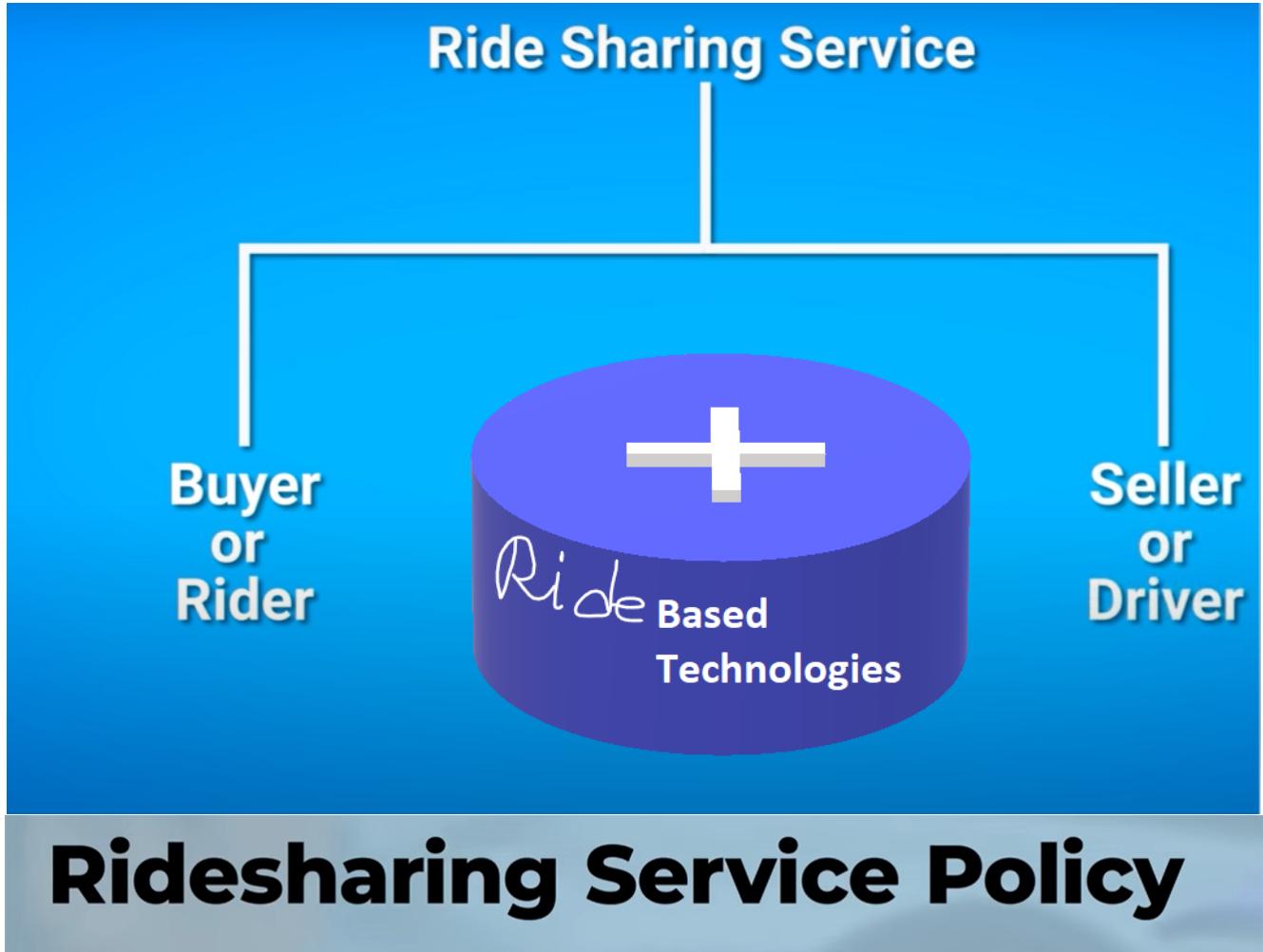
Taxi service is the most common and widely utilized means of transportation in each city across the world. Although the popularity of taxi services has fallen slightly due to ride-sharing services such as Uber and Lyft around the world, taxis remain one of the most popular ways of transportation in almost all cities.

However, Bangladesh is the one exception. Dhaka is the world's sixth most populous mega-city. Moreover, there is currently no taxi service in this city. In Dhaka, yellow taxis used to be common, but they are now hardly ever seen.



According to the following reports, taxi services had a multitude of challenges. One of the primary factors was internet-based services such as Web-based applications, GPS-based services, and widespread technological support. Customers suffered the most inside the complexity bubble as a result of less innovation from companies and failure to comply with Taxi Based Laws and Regulations. People looked for an alternate route due to the unreliable and unprofessional service provided by the local taxicabs.

1.3 Solution to the Problem:



The primary goal of this project will be to provide an alternative to traditional transportation systems and to improve existing ridesharing services. The general public will receive rapid and simple service from the suggested software solution, along with overall dependability and safety. Focusing on low-cost prices will improve people's quality of life as well as the driving community.

Ridesharing is currently one of the world's most popular online-based services. Over 117 billion dollars are spent annually on the ride-sharing industry, with UBER Inc. Customers are happy to pay for their entertainment, and they are even happier when the cost is lower than with normal taxis. These services mainly rely on location sharing and ongoing connections with GPS Systems, so the hot

zones are always covered by the optimal number of drivers. These techniques greatly reduce the amount of time that clients must wait for service, and intelligent distance-measuring processes lower the base fare compared to conventional taxis. Driver grading systems and consumer feedback systems work together to help the organization resolve issues more efficiently.

The technology-based company combines them with fewer constraints, better training sessions, and automobile fitness and quality testing, increasing the number of cars and drivers connected with various third-party services.

As our transportation system moves closer to ridesharing, following in the footsteps of carpoolsing services, this could be the reason why ridesharing possibilities utilizing private cars, and hence ridesharing platforms, may play a role in the future.

1.4 Objective:

- 1. The entire system will not charge any more fees in addition to the usual fair stated by the company.**
- 2. QR/ BARCODE protocols will be utilized to eliminate the involvement of several payment systems as well as third-party/mediator-based complications.**
- 3. Traveling to a potential place will be decided immediately in the car, reducing the client's waiting time significantly.**
- 4. The use of direct cash for local payments and bank-based payments for foreign clients will be introduced.**
- 5. There will be USSD code-based services or special dialing systems if Software Interface is not available for customers and booking will be handled from company call centers.**

1.5 Target User:

Our transportation services are aimed at persons who are unable or unwilling to drive. It includes students going to school and participating in other activities. People who travel to another city, as well as those who travel vast distances, often use transportation services. Clients are drawn from all social classes.

1.6 Benefits of the project:

- 1. Common and user-friendly and focused on service.**
- 2. Ease of access by Mobile devices.**
- 3. Better than existing traditional transportation systems with many options and with a reasonable fair.**
- 4. Offering feedback systems and Rewards to attract more customers.**
- 5. Emergency services for anyone at any time.**
- 6. An economy based and solely focused on customer satisfaction.**

1.7 How this solution is better if any previous solution is available:

Since the issue is not new to society, there are already solutions available. Traditional modes of transportation, such as buses and trains, are intended for the general public, including all non-technical individuals. The suggested software system, however, can easily resolve it for people who value their time and need a quick trip. There will be market competition, without a doubt, but the special features will set it apart from other typical ride-sharing transportation systems. Since the 1950s, the concept has been referred to as "carpooling," but a simpler term, "ride-sharing service," has been introduced. The main objective is to make the current models better at serving customers and fixing the shortcomings of the typical rival businesses.

1.8 Functionalities and Key features of The Project:

- 1. The software will allow customers to book rides from the sidewalk. Another feature is, inside the vehicle, there will be display screens to show maps and select possible perfect routes for both drivers and passengers.**
- 2. Most fares from routes will be economy based and there will be no extra charges from bank transactions or cash payments.**
- 3. Customers can rate drivers, and overall driving experience as well as drivers on customers for social behavior indexing to make the overall system near perfect.**
- 4. Fares with fraction amounts can be paid equally from the customer's bank account as cash payments do not support smaller fractions but extra payments will be added to the driver union welfare system.**
- 5. All available rides deployed in street will be tracked in actual time with GPS which the customer can see through the software on "Customer's Viewpoint".**
- 6. There will be reward systems available and "partial to no payment" for customers with emergency issues and the behavior indexing points will help further.**

Chapter 2

Model Selection:

2.1 Process Model:

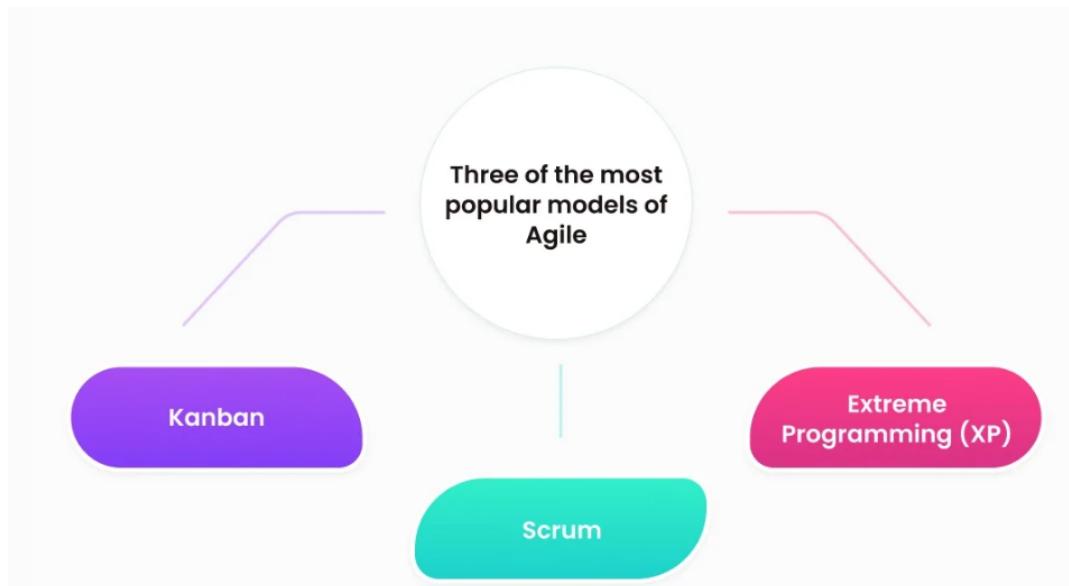


Reasons Behind Selecting the "SCRUM" Framework:

Approach: "Pull Systems" that deliver a working prototype in the shortest possible time.

1. It must be business-oriented [service-based].
2. It will be maintained frequently because there are opportunities for very small improvements in comparison to working on and changing a large module of the project [No Death Period].
3. The development time should be limited to 3 to 6 months. [13 to 14 weeks if 3 months are taken into account] [2 to 4 weeks max for each Sprint]
4. The design may be simple for the customer, but the overall system is a bit detailed.

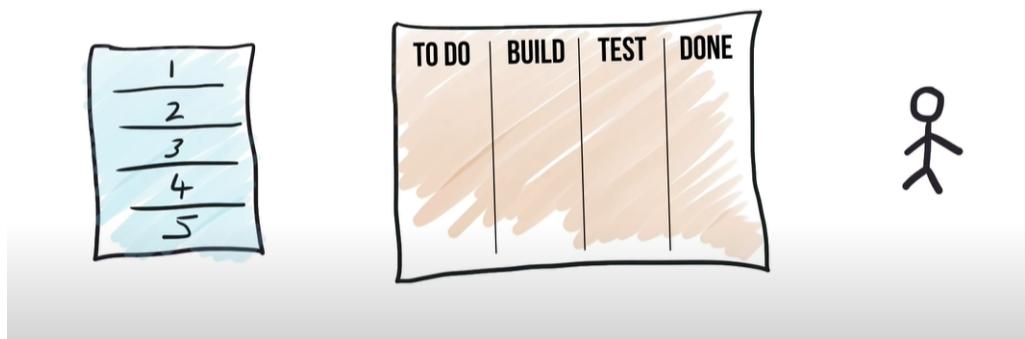
Software development models were first introduced to the software development community in the 1950s and 1960s. Every software outsourcing company has its own unique software development lifecycle (SDLC). In comparison to other models, "Agile Models are best suited for small to medium-sized projects requiring rapid changes." Each stage involves the customer, which saves time and money. Among the various "Agile" software models, three of the most popular are "Kanban", "Scrum", and "XP".



"Scrum" is chosen for the development taking into account the time constraint and quick service provided to the customer. The short duration of iterations is a distinct feature of the project. We're talking about two to four weeks, which is very short. Before deploying technology, "sprints" are carefully analyzed and planned. The IT specialist can then implement some of the additional components and options. A prototype is also used to plan a new sprint. However, once its actions are determined, it will be impossible to change them. The transition from one stage to the next is the primary distinction between process models in software engineering. So, in the Scrum framework, additional options are added after each sprint to help test and code in the following sprint. This will continue until all sprints have been completed and all necessary functions and elements have been included in the project so that it can be launched into work. We will use Scrum model. Because,

- Scrum can help teams complete project deliverables quickly and efficiently
- Scrum ensures effective use of time and money
- Large projects are divided into easily manageable sprints
- Developments are coded and tested during the sprint review
- Works well for fast-moving development projects
- The team gets clear visibility through scrum meetings
- Scrum, being agile, adopts feedback from customers and stakeholders
- Short sprints enable changes based on feedback a lot more easily
- The individual effort of each team member is visible during daily scrum meetings
- In scrum, time-boxed iterations are prescribed.
- The scrum team commits to a specific amount of work in an iteration.
- Scrum uses Velocity as the default metric for planning and process improvement.
- The scrum team is Cross-functional.
- In scrum, items are broken down so that they can be completed within the one sprint
- Scrum has more transparency and visibility than any other methodology.
- It increases team accountability.
- Scrum is easy with changes. It accommodates changes.
- Scrum is a cost-saving development methodology.

Sprint Review



2.2 Project Roll Identification and Responsibilities:

Using the SCRUM model, we have to create some roles and teams for software development. Mainly Scrum Master, Product Owner, Scrum Team, Customer, and Management.

2.2.1 Scrum Master:

Scrum Master is responsible for ensuring that the project is carried through according to the practices, values rules. Scrum Master also selected items for ‘Sprint Backlog’ with the Product Owner set the goals for the sprint.

2.2.2 Product Owner:

The Product Owner is officially responsible for the project, managing, controlling making visible the product backlog list that is selected by the Scrum Master, The Customer The Management. He takes the final decision on the product backlog.

2.2.3 Scrum Team:

Scrum Team is the project team that has the authority to decide on the necessary action to organize itself to achieve the goals of each sprint. The scrum team is involved in effort estimation, creating sprint backlog review the backlog list.

2.2.4 Customer:

Customer participates in the task related to product backlog items for the system being developed. Mainly the customer is represented by all the customers who send feedback on the software.

2.2.5 Management:

Management is in charge of final decision-making. It also sets the goal requirements of the software development.

2.3 Meetings of SCRUM:

2.3.1 Sprint Planning Meeting:

There is 2 part of this meeting that is organized by the Scrum master. In 1st part, they set the goals the functionality of the next Sprint. The Scrum master, Management, Product Owner Scrum team participate in this 1st part of the meeting. In 2nd part, only the Scrum master Scrum team discuss product increment implemented on the Sprint.

2.3.2 Daily Scrum Meeting:

Every day approximately 15 minutes the Scrum master Scrum team discussion about what has been done since the last meeting what is to be done before the next one.

2.3.3 Sprint Review Meeting:

On the last day of the Sprint, the Scrum team the Scrum master present the result of the Sprint to the management, customers, users the product owner in this meeting. This meeting also brings out new backlog items for the system built.

Chapter 3

Functional Requirements:

3.1 Tools/ Device:

This software will be created using the Windows operating system and Microsoft Visual Studio for cross-platform mobile development. It is primarily designed for mobile devices, specifically Android and iOS-based platforms, but a desktop version is also available.

3.2 User Account:

Generally, two types of user sign-up will be available. The first user type is "passengers," and the second is "drivers." Other administrative interfaces will be accessed from locations other than the common user interface.

3.3 Profile Creation:

Both users' appearances will be distinctive. Passengers can create profiles here, log in, confirm their location on the map, pay, and other functions. Whereas drivers will have a unique interface designed specifically for them. Drivers can accept a location pinned by accessible customers, initiate QR Code Share from

the screen for payment scanning, receive calls from the service center in case of emergency, and much more. Driver IDs will be verified by the company after free signup, which is not as simple as creating a passenger profile.

3.4 Reward Systems:

Both drivers and passengers will have access to a reward-based system. Rating systems will be linked to the reward system and will increase points. Passengers can benefit from offers such as reduced fares or free rides, among other things. Drivers may receive welfare department assistance, bonuses to their monthly payments, and many other benefits.

3.5 Secured payment:

Passengers will receive QR codes from displays inside vehicles, and after scanning them, the payment will be visible from the customer's device, which the driver will not see. Drivers can be paid in cash but secured bank transfers are preferred by the service and come with more reward points than cash payments. Before entering the vehicle, an estimated cost will be displayed to the user via the interface, as an accurate route will be selected and confirmed by the driver, which changes the overall fair amount.

3.6 Update Profile:

The system must allow the user to change his profile at any time. The user will be able to modify their phone number, payment method, profile information, and so on. Drivers can change their information, but most of it is fixed because their IDs are verified through extensive background checks.

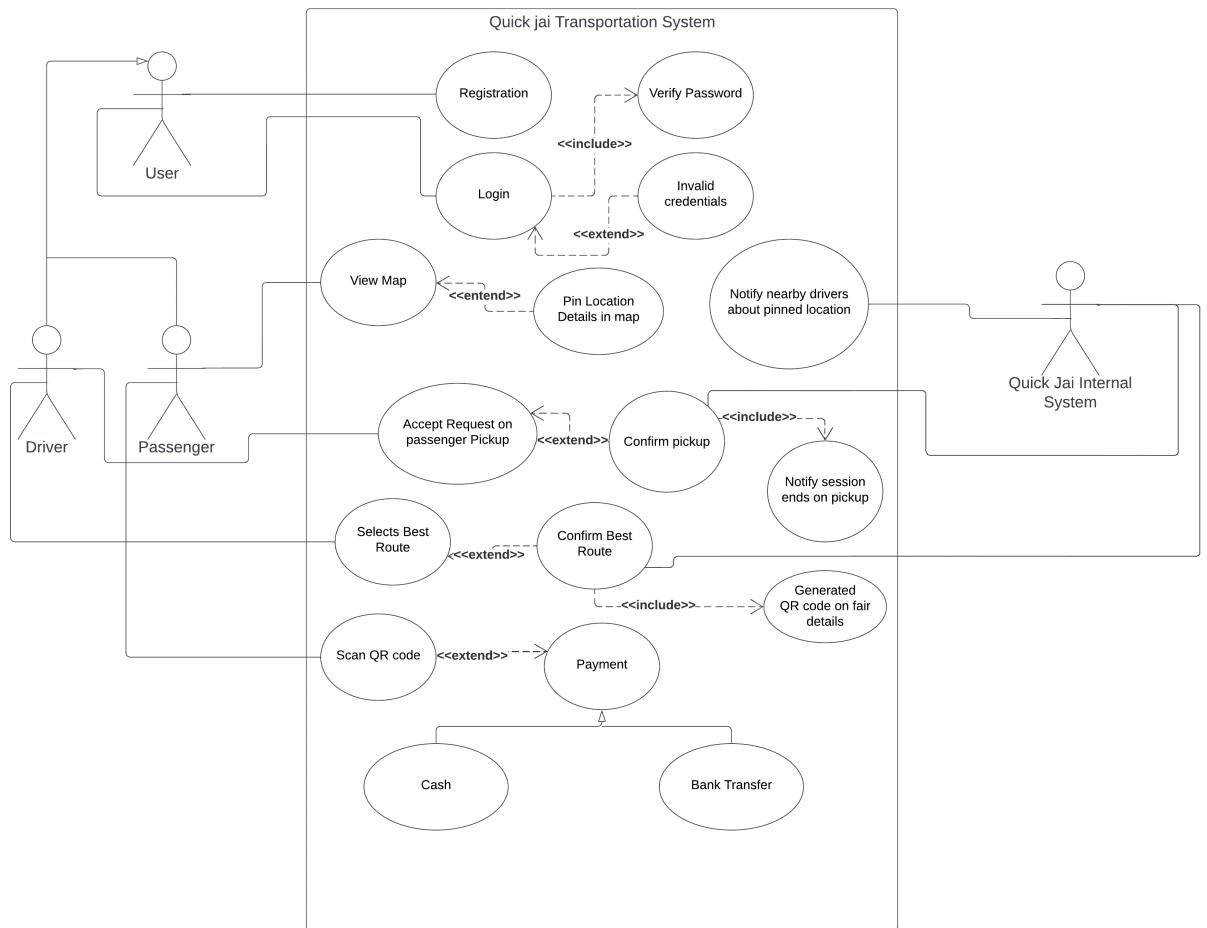
3.7 Emergency Access:

The system should allow the user to contact both the assigned driver and the help desk. For emergency purposes, the system must include at least one call from the call center. Passengers can dial special USSD codes from their handsets to receive a call from a call center for an emergency ride for a safer journey.

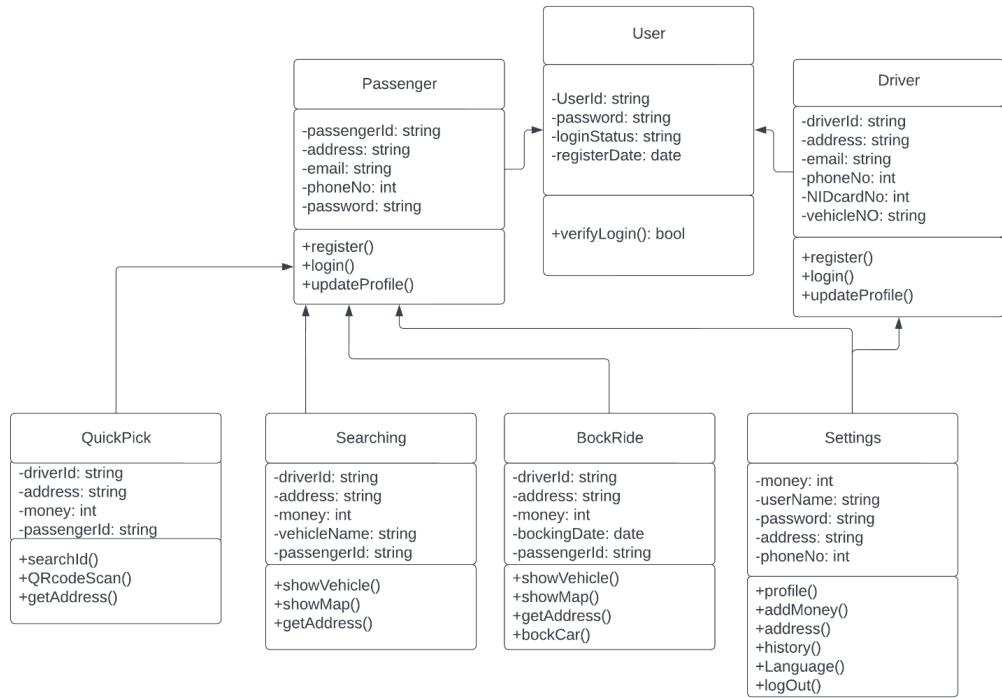
Chapter 4

Diagrams:

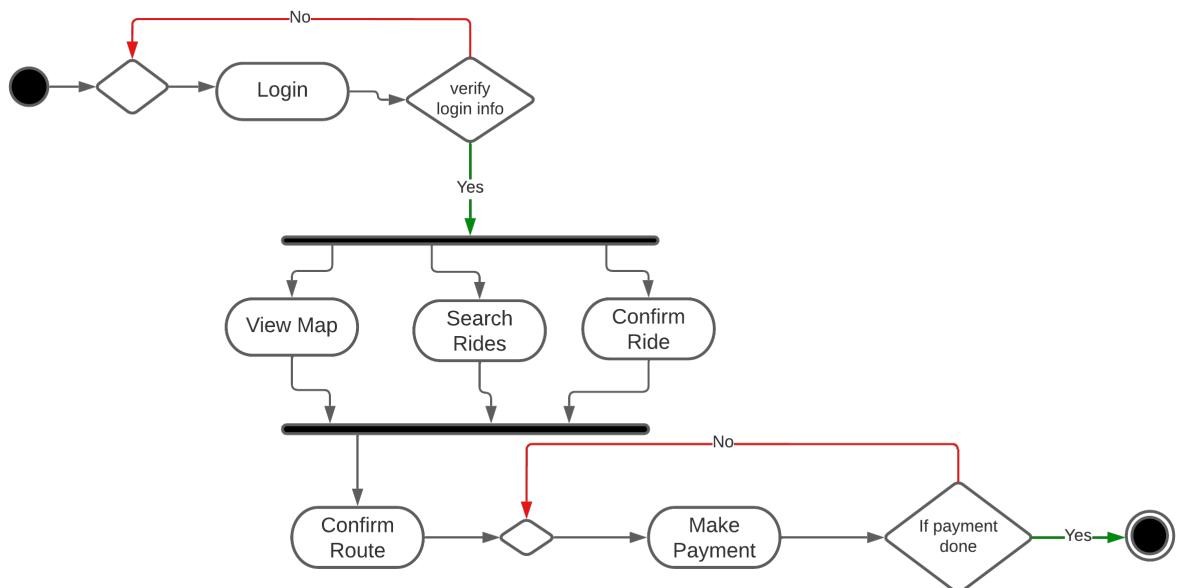
4.1 Use Case Diagram:



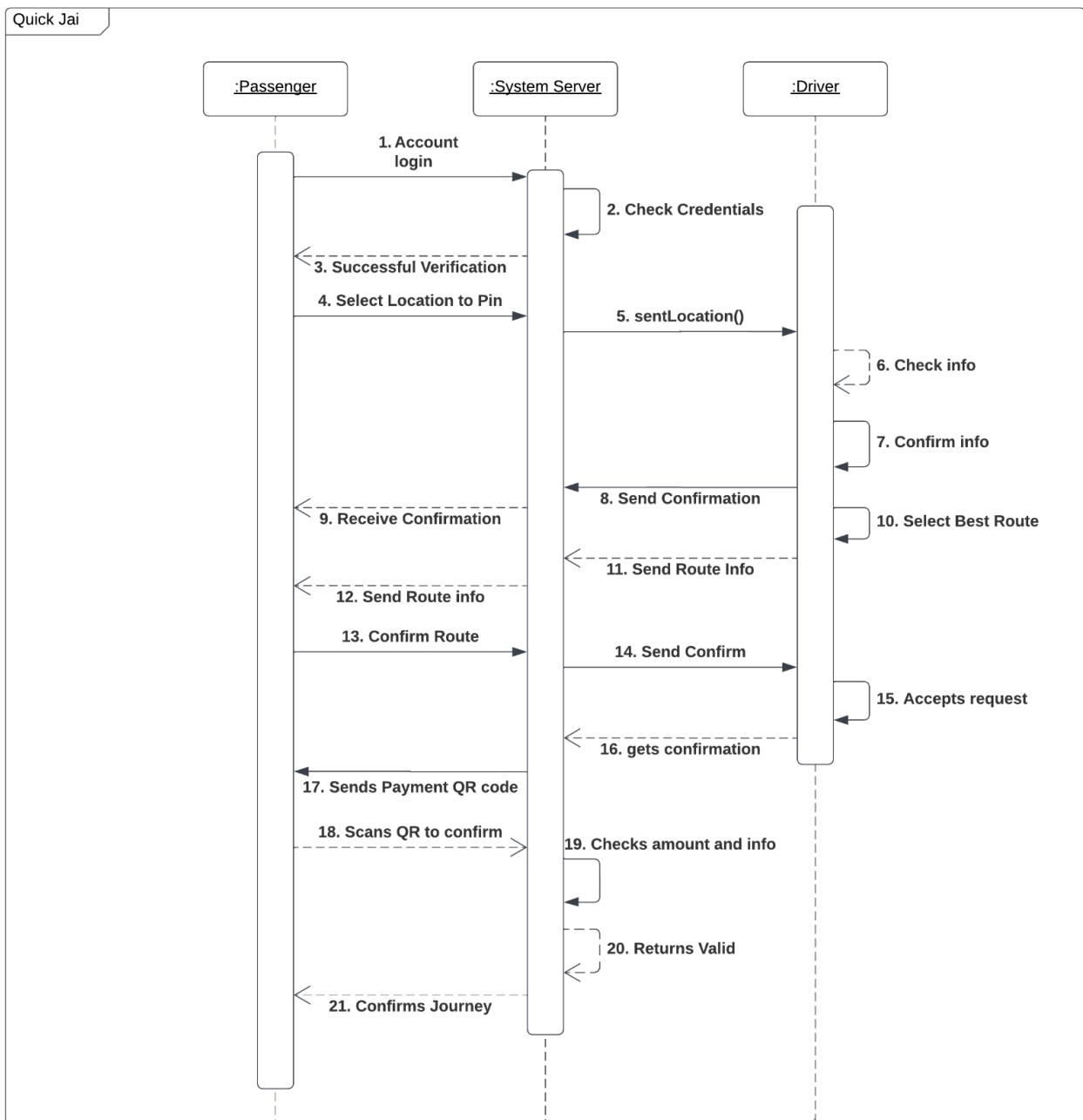
4.2 Class Diagram:



4.3 State Diagram:



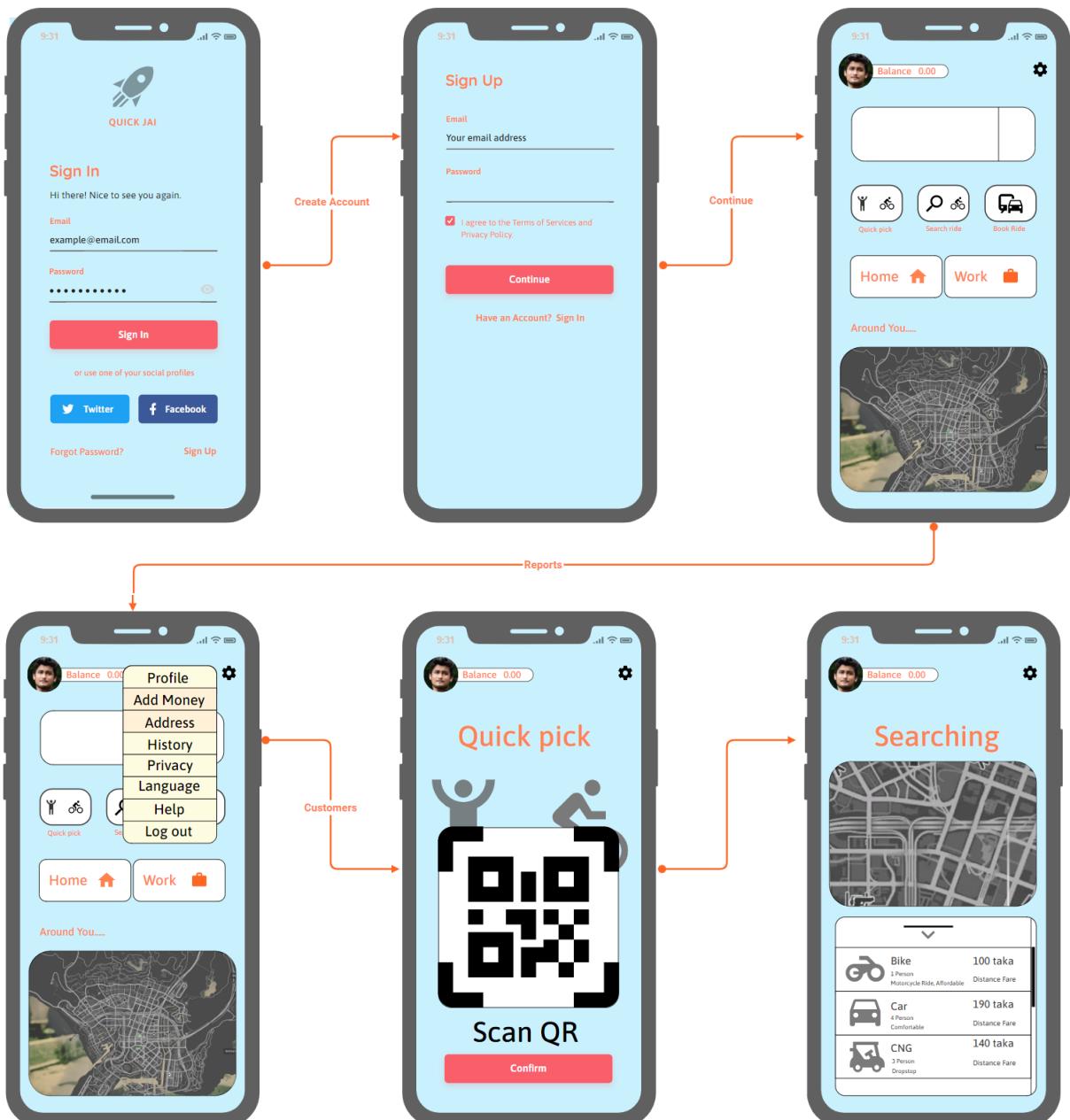
4.4 Sequence Diagram:



4.5 User Interface and Experience (UI / UX) DESIGN:

Link for full view:

<https://app.moqups.com/5PWMfh0Dw9nAIrxDn0Zohv3hJoCSsSZl/view/page/ae8fe8eb0>



Chapter 5

Project Testing:

Project Name: Quick Jai	Test Designed by: Md. Sadmanur Islam Shishir							
Test Case ID: QJ_1	Test Designed Date: 6.11.2022							
Test Priority (Low, Medium, High): High	Test Executed by: Md. Sadmanur Islam Shishir							
Module Name: Login Session	Test Execution date: 6.11.2022							
Test Title: Verify login with valid username and password								
Description: Test software login page								
Precondition (if any): User must have username and password								
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)				
1. Go to software 2. Enter username 3. Enter password 4. Click Login	Username: 20-42871-1 Password: 123	User should login into the software	Wrong password,	Fail				
Post Condition: User is invalidated with database and failed login to account. The account session details are logged in the database.								

Project Name: QuickJai		Test Designed by: Md. Sadmanur Islam Shishir					
Test Case ID: QJ_2		Test Designed Date: 6.11.2022					
Test Priority (Low, Medium, High): High		Test Executed by: Md. Sadmanur Islam Shishir					
Module Name: Payment Session		Test Execution date: 6.11.2022					
Test Title: Verify the payment information							
Description: Test payment page							
Precondition (if any): User must submit payment information							
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)			
1. Go to software 2. Enter username 3. Enter password 4. Click Login 5. Click Quick pick 6. Confirm complete ride 7. Click make payment 8. Enter Bank Acc Name 9. Enter Bank Acc No 10. Enter amount 11. Enter Acc password 12. Click payment	Username: 20-42871-1 Password: 123 Bank Acc Name: MD. SADMANUR ISLAM SHISHIR Bank Acc No: 6464124678329 Amount: 5000 Password: 1234	User should login into the software and complete payment successfully.	Invalid bank acc no,	fail			
Post Condition: User is validated with database and successfully login to account. Payment information is not validated with database and failed to make payment.							

Project Name: QuckJai		Test Designed by: Md. Sadmanur Islam Shishir					
Test Case ID: QJ_3		Test Designed Date: 6.11.2022					
Test Priority (Low, Medium, High): Medium		Test Executed by: Md. Sadmanur Islam Shishir					
Module Name: Search ride Session		Test Execution date: 6.11.2022					
Test Title: Verify location to find ride							
Description: Test search ride page							
Precondition (if any):							
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)			
1. Go to software 2. Enter username 3. Enter password 4. Click Login 5. Click search for ride 6. Select location 7. Select vehicle 8. Confirm rider	Username: 20-42871-1 Password: 123 Location: Uttara Vehicle: Bike	User get list of available vehicles	Not expected,	Fail			
Post Condition: Vehicle database must be added with this software and update regularly.							

Project Name: QuckJai		Test Designed by: S. S. M AFSAN SANI					
Test Case ID: QJ_4		Test Designed Date: 22.11.2022					
Test Priority (Low, Medium, High): Medium		Test Executed by: S. S. M AFSAN SANI					
Module Name: QR code scanning Session		Test Execution date: 22.11.2022					
Test Title: Verify QR code to get payment options							
Description: Test of QR code format in the site							
Precondition (if any):							
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)			
1. Confirm Ride 2. Check Amount 3. Choose pay button 4. Wait for QR code 5. Scan QR code 6. Conform payment	User: 19-39332-1 Visual: Payment information and QR code	User will see payment options and confirmations and submit options	Not expected,	Fail			
Post Condition: Page will loop back to the payment options and show “try again” message or blank white background with a “loading...” animation.							

Chapter 6

Bug Reporting:

Reporter: S S M AFSAN SANI, afsansani19393321aiub@gmail.com

Submit Date: 23.11.2022

Product: Ticket

Version: Software based

Component: Payment interface

Platform: Smartphone

Operating system: Android, iOS

Priority: P1 [High]

Severity: [Major], QR code is not loading in screen.

Types of Severity:

- **Blocker:** No further testing work can be done.
- **Critical:** Application crash.
- **Major:** Searching.
- **Trivial:** Some UI enhancements.
- **Enhancement:** Search and preferable schedule.

Status: New

Assign To: MD. SADMANUR ISLAM SHIHSIR

URL: The page URL on which the bug occurred.

Summary: The bug is in the payment section in this software. After confirming payment, QR Code doesn't show and user is unable to proceed further.

Description: By using this software when someone using payment option, they

will follow the steps and fill information to confirm the payment gateway and QR code scanning system will offer a secure way to confirm information and ride will be confirmed. But, due to the bug, the QR code does not appear and there will be no other way to confirm payment by system and ride session gets cancelled.

Report Types include:

- 1) Coding error**
- 2) New Suggestion**

Chapter 7

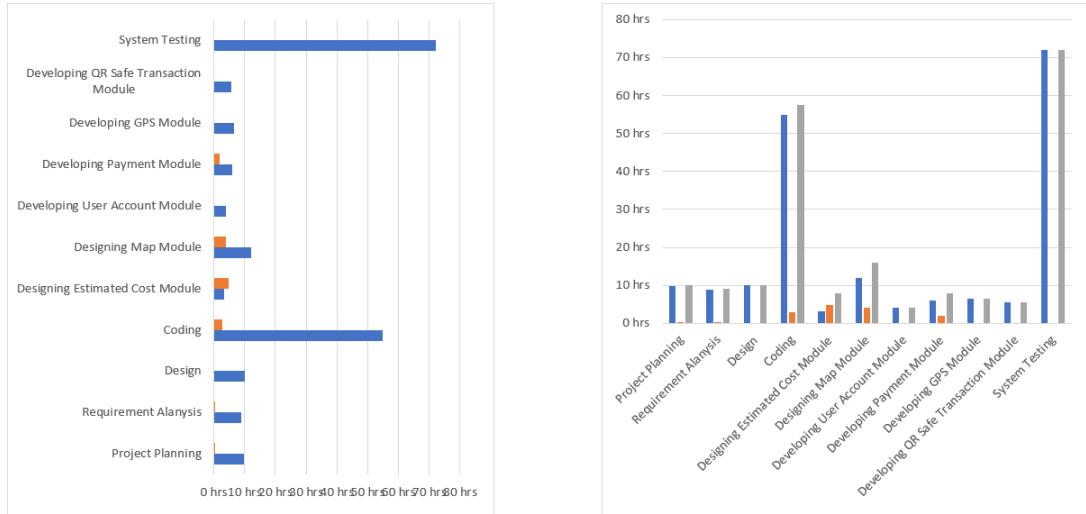
WBS and Effort Estimation:

7.1 Work Breakdown Structure (WBS):

i	Task Name	Duration	Predecessors	Start	Finish	% Complete	Work	Resource Names	Probability (Text1)	Impact	Risk Score	Risk Level
Project Planning	2 days			Mon 11/21/22	Tue 11/22/22	90%	10 hrs	S. S. M. AFSAN SANI	1	1	1	Green
Requirement Analysis	2 days			Wed 11/23/22	Thu 11/24/22	90%	9 hrs	S. S. M. AFSAN SANI	2	2	4	Green
Design	3 days			Fri 11/25/22	Tue 11/29/22	100%	10 hrs	MD. ARAFAT HOSSEN	2	4	8	Yellow
▪ Coding	51.5 days			Mon 1/2/23	Tue 3/14/23	94%	57.6 hrs		3	4		
Design Login page	1 day			Mon 1/2/23	Mon 1/2/23	85%	8 hrs	MD. ARAFAT HOSSEN	4	3	12	Yellow
▪ Design Sign in page	50.5 days			Mon 1/2/23	Tue 3/14/23	96%	49.6 hrs		3	4		
▪ Designing Vehicle Information Module	0.5 days	5		Mon 1/2/23	Tue 1/3/23	100%	13.6 hrs	MD. SADMANUR ISLAM	5	3		
Vehicle Licence	0.5 days			Mon 1/2/23	Tue 1/3/23	100%	4 hrs	MD. SADMANUR ISLAM	4	3	12	Yellow
Vehicle Insurance	0.4 days			Tue 1/3/23	Tue 1/3/23	100%	3.2 hrs	MD. SADMANUR ISLAM	4	3	12	Yellow
Vehicle Model	0.3 days	5		Tue 1/3/23	Tue 1/3/23	100%	2.4 hrs	MD. SADMANUR ISLAM	4	3	12	Yellow
▪ Designing Driver Information Module	1.5 days			Tue 2/14/23	Wed 2/15/23	93%	22.4 hrs		5	4		
Driver name	0.3 days			Tue 2/14/23	Tue 2/14/23	100%	2.4 hrs	S. S. M. AFSAN SANI	4	3	12	Yellow
Phone no	0.5 days			Tue 2/14/23	Tue 2/14/23	100%	4 hrs	S. S. M. AFSAN SANI	4	3	12	Yellow
Email	0.5 days			Tue 2/14/23	Tue 2/14/23	100%	4 hrs	S. S. M. AFSAN SANI	4	3	12	Yellow
Driving Licence	0.7 days			Tue 2/14/23	Tue 2/14/23	100%	5.6 hrs	S. S. M. AFSAN SANI	4	3	12	Yellow
NID Card	0.8 days			Tue 2/14/23	Wed 2/15/23	75%	6.4 hrs	SOFTWARE TOOL[1],MD.	4	3	12	Yellow
▪ Designing Passenger Information Module	0.5 days	5		Tue 3/14/23	Tue 3/14/23	100%	13.6 hrs	SOFTWARE TOOL[0.5],TARIKUL	5	4		
Passenger Name	0.2 days			Tue 3/14/23	Tue 3/14/23	100%	1.6 hrs	SOFTWARE TOOL[0.5]	4	3	12	Yellow
Phone No	0.5 days			Tue 3/14/23	Tue 3/14/23	100%	4 hrs	SOFTWARE TOOL[0.5]	4	3	12	Yellow
Email	0.5 days			Tue 3/14/23	Tue 3/14/23	100%	4 hrs	SOFTWARE TOOL[0.5]	4	3	12	Yellow
Designing Estimated Cost Module	1 day	7		Mon 3/6/23	Mon 3/6/23	40%	8 hrs	MD. ARAFAT HOSSEN, SOFTWARE,	3	2	6	Yellow
Designing Map Module	2 days	11		Fri 3/17/23	Wed 3/22/23	75%	16 hrs	SOFTWARE TOOL[1],MD.	4	5	20	Red
Developing User Account Module	0.5 days	22		Fri 3/17/23	Wed 3/22/23	100%	4 hrs	SOFTWARE, SOFTWARE TOOL[0.5],MD.		3	6	Yellow
Developing Payment Module	1 day	23		Wed 3/22/23	Mon 3/27/23	75%	8 hrs	MD. ARAFAT HOSSEN, SOFTWARE,	4	5	20	Red
Developing GPS Module	0.8 days	23		Sun 3/19/23	Mon 3/20/23	100%	6.4 hrs	MD. ARAFAT HOSSEN	5	5	25	Red
Developing QR Safe Transaction Module	0.7 days	24		Tue 3/28/23	Tue 3/28/23	100%	5.6 hrs	MD. ARAFAT HOSSEN, SOFTWARE,	3	3	9	Yellow
▪ System Testing	9 days			Mon 4/3/23	Wed 4/12/23	100%	72 hrs	TESTING TOOL[2.8],T/				
Module & Subsystem testing	1 day			Mon 4/3/23	Mon 4/3/23	100%	8 hrs	TARIKUL ISLAM, TESTING	3	4	12	Yellow
System integration testing	1 day			Tue 4/4/23	Tue 4/4/23	100%	8 hrs	TARIKUL ISLAM, TESTING	4	5	20	Red
Unit Testing	5 days			Wed 4/5/23	Mon 4/10/23	100%	40 hrs	TESTING TOOL[1],S. S	5	5	25	Red
Acceptance Testing	2 days			Mon 4/10/23	Wed 4/12/23	100%	16 hrs	TARIKUL ISLAM, TESTING	5	5	25	Red

7.2 Effort Estimation:

Work Estimation



7.2.1 The Basic COCOMO:

It is the only type of static model that can quickly and roughly estimate software development effort. It primarily deals with the number of lines of code, and the level of estimation accuracy is low because we do not consider all project parameters. The relation: gives the estimated effort and scheduled time for the project:

Based on SLOC characteristic, and operates according to the following equations:

- **Effort = PM = Coefficient_{<Effort Factor>} * (SLOC/1000) ^P**
[100,000 SLOC/1000 = 100k SLOC]
- **Development time = DM = 2.50 * (PM)^T**
- **Required number of people = ST = PM/DM**

PM: person-months needed for project (labor working hours)

SLOC: source lines of code

P: project complexity (1.04-1.24)

DM: duration time in months for project (week days)

T: SLOC-dependent coefficient (0.32-0.38)

ST: average staffing necessary

Software Project Type	Coefficient	P	T
Organic	2.4	1.05	0.38
Semi-detached	3.0	1.12	0.35
Embedded	3.6	1.20	0.3

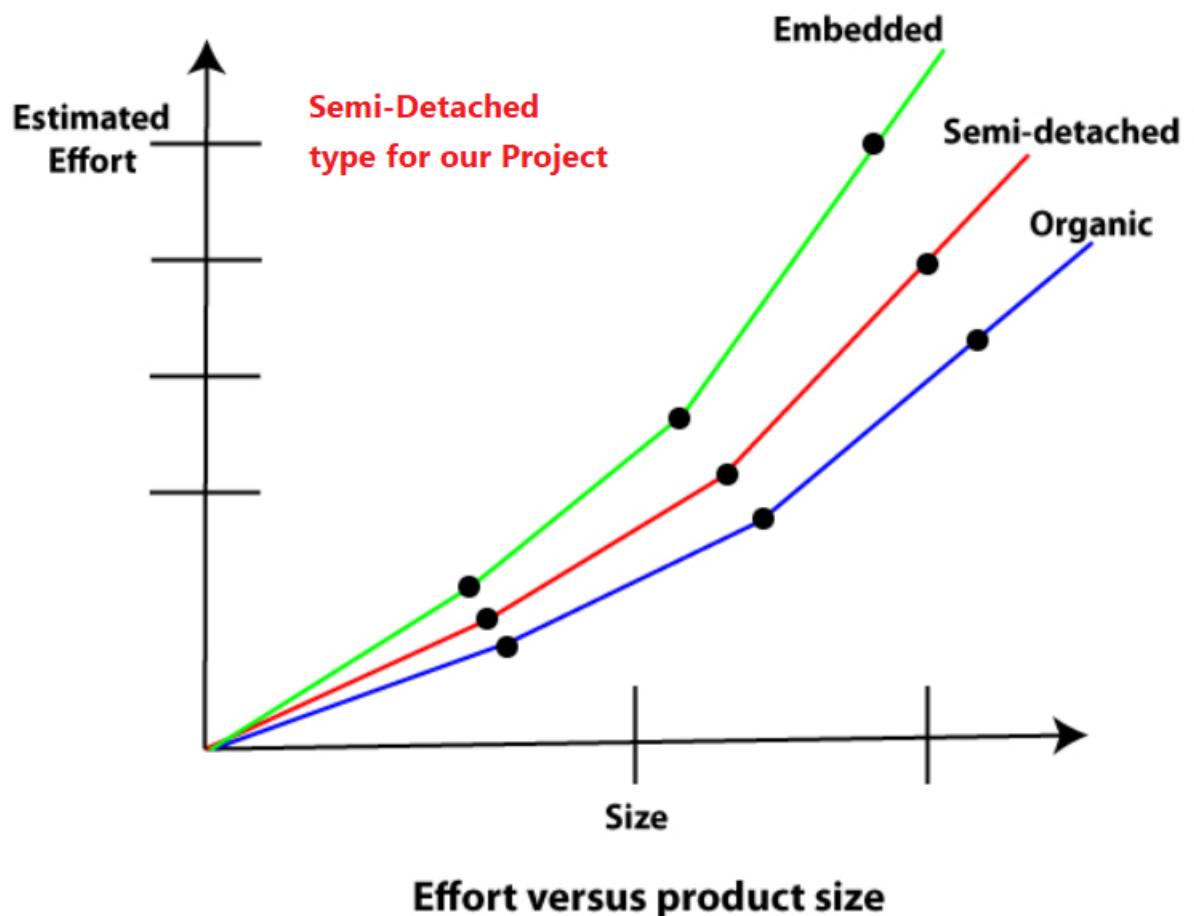
7.2.2 Semidetached Project:

It is an intermediate (in terms of size and complexity) project, where the team having mixed experience (both experience inexperience resources) to deals with rigid/non-rigid requirements.

If we take 200KLOC for our “Quick Jai” Project, where Coefficient 3.0 taken for [Semi Detached] and [[P]Project Complexity Constant parameter 1.12] taken and [T [SLOC-dependent coefficient] will be 0.35]

$$\text{Effort} = 3.0 * (200K / 1000)^{1.12} = 1133.117 \text{MM}$$

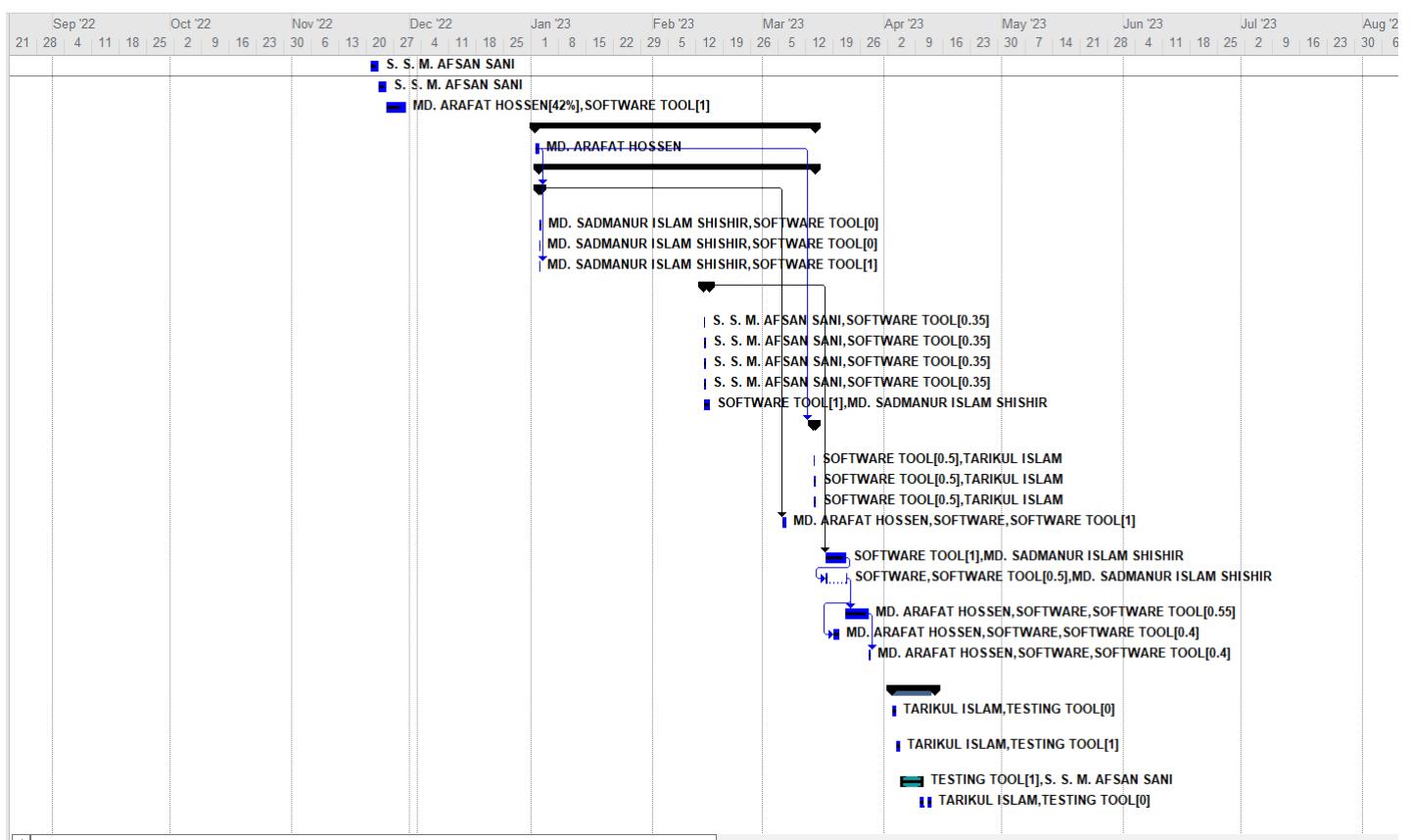
$$\text{Development Time} = 2.50 * (1133.117)^{0.35} = 29.3046 \text{Months(M)}$$



Chapter 8

Activity Scheduling and Resource Allocation:

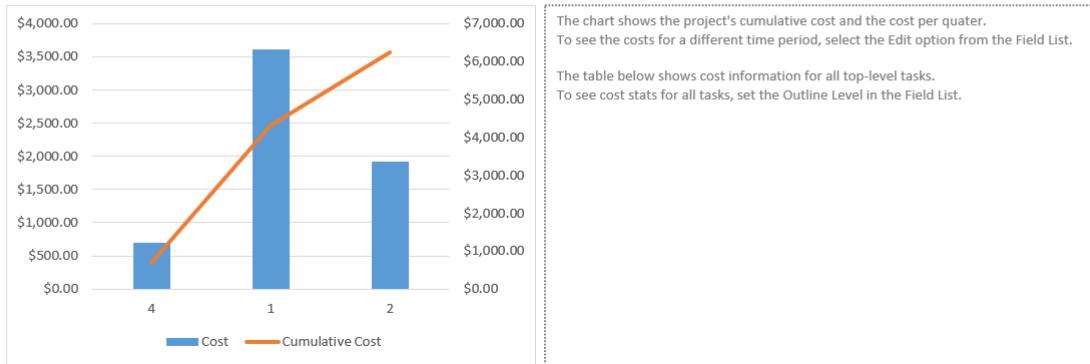
8.1 Task:



8.2 Cash Flow from Cost Analysis:

CASH FLOW

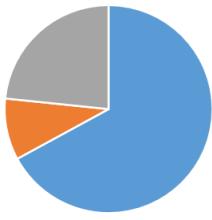
Actual Cost	Baseline Cost	Remaining Cost	Cost Variance
\$5,886.65	\$0.00	\$354.35	\$6,241.00



Name	Remaining Cost	Actual Cost	Cost	ACWP	BCWP	BCWS
Project Planning	\$4.96	\$195.04	\$200.00	\$195.04	\$0.00	\$0.00
Requirement Alalysis	\$3.65	\$176.35	\$180.00	\$176.35	\$0.00	\$0.00
Design	\$0.00	\$325.00	\$325.00	\$325.00	\$0.00	\$0.00
Coding	\$56.00	\$2,061.00	\$2,117.00	\$0.00	\$0.00	\$0.00
Designing Estimated Cost Module	\$156.00	\$129.00	\$285.00	\$0.00	\$0.00	\$0.00
Designing Map Module	\$80.00	\$365.00	\$445.00	\$0.00	\$0.00	\$0.00
Developing User Account Module	\$0.00	\$155.00	\$155.00	\$0.00	\$0.00	\$0.00
Developing Payment Module	\$53.75	\$186.25	\$240.00	\$0.00	\$0.00	\$0.00
Developing GPS Module	\$0.00	\$193.00	\$193.00	\$0.00	\$0.00	\$0.00
Developing QR Safe Transaction Module	\$0.00	\$177.00	\$177.00	\$0.00	\$0.00	\$0.00

LATE TASKS

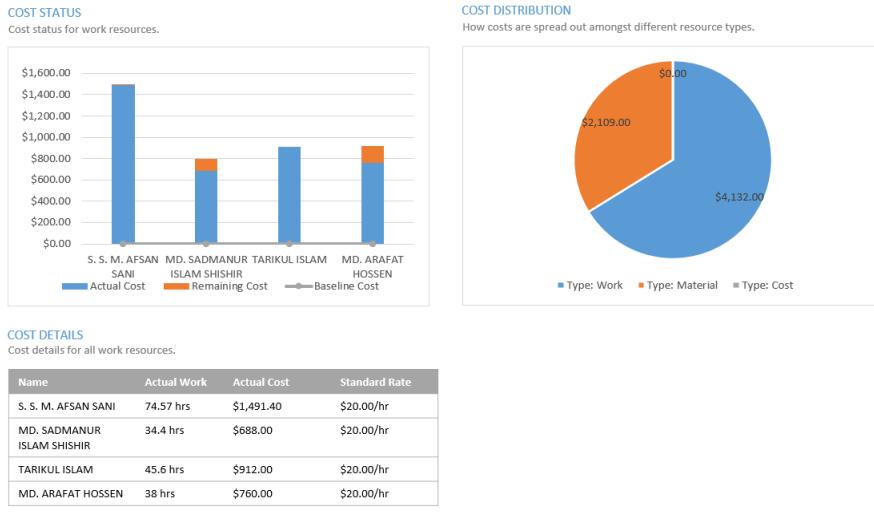
Tasks that are late as compared to the status date. A task is late if its finish date has passed or it is not progressing as planned.



Name	Start	Finish	% Complete	Remaining Work	Resource Names
Project Planning	Mon 11/21/22	Tue 11/22/22	90%	0.25 hrs	S. S. M. AFSAN SANI
Requirement Alalysis	Wed 11/23/22	Thu 11/24/22	90%	0.18 hrs	S. S. M. AFSAN SANI

8.3 Resource Cost:

RESOURCE COST OVERVIEW



Resource allocation is the process of assigning the best available resources to tasks and projects.

8.4 The benefits of resource allocation:

There's a reason resource allocation is a top priority among enterprises, small businesses, and everything in between. Without it, things can get out of hand and lead to employee burnout, poor performance, and missed deadlines.

8.5 Helps in planning:

Resource allocation can prevent overspending on resources you don't need or stop you from running short of them halfway through a project. When you have the right tools, you can quickly see the availability of resources and timelines for projects in the pipeline and plan accordingly. Improves team well-being and morale. Poor resource management can lead to burnout among your workforce.

When that happens, productivity and performance decrease, and happiness disappear.

8.5.1 Keeps everyone in the loop:

hen collaborating on a project, it is essential to track progress. That usually means regular updates on the status of tasks, issues, and milestones. If you're using manual tools, this will eat up your time and increase the odds of making mistakes.

8.5.2 Available resources and their allocation:

We use UML Diagram Maker, Microsoft Project, and Jira for our project. Above mentioned technical diagramming software tools that had been used to help create flowcharts, organizational charts, mind maps, network diagrams, floor plans, workflow diagrams, business charts, and engineering diagrams. Particularly the software JIRA had been used for the Agile method.

8.5.3 User Interface:

Human Resource:

Human plays an important role in the software development process. No matter what size and how complexity is there in the project, if you want to perform project tasks effectively, then human resources are very essential. In the software industry, people are assigned some organizational positions such as manager, software developer, software testing, engineer, and so on. These positions are according to their skills and specialty. For small projects only, a single individual can perform all these roles. But for a large project, a team of people works on it. The total number of people that are required for the project is estimated by calculating development effort in terms of person-months.

Reusable Components:

For bringing ease in the software development process or to accelerate the development process of software, the industry prefers to use some ready software components. The components can be defined as the software building blocks that can be created and reused in the software development process. Generally, regardless of their type, size, or complexity, all projects need money. Managing the budget for a project is one of the most important tasks that all project managers must do. The reusable resources also known as cost resources are very helpful as they help in reducing the overall cost of development. The use of components emphasizes reusability. This is also termed as Component-Based Software Engineering.

Hardware and Software tools:

These are material resources that are part of a project. This type of resource should be planned before starting the development of the project otherwise it may causes problems for the project. For example, if you require certain software elements during performing a task and somehow can't manage to get them on time, even they could take a few weeks to ship from the manufacturer and this will cause a delay to your project.

Chapter 9

Earn Value Analysis (EVA):

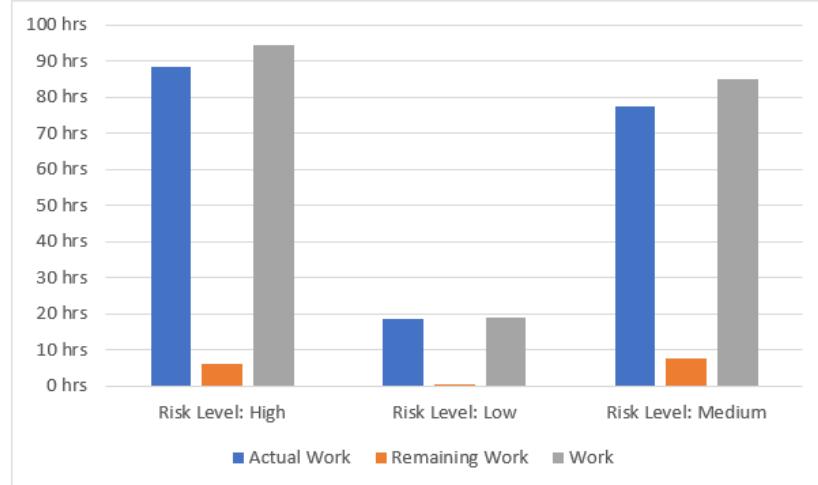
9.1 Earn Value analysis:

Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining
Project Planning	\$0.00	Prorated	\$200.00	\$0.00	\$200.00	\$178.00	\$22.00
Requirement Alanysis	\$0.00	Prorated	\$180.00	\$0.00	\$180.00	\$162.00	\$18.00
Design	\$0.00	Prorated	\$325.00	\$0.00	\$325.00	\$205.00	\$120.00
▫ Coding	\$0.00	Prorated	\$2,117.00	\$0.00	\$2,117.00	\$2,021.00	\$96.00
Design Login page	\$0.00	Prorated	\$160.00	\$0.00	\$160.00	\$96.00	\$64.00
▫ Design Sign in page	\$0.00	Prorated	\$1,957.00	\$0.00	\$1,957.00	\$1,925.00	\$32.00
▫ Designing Vehicle Information Module	\$0.00	Prorated	\$572.00	\$0.00	\$572.00	\$572.00	\$0.00
Vehicle Licence	\$0.00	Prorated	\$105.00	\$0.00	\$105.00	\$105.00	\$0.00
Vehicle Insurance	\$0.00	Prorated	\$89.00	\$0.00	\$89.00	\$89.00	\$0.00
Vehilce Model	\$0.00	Prorated	\$173.00	\$0.00	\$173.00	\$173.00	\$0.00
▫ Designing Driver Information Module	\$0.00	Prorated	\$813.00	\$0.00	\$813.00	\$781.00	\$32.00
Driver name	\$0.00	Prorated	\$108.00	\$0.00	\$108.00	\$108.00	\$0.00
Phone no	\$0.00	Prorated	\$140.00	\$0.00	\$140.00	\$140.00	\$0.00
Email	\$0.00	Prorated	\$140.00	\$0.00	\$140.00	\$140.00	\$0.00
Driving Licence	\$0.00	Prorated	\$172.00	\$0.00	\$172.00	\$172.00	\$0.00
NID Card	\$0.00	Prorated	\$253.00	\$0.00	\$253.00	\$221.00	\$32.00
▫ Designing Passenger Information Module	\$0.00	Prorated	\$572.00	\$0.00	\$572.00	\$572.00	\$0.00
Passenger Name	\$0.00	Prorated	\$107.00	\$0.00	\$107.00	\$107.00	\$0.00
Phone No	\$0.00	Prorated	\$155.00	\$0.00	\$155.00	\$155.00	\$0.00
Email	\$0.00	Prorated	\$155.00	\$0.00	\$155.00	\$155.00	\$0.00
Designing Estimated Cost Module	\$0.00	Prorated	\$285.00	\$0.00	\$285.00	\$129.00	\$156.00
Designing Map Module	\$0.00	Prorated	\$445.00	\$0.00	\$445.00	\$365.00	\$80.00
Developing User Account Module	\$0.00	Prorated	\$155.00	\$0.00	\$155.00	\$155.00	\$0.00
Developing Payment Module	\$0.00	Prorated	\$240.00	\$0.00	\$240.00	\$186.25	\$53.75
Developing GPS Module	\$0.00	Prorated	\$193.00	\$0.00	\$193.00	\$193.00	\$0.00
Developing QR Safe Transaction Module	\$0.00	Prorated	\$177.00	\$0.00	\$177.00	\$177.00	\$0.00

9.2 Risk Analysis:

Task Name	Duration	Predecessors	Start	Finish	% Complete	Work	Resource Names	Probability (Text)	Impact	Risk Score	Risk Level
Project Planning	2 days		Mon 11/21/22	Tue 11/22/22	90%	10 hrs S. S. M. AFSAN SANI	1	1	1	1	Green
Requirement Analysis	2 days		Wed 11/23/22	Thu 11/24/22	90%	9 hrs S. S. M. AFSAN SANI	2	2	4	4	Green
Design	3 days		Fri 11/25/22	Tue 11/29/22	100%	10 hrs MD. ARAFAT HOSEN	2	4	8	8	Yellow
▪ Coding	51.5 days		Mon 1/2/23	Tue 3/14/23	94%	57.6 hrs	3	3	4	4	Yellow
Design Login page	1 day		Mon 1/2/23	Mon 1/2/23	85%	8 hrs MD. ARAFAT HOSEN	4	3	12	12	Yellow
▪ Design Sign in page	50.5 days		Mon 1/2/23	Tue 3/14/23	96%	49.6 hrs	3	4			
▪ Designing Vehicle Information Module	0.5 days	5	Mon 1/2/23	Tue 1/3/23	100%	13.6 hrs MD. SADMANUR ISLAM	5	3			
Vehicle Licence	0.5 days		Mon 1/2/23	Tue 1/3/23	100%	4 hrs MD. SADMANUR ISLAM	4	3	12	12	Yellow
Vehicle Insurance	0.4 days		Tue 1/3/23	Tue 1/3/23	100%	3.2 hrs MD. SADMANUR ISLAM	4	3	12	12	Yellow
Vehicle Model	0.3 days	5	Tue 1/3/23	Tue 1/3/23	100%	2.4 hrs MD. SADMANUR ISLAM	4	3	12	12	Yellow
▪ Designing Driver Information Module	1.5 days		Tue 2/14/23	Wed 2/15/23	93%	22.4 hrs	5	4			
Driver name	0.3 days		Tue 2/14/23	Tue 2/14/23	100%	2.4 hrs S. S. M. AFSAN SANI	4	3	12	12	Yellow
Phone no	0.5 days		Tue 2/14/23	Tue 2/14/23	100%	4 hrs S. S. M. AFSAN SANI	4	3	12	12	Yellow
Email	0.5 days		Tue 2/14/23	Tue 2/14/23	100%	4 hrs S. S. M. AFSAN SANI	4	3	12	12	Yellow
Driving Licence	0.7 days		Tue 2/14/23	Tue 2/14/23	100%	5.6 hrs S. S. M. AFSAN SANI	4	3	12	12	Yellow
NID Card	0.8 days		Tue 2/14/23	Wed 2/15/23	75%	6.4 hrs SOFTWARE TOOL[1]	4	3	12	12	Yellow
▪ Designing Passenger Information Module	0.5 days	5	Tue 3/14/23	Tue 3/14/23	100%	13.6 hrs SOFTWARE TOOL[0.5], TARIKUL	5	4			
Passenger Name	0.2 days		Tue 3/14/23	Tue 3/14/23	100%	1.6 hrs SOFTWARE TOOL[0.5]	4	3	12	12	Yellow
Phone No	0.5 days		Tue 3/14/23	Tue 3/14/23	100%	4 hrs SOFTWARE TOOL[0.5]	4	3	12	12	Yellow
Email	0.5 days		Tue 3/14/23	Tue 3/14/23	100%	4 hrs SOFTWARE TOOL[0.5]	4	3	12	12	Yellow
Designing Estimated Cost Module	1 day	7	Mon 3/6/23	Mon 3/6/23	40%	8 hrs MD. ARAFAT HOSEN, SOFTWARE,	3	2	6	6	Yellow
Designing Map Module	2 days	11	Fri 3/17/23	Wed 3/22/23	75%	16 hrs SOFTWARE TOOL[1]	4	5	20	20	Red
Developing User Account Module	0.5 days	22	Fri 3/17/23	Wed 3/22/23	100%	4 hrs SOFTWARE, SOFTWARE[0.5], MD	2	3	6	6	Yellow
Developing Payment Module	1 day	23	Wed 3/22/23	Mon 3/27/23	75%	8 hrs MD. ARAFAT HOSEN, SOFTWARE,	4	5	20	20	Red
Developing GPS Module	0.8 days	23	Sun 3/19/23	Mon 3/20/23	100%	6.4 hrs MD. ARAFAT HOSEN	5	5	25	25	Red
Developing QR Safe Transaction Module	0.7 days	24	Tue 3/28/23	Tue 3/28/23	100%	5.6 hrs MD. ARAFAT HOSEN, SOFTWARE	3	3	9	9	Yellow
▪ System Testing	9 days		Mon 4/3/23	Wed 4/12/23	100%	72 hrs TESTING TOOL[2.8], TARIKUL					
Module & Subsystem testing	1 day		Mon 4/3/23	Mon 4/20/23	100%	8 hrs TARIKUL ISLAM, TESTING	3	4	12	12	Yellow
System integration testing	1 day		Tue 4/4/23	Tue 4/4/23	100%	8 hrs TARIKUL ISLAM, TESTING	4	5	20	20	Red
Unit Testing	5 days		Wed 4/5/23	Mon 4/10/23	100%	40 hrs TESTING TOOL[1], S. S. 5	5	5	25	25	Red
Acceptance Testing	2 days		Mon 4/10/23	Wed 4/12/23	100%	16 hrs TARIKUL ISLAM, TESTING	5	5	25	25	Red

Risk Analysis



Chapter 10

Conclusion:

Sharing a ride has numerous benefits such as reducing traffic congestion and parking demands. Ridesharing also helps to eliminate vehicle emissions and creates less stressful commutes. The "Quick Jai" application is a breakthrough service, which will play an essential role in improving transportation services and making city life more enjoyable. In addition, our initiative is concerned with the driver community, taking into account the Labor Unit, where riders and other drivers benefit from ride-hailing apps because they are convenient, affordable, and safe. Ride-sharing-based transportation services like ours create jobs and contribute to the economy, improving mobility for seniors, people with disabilities, and people on low incomes while decreasing discrimination in taxis.