Business Analysis

Project name: Easy Car Rental

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Introduction

Business Analyst is someone who mainly analyses, summarizes & furnishes solutions to be business requirement of an organization and interprets the information based on various technologies & business processes by optimizing the overall cost.

A) Introduction to IT companies

Information Technology (IT) services companies, as the name suggests, provide, IT services such as software development, software maintenance & support, product development and other related service to domestic and overseas clients.

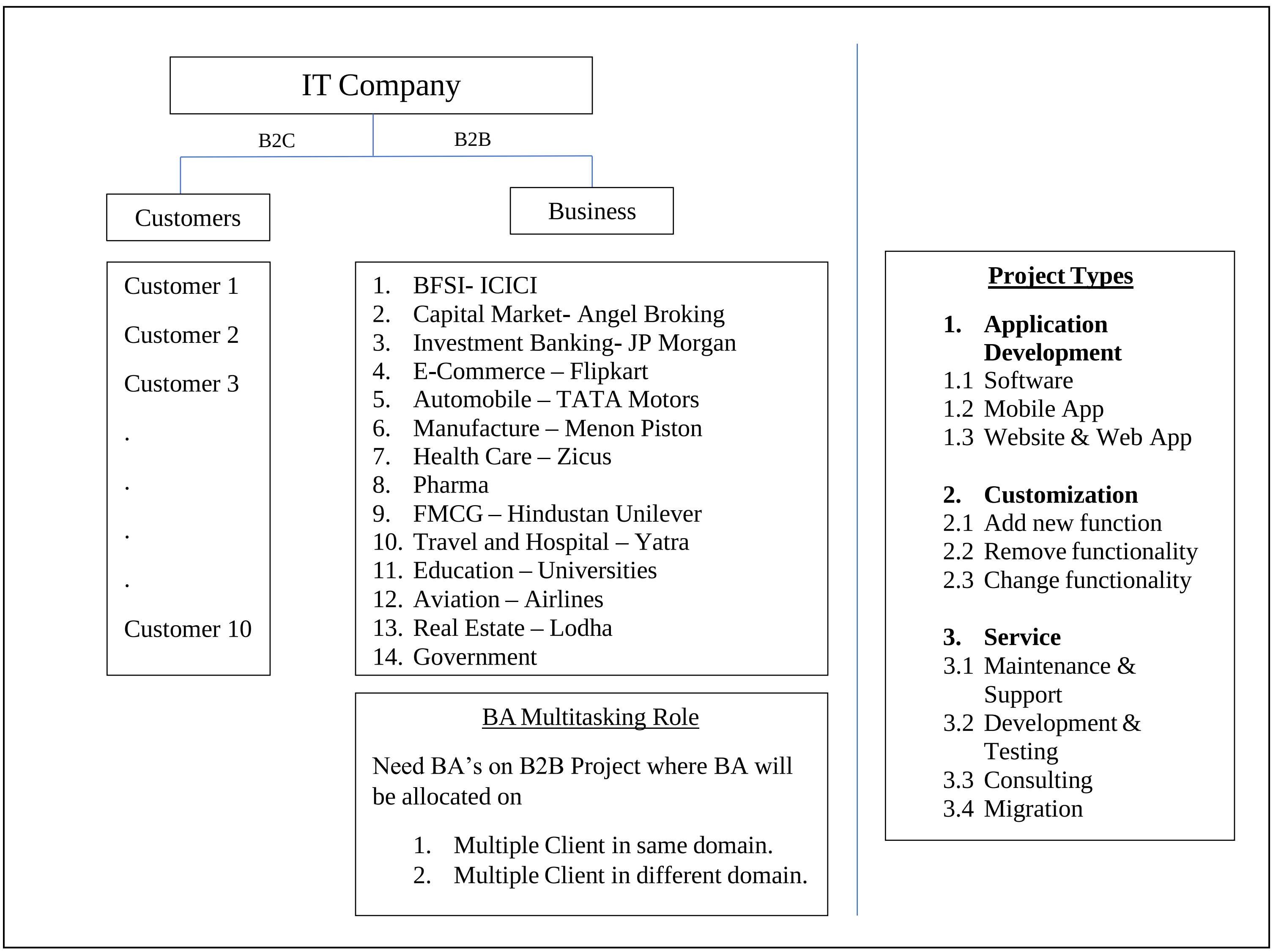


Fig 1. IT Company

a) All the IT companies are product based so BA will be must in it to gain the all requirements of the Client.

b) In B2B, both the IT Company and other Client company will hire a BA to correspond each other smoothly.

c) The B2C companies make the product which are universal /global which will be directly used by the end users. The Microsoft Office, Games, Mobile Apps, etc. are the products of B2C. As already mentioned, they make product universally, they have Product Research Team to research about the requirements of the market. So, the requirements or hiring of BA is less here.

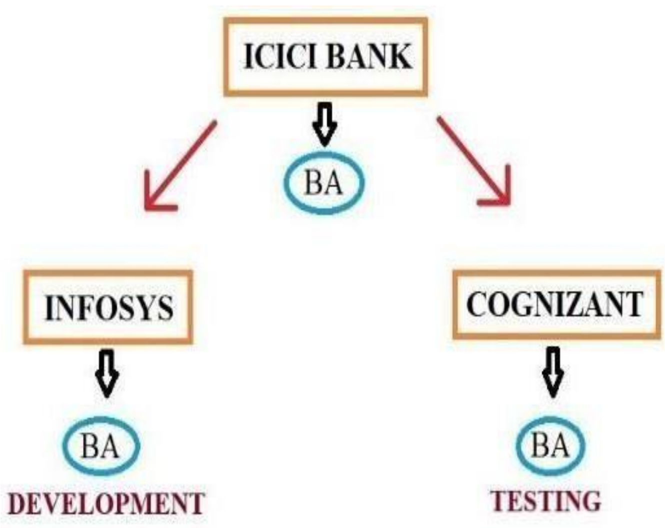


Fig 1.1

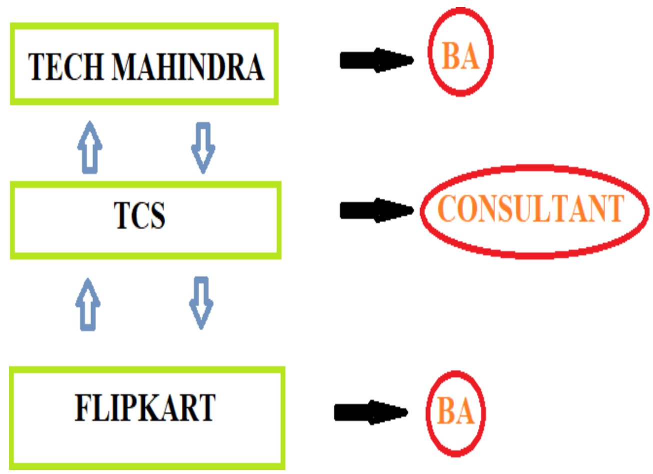


Fig 1.2

A) Fig.1.1 shows Client ICICI BANK want to develop an app or software for them. As shown in fig. it will hire two different companies INFOSYS for Development and COGNIZANT for Testing. Here all three of them will hire a BA for their operations.

B) Fig.1.2 shows Client FLIPKART is new business want to build an app or software and not having knowledge about how to do it. So, it will take help from consultancy to hire a company. So here TCS will be consultant to FLIPKART and provide them TECH MAHINDRA for their product development.

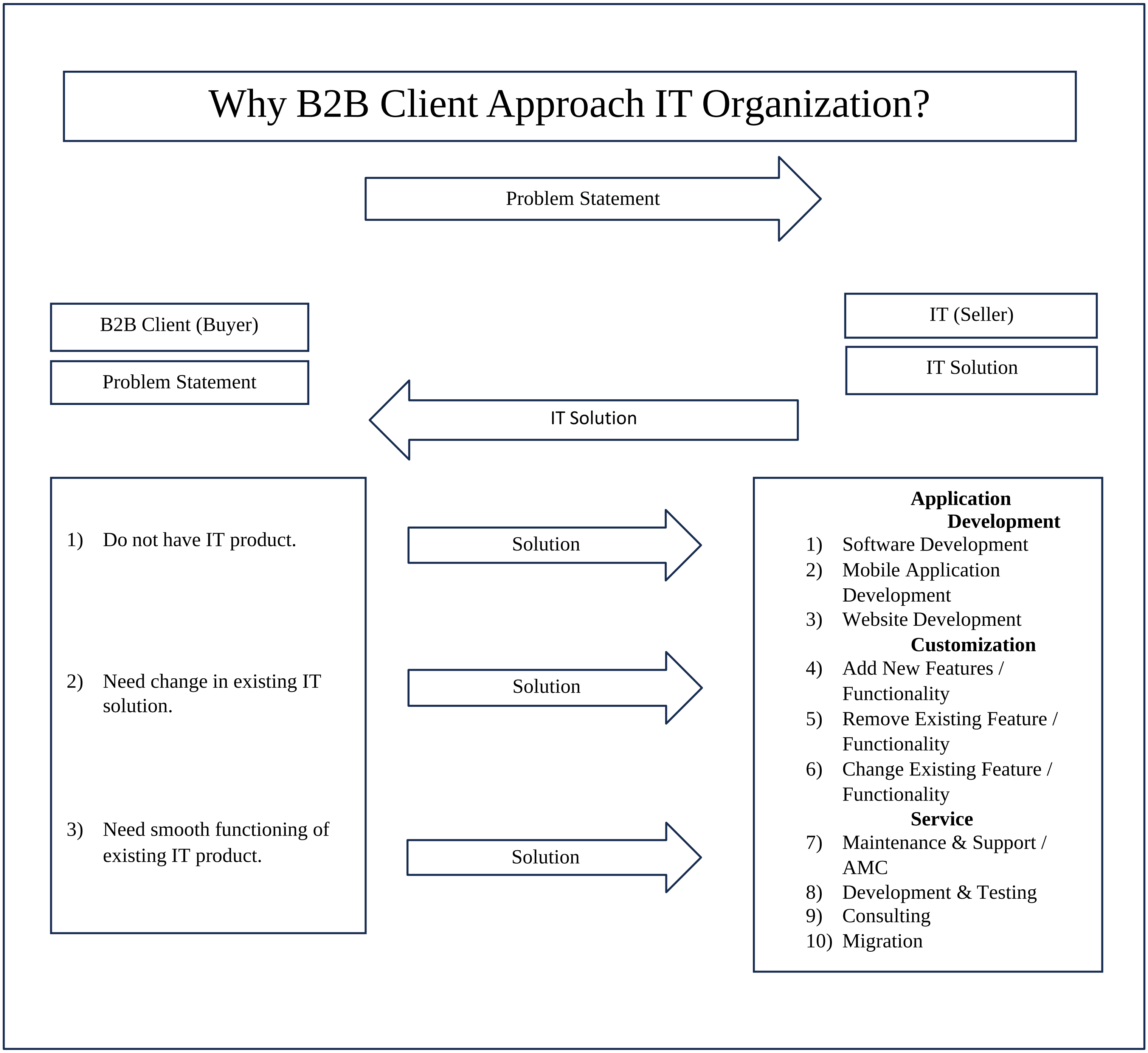

Why B2B Client Approach IT Organization?
Problem Statement
B2B Client (Buyer)
Problem Statement
IT (Seller)
IT Solution
IT Solution
1) Do not have IT product.
2) Need change in existing IT solution.
3) Need smooth functioning of existing IT product.
Solution
Solution
Solution
Application Development
1) Software Development
2) Mobile Application Development
3) Website Development
Customization
4) Add New Features / Functionality
5) Remove Existing Feature / Functionality
6) Change Existing Feature / Functionality
Service
7) Maintenance & Support / AMC
8) Development & Testing
9) Consulting
10) Migration

Fig. 2

IT BA Role

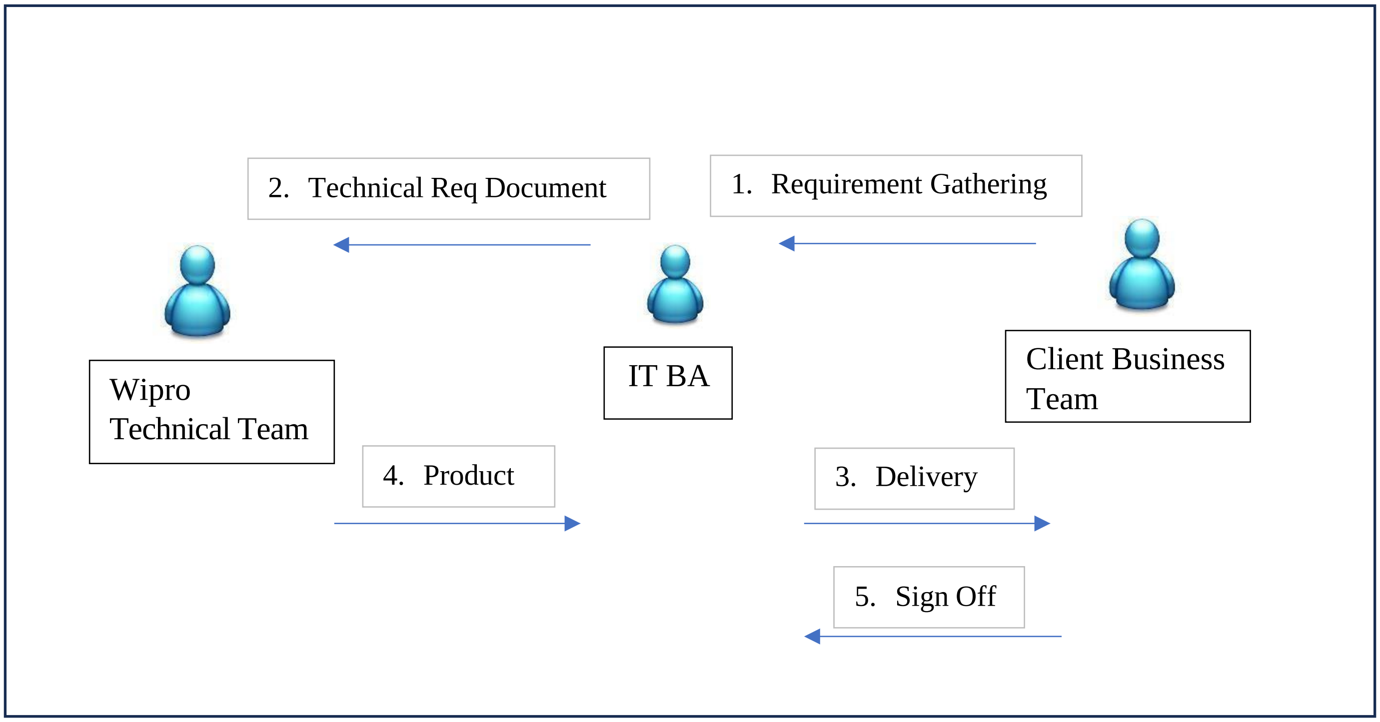


Fig. 3.1

Non – IT BA Role

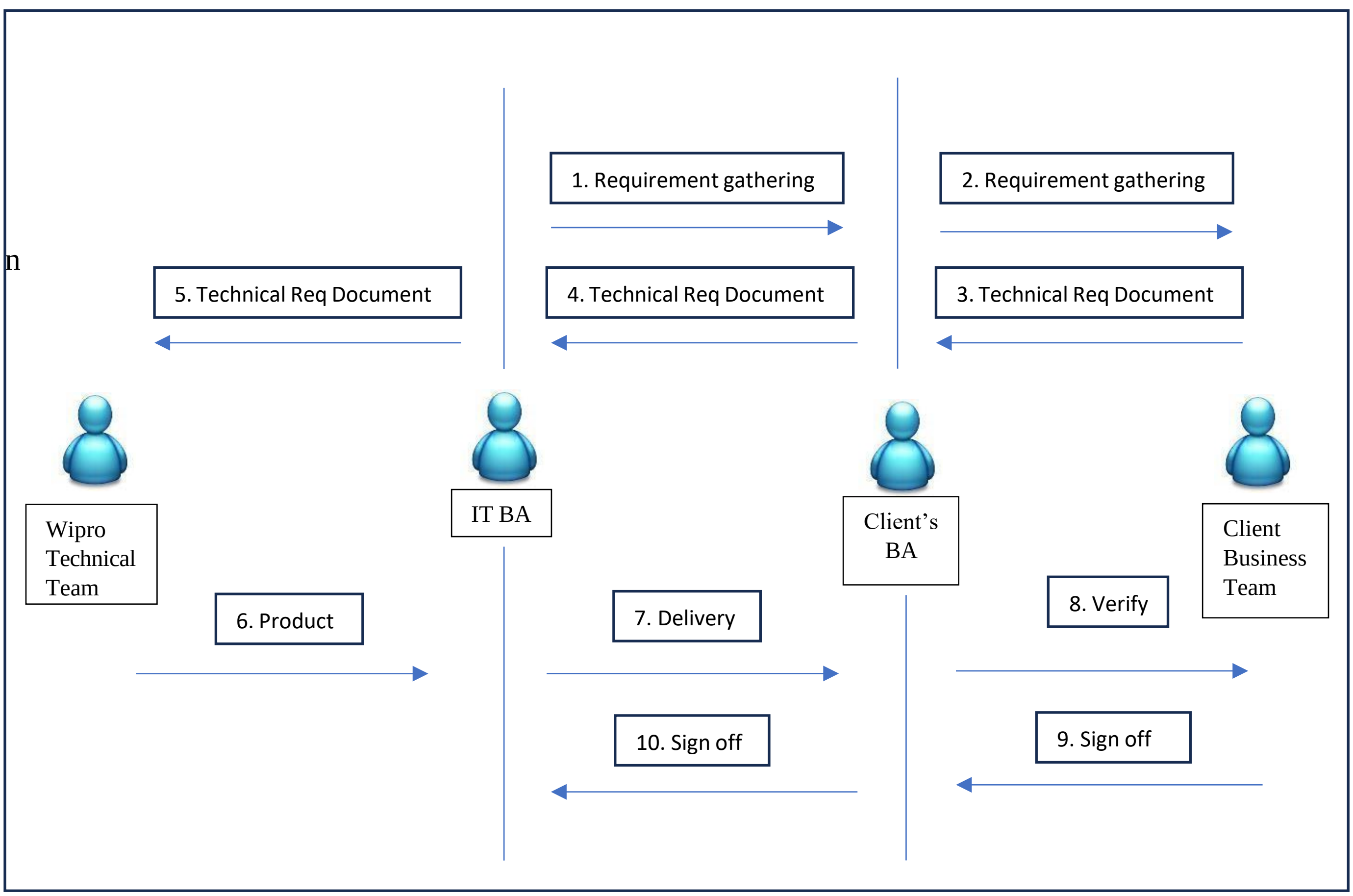


Fig. 3.2

B) Department of IT Company and Client

IT Company (Capgemini)

1. Business Team/ Management Team
2. Marketing / Sales / Pre- Sales
3. Accounts / Finance
4. System / Networks
5. Project Management Office

Client (ICICI)

1. Business Team/ Management Team
2. Marketing / Sales / Pre- Sales
3. Accounts / Finance
4. System / Networks
5. Project Management Office

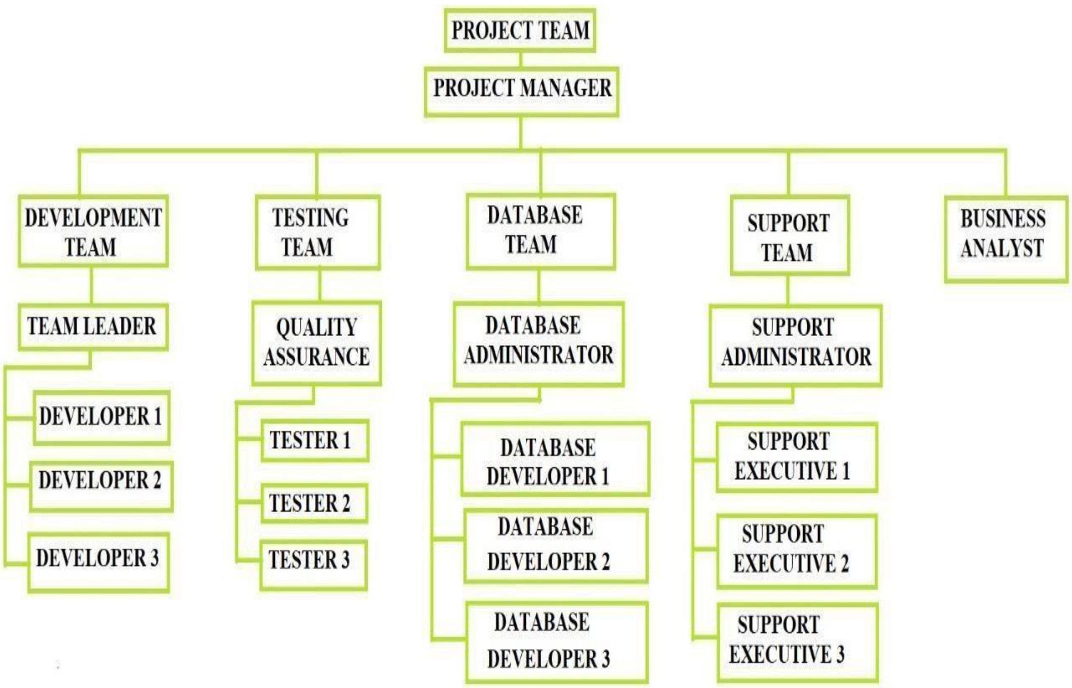


Fig. 4

Fig. 4 shows various departments present in an IT company along with the hierarchy.

Software Development Life Cycle

Let us consider, ABC TECH is an IT Company and EASY CAR RENTAL (ECR) is a client Company, want to develop an application/software for their existing business.

Initial approach of IT and Client

ABC TECH

(IT Company)

1. Sales and Marketing
2. Admin Department
3. Operation Department
4. Quality Assurance
5. Accounts and Finance
6. Research and Development
7. HR Department
8. Customer Support

EASY CAR RENTAL

(Client Company)

1. Business
2. Accounts
3. Sales and Marketing
4. Reception / Customer Support
5. Drive
6. Car Maintenance

1) Online / offline marketing done by ABC Tech.
2) Sales of ABC will find ECR online or through their database.
3) Through Reference
   3.1) ECR will get to know about ABC through their references.
   3.2) ABC will get to know about ECR through their references.
4) ECR will publish tender online / offline.

Then, the Sales Team of IT Company and the Business Team of ECR will hold a meeting.

A) Project Inititation Phase

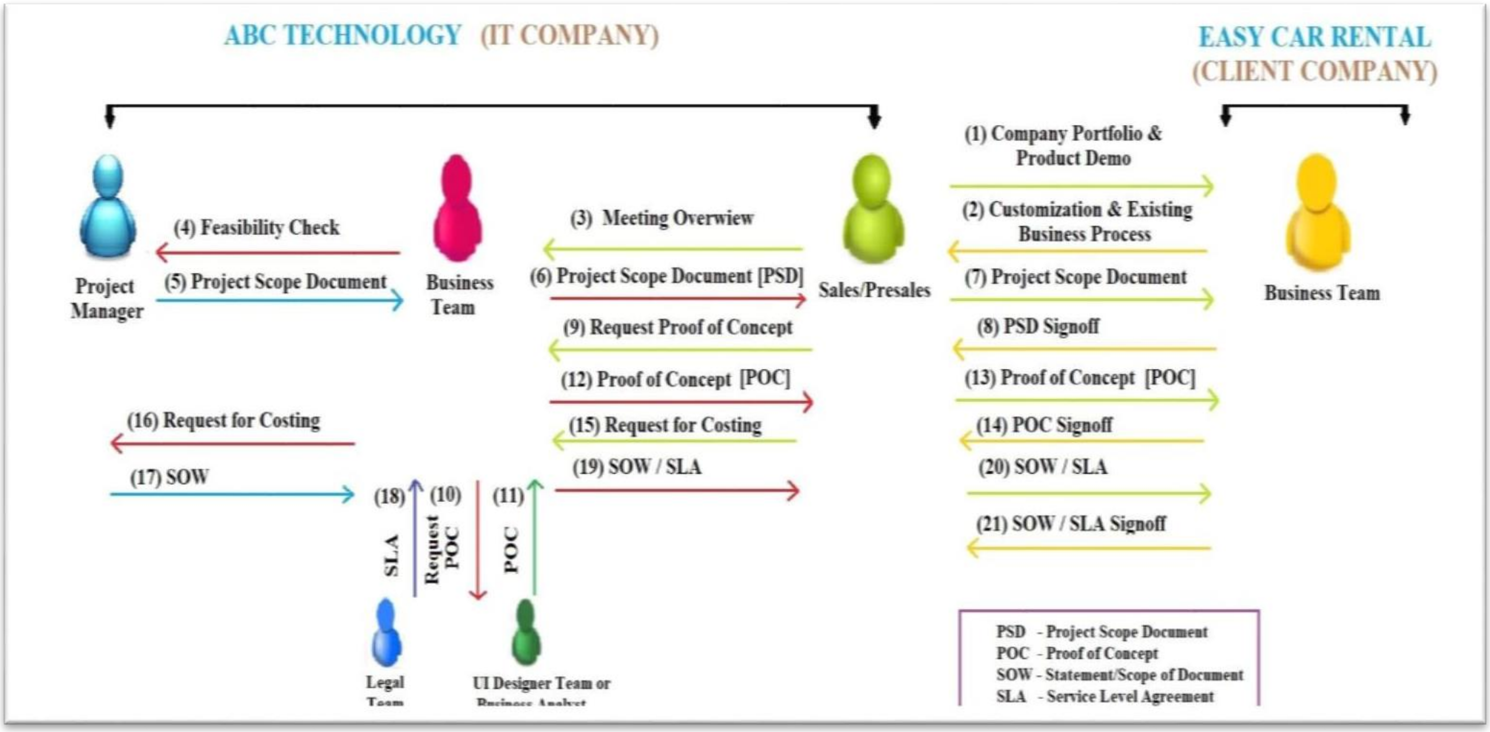


Fig. 5

SOW: Scope of Work

1) Module
2) Features
3) Task
4) AMC
5) Etc.

SLA: Service Level Agreement.

1) Payment term, Currency rate, Due date of Payment.
2) Free Support Period.
3) Technology & Framework.
4) Software Development Method.
5) Product Licensing Term.
6) Hardware Configuration, Software Licensing.
7) Server Configuration Purchased by Client.
8) Changes will be Charged extra at Actual
9) Non-disclosure Agreement (NDA) Document.

❖ GAP ANALYSIS

PRODUCT FEATURES	CLIENT WILL CONVEY	UNDERSTANDS CLIENTS EXISTING BUSINESS
A B C D E	P Q R S T	L M N O

Gap analysis is a valuable tool for business analysts to identify areas for improvement and to ensure that projects are aligned with the goals and objectives of the organization.

GAP Analysis Assignment – Features for all TAB's

Sr. No.	End User Customer	Reception / Customer Care	Account	Drivers	Car Maintenance
1	Select preferred language	Login	Login	Login	login
2	Login /Sign Up	create new enquiry	View Financial reports	view trips allocation	register a new car
3	Login using Email Id/ Gmail / Facebook / Mobile No/ Username & Pass	edit enquiry	Download Financial reports	view trip history	view list of cars
4	Email and Mobile No Verification	view list of enquiries	view pending payments	alerts/ notification (bell icon)	schedule a car maintenance
5	Save Password and Stay Sign In	view rental plans and offers	confirm payments	view pending activities	send notification
6	Two Factor Authentication	new booking	list of employees	upload car inspection (before trip)	enter vehicle details
7	Trusted Device login notification	edit booking	checking invoices	upcoming maintenance schedule	register for maintenance/repairs/damage
8	Booking Search Bar	confirm/cancel booking	verify invoices	view personal info	view service history of vehicle
9	booking for self/others	view and download booking summary	Release invoice payments	edit personal info	view car inspection check list
10	self-driven/driver	view list of bookings	view and download invoices	view documentation	view car documentation
11	Selecting Pick Up and Drop Location	view live booking	monitoring and release employee payments	edit/upload new documentation	Cost tracking
12	Selecting Pick Up date and Time	view upcoming booking	view refund payments	view feedback, ratings and reviews	Warranty tracking
13	Selecting Drop off date and Time	schedule booking	release refund payments	view calendars (leaves and trips schedule)	reporting failures
14	Modify Date and Time	sending alerts/notification to drivers regarding upcoming trip	generate credit note	view trip details	View Vehicle health
15	Selecting plan (Hourly / Day)	search bar using booking id	alerts for overdue payments	view trip location (pick up and drop location on maps)	list of insurance companies
16	Filtering Cars as per requirement	view list of queries	calculations for overdue/late payments	contact customer	claim insurance
17	driver's filter (gender/age/language/exp)	create new queries	check taxes on transactions	enter OTP	check inventory
18	Selecting Fuel Plans (w/wo fuel)	pending queries	Currency Conversion	start a trip	check/assign available technicians
19	View Booking Details	resolved queries	view list of vendors	Trip GPS Navigation	check/assign service advisor
20	View Fare Details	customer support to queries - chat/email/call		contact customer support	create part list for orders
21	Apply Coupons	view customers feedback, reviews and rating		drop opt	generate reports of vehicle repairs
22	Select Payment options	Real Time Tracking		end trip	download reports

23	Edit / Cancel Booking			Submit Trip Feedback	
24	Customer Support				

Sr. No.	ADMIN Features				
1	Create /Upload/ Remove logo	26	Restrict customer	51	Upload maintenance related documentation (Bills/ Insurance/ Damage Records/ Service History)
2	log-in / sign up	27	Add Location	52	Sending Maintenance Alerts
3	Forgot password	28	Change Location	53	Create Vendor List
4	Add departments	29	Remove Location	54	Add / Remove vendors
5	Edit dept.	30	Add offers	55	Inventory Monitoring
6	Delete dept.	31	Remove offers	56	View Inspection Checklist and Reports
7	Add employee	32	Active payment option	57	Approval / Rejection of 3rd Party agreement
8	Active employee	33	In-active payment option	58	Add / Change Toll Free No., Email Id
9	In-active employee	34	add driver details	59	Add FAQs
10	Edit employee details	35	edit driver details	60	Enable / Disable Real Time web Chat support
11	Delete employee	36	view driver's documentations	61	View Car’s Ratings
12	Role assign	37	active driver	62	Add / Change Hourly rental rate of a Car
13	Active role	38	in active driver	63	Approval / Rejection for Extension of Trip
14	In-active role	39	view & download trip history - driver	64	View / Download Financial Report
15	Access Control	40	view allocation of drivers	65	Approval / Rejection of Refund
16	Provide access to employee	41	assign driver to trip	66	Create and Manage Maintenance Schedule
17	Remove access to employee	42	view driver's Reviews and Ratings		
18	Employee work hours monitoring	43	View Performance Record of Driver		
19	Shift allocation	44	Sending Trip Alerts/ Trip change / Trip Notification / Trainings		
20	Add holidays	45	Monitoring Driver's Location via GPS		
21	Reject / Approve holidays	46	View Realtime availability of Driver Status		
22	Leave trackers	47	Add / Remove Car Details		
23	List of Customer	48	Upload / Remove Car Photos		
24	Edit customer personal details	49	View / Edit Car Documentation		
25	View & download trip history - Customer	50	View Car's current Status		

B) Project Planning and Resource Allocation

- Project Kickoff Meeting is for introducing the BA to Client for further communication.
- Importance of Product Training to BA
    - To trained the Client properly.
    - Check Feasibility to add new feature and tell his team where it can be fitted in existing product.

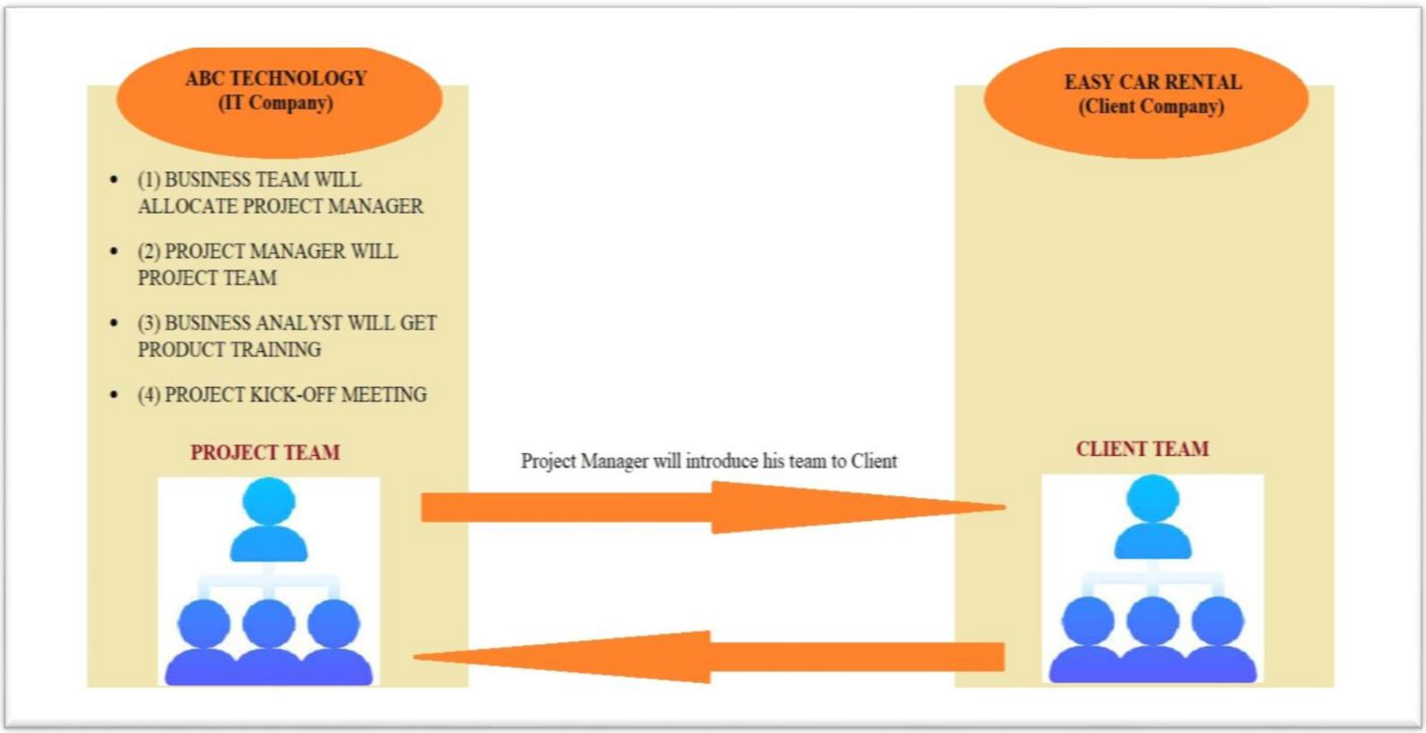


Fig. 6

C) Requirement Gathering

	CLIENTS EXISTING BUSINESS (AS-IS BUSINESS PROCESS) CURRENT STATE	SOLUTION/APPLICATION TO BE DEVLEOPED (TO-BE BUSINESS PROCESS) FUTURE STATE
HIGH LEVEL RECRUITMENT GATHERING	(1) High Level As-Is A B C D E	(2) High Level To-Be P Q R S T
LOW LEVEL RECRUITMENT GATHERING	SME1 SME2 SME3 SME4 SME5 (3) Low Level As-Is	P1 Q1 P2 Q2 P3 Q3 (4) Low Level To-Be

SME's – Subject Matter Expert

QA – Quality Assuarance / Analyst

Business Analyst can do the Requirement Gathering by scheduling meeting online or on Client's Location.

High Level Requirement Gathering

		Sr. No	IT Business Analyst	Client Business Team
BRD / HLD Business Requirement Document / High Level Document	Business Requirement on High Level Client’ s Existing Business(AS-IS Business	1	Arrange meeting with client’s business team as per RACI matrix to discuss client’s existing Business process on high level. (Happy Flow)	
		2		Attend meetings
		3	Send Minutes of Meeting	
		4		Approve/ Rectify MOM
		5	Send Diagram of high-level existing business process	
		6		Approve / Rectify Diagram
	Technical Requirement on High Level Solution to be developed by IT company (TO-BE Business Process)	7	Arrange meeting to discuss high level flow of solution / happy flow.	
		8		Attend Meeting
		9	Send Minutes of Meeting	
		10		Approve / Rectify MOM
		11	Send diagrams of high-level flow of solution / happy flow	
		12		Approve / Rectify Diagrams
		13	Prepare UI Screens / Prototypes on High Level	
		14		Approve / Rectify UI Screens
		15	Send BRD / HLD	
		16		BRD / HLD sign off

Low Level Requirement Gathering

		Sr. No	IT Business Analyst	Client SME's
SRS/FS/FRS/UCS/LLD/TD/FRD/FD	Business Requirement on Low Level Client's Existing Business(AS-IS Business	1	Arrange meeting with SME's of client as per RACI matrix to discuss client's existing Business process on low level/ Detailed Level/ Department Level. (Happy Flow)	
		2		Attend meetings
		3	Send Minutes of Meeting	
		4		Approve/ Rectify MOM
		5	Send Diagram of low level/ Detailed Level/ Department level existing business process.	
		6		Approve / Rectify Diagram
	Technical Requirement on Low Level Solution to be developed by IT company (TO-BE Business Process)	7	Arrange meeting to discuss low level/ Detailed Level/ Department level flow of solution.	
		8		Attend Meeting
		9	Send Minutes of Meeting	
		10		Approve / Rectify MOM
		11	Send diagrams of low level/ Detailed Level/ Department level flow of solution.	
		12		Approve / Rectify Diagrams
		13	Send Technical Documents (SRS/FS/FRS/UCS/LLD/TD/FRD/FD)	
		14		Technical Documents sign off

SRS	Software Requirement Specification
FS	Functional Specification
FRS	Functional Requirement Specification
UCS	Use Case Specification
LLD	Low Level Document
TD	Technical Document
FRD	Functional Requirement Document
FD	Functional Document

RACI Matrix –

Sr. No.	Department Name	POC	Designation	Mobile No.	Email	Time Zone	RACI
1.	Business	Peter	Head	9812345678	abc@gmail.com	AST	R
2.	Business	John	Head	9712345678	def@gmail.com	EST	A
3.	Business	Mark	Sr. Associate	9512345678	pqr@gmail.com	CST	C
4.	Business Operation	Lady	Sr. Associate	9612345678	xyz@gmail.com	MST	I

R → Responsible (POC who is responsible to give requirement)
A → Accountable (POC who approve / sign off requirement)
C → Consultable (POC to whom team should consult)
I → Inform able (POC who is getting impacted)

- It is a Status of specific Stake Holder.
- Stake Holder: Directly / Indirectly Involve Person in Project
- BA choose the RACI MATRIX according to the Client.

D) Development and Testing

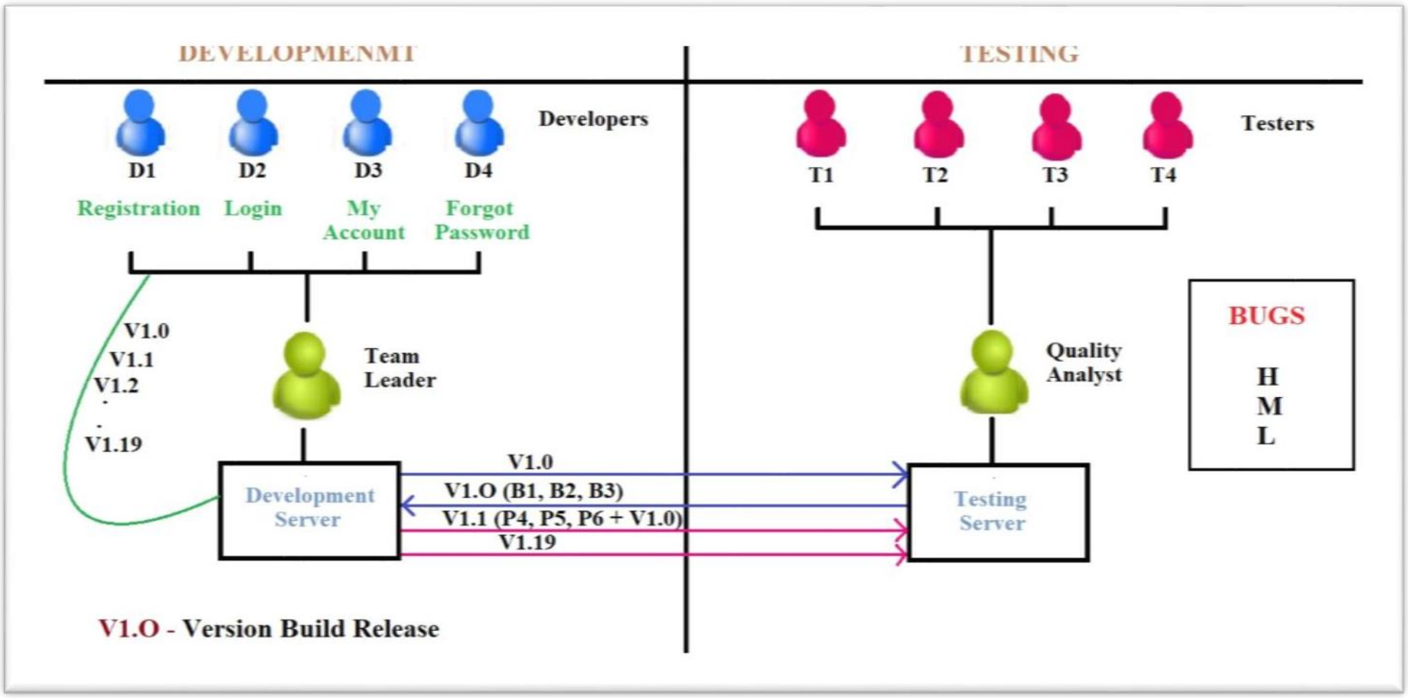


Fig. 8

- The Testing done by Development Team is known as Unit Testing or White Box Testing.
- The Testing done by Testing Team is known as Function Testing, Integration Testing and Black Box Testing.
- The Bugs are find out in testing phase which is categories in High, Medium and Low.

D) Development

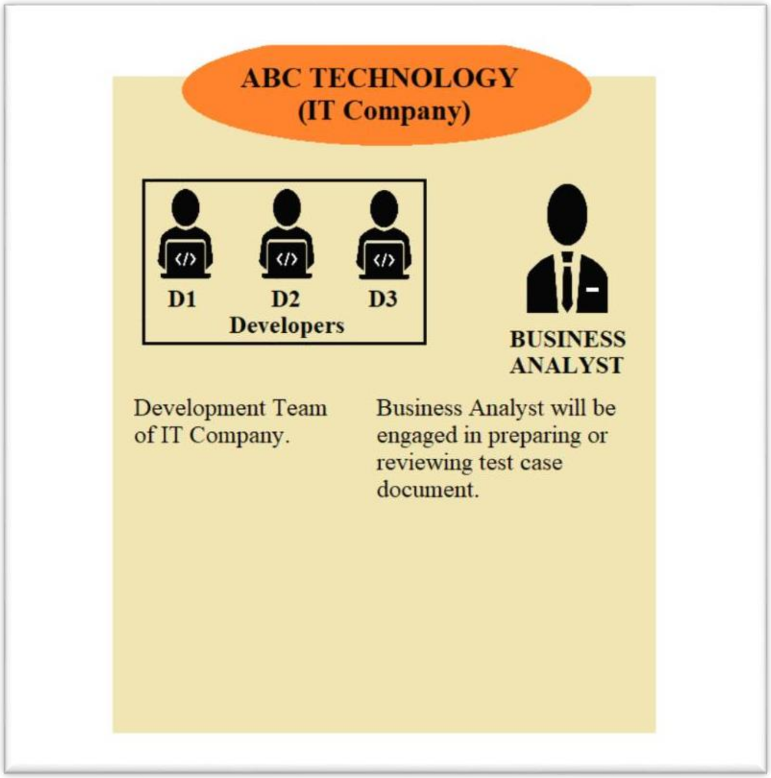


Fig.9

Test Case Document

The Test Case Document is either prepared by Business Analyst or the Testing team with the help of SRS or BA will only review the Test Case Document.

Project Name	Easy Car Rental		
Module Name	Login		
Test Cases Created on	17/02/2024	Test Cases Created by	Gunesh Upadhye
Test Cases Updated on	20/02/2024	Test Cases Updated by	Gunesh Upadhye
Test Cases Reviewed on	24/02/2024	Test Cases Reviewed by	Omkar Phatak
Test Cases Executed on	25/02/2024	Test Cases Executed by	Gunesh Upadhye

								UAT (Date)		Production (Date)	
Test Case ID	Test Cases	Pre-Conditions	Test Steps	Expected Results	Actual Result	Status PASS / FAIL	Associated Defects #	Actual Result	Status PASS / FAIL	Actual Result	Status PASS FAIL
Tc 001	Test if user is able to Login Successfully	User must be registered already	1. Enter Username And Password On Respective Field. 2. Click on the OK / Login Button	1. User must Successfully Login to Web Application. 2. Username & Profile Picture will be shown on top right corner of Home Screen.	Same As Expected	PASS	NA	Same as Expected	PASS	Same as Expected	PASS

E) Testing

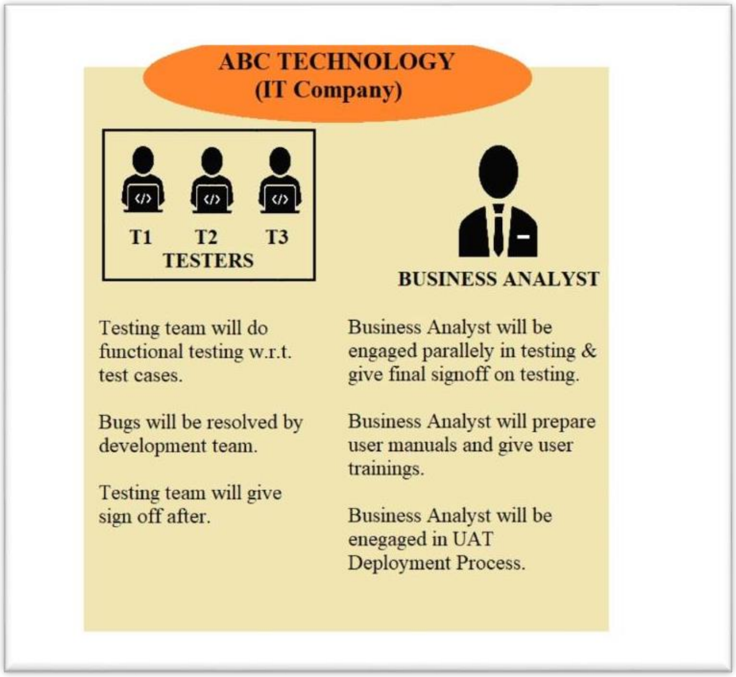


Fig. 10 (Testing)

UAT and Go Live / Production

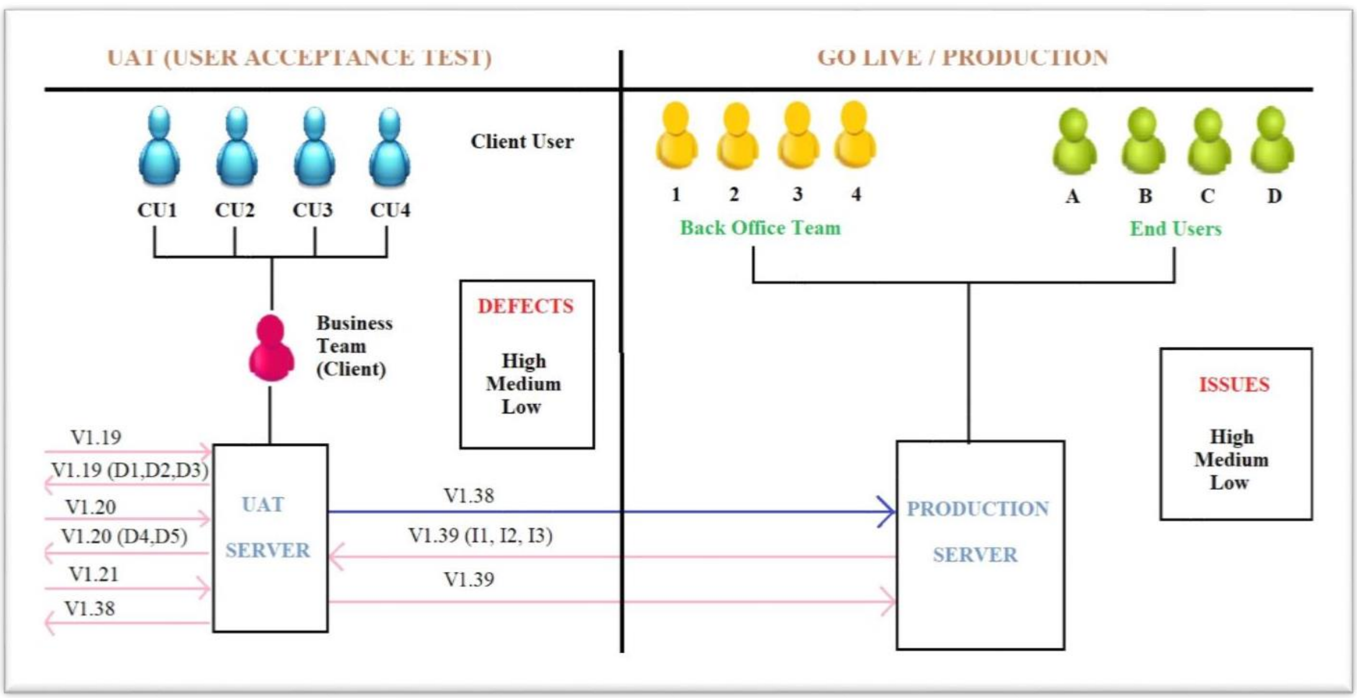


Fig. 11 (UAT & Go Live / Production)

- The problem occurs in UAT is called as Defects.
- The problem occurs in Production is called as Issues.
- Defects & Issues are categories in High, Medium, and Low.

F) UAT (User Acceptance Testing)

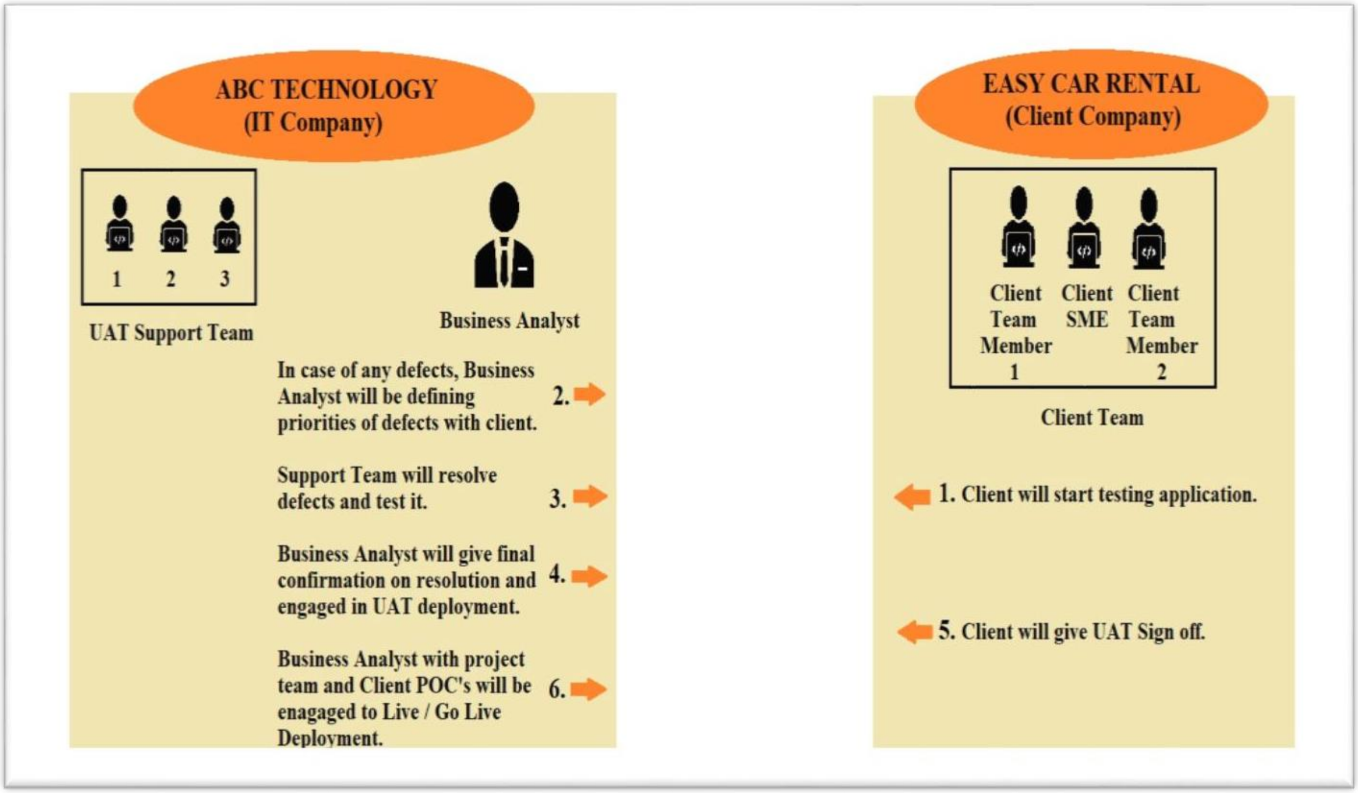


Fig. 12 (UAT)

G) Go Live / Production

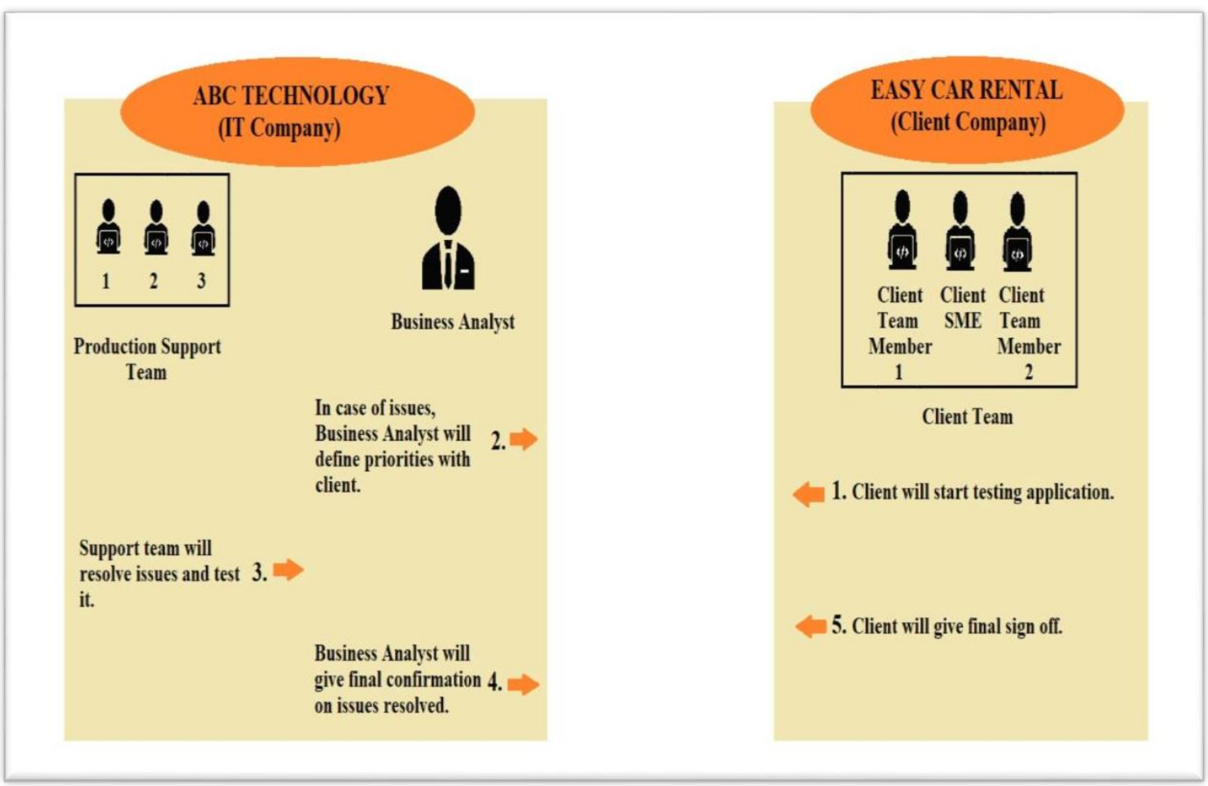


Fig. 13 (Go Live / Production Phase)

H) Maintenance and Support

Fig. 14 (Maintenance and Support)

Software Development Life Cycle Q&A

1) What is the role of BA in project initiation phase?

Ans- BA help Project Manager by doing GAP Analysis where he understood what are the missing features in their existing product.
BA also help Project Manager in preparing project scope document and SOW
BA also prepares a demo with UI screens which is Proof of Concept

2) Is there any document BA prepares in project initiation phase?

Ans- GAP Analysis
Project Scope Document
Proof of Concept
Scope of Work (SOW)

3) What are the artifacts of project initiation Phase?

Ans- GAP Analysis
Project Scope Document
Proof of Concept
Scope of Work (SOW)
SLA

4) What is the role of BA before allocating on project?

Ans- BA will be involved in Project Initiation Phase and BA will understand existing IT product by referring previous documents.
BA will also do competitor application study so that he will get to know latest market features which he can suggest to client in future.

5) What is the significance of product Training given to BA?

Ans- BA should know their own product so that he can resolve client query in future
BA can also give client training and if client wants to customize their product in future BA can easily do first level feasibility check and help his team to understand that customization.

6) Can we skip high level requirement gathering and go to low level requirement gathering?

Ans- Yes, sometimes to shrink the project timelines project Manager ask BA to do high level and Low-level requirement gathering where BA gathers High Level Requirement from SMEs of client and also parallelly do Low level requirement gathering in such cases, BA prepares only one document which includes all technical level details which may refer as BRD and FRD.

7) Can we skip low level requirement gathering and only do high level requirement gathering?

Ans- No, there is no other way to gather Low level requirement or skip Low level requirement gathering. Without understanding low level requirements BA cannot prepare Technical Documents.

8) What will Business Analyst do parallel to high level AS-IS business process requirement gathering?

Ans- BA will start preparing BRD

BA will start discussing with client's business team on To-BE business process high level also BA start meeting with client SMEs to understand AS-IS business process on low level.

9) How will your categories Change Request?

Ans- Change request will be categories into below 3 areas

Add new features.

Change existing features.

Remove existing features.

10) What is the process to implement change request?

Ans- Every change will undergo change management process where IT organization maintains a form for every change request which is also called as Change Request form (CR Form) CR forms includes 3 sections

Submitter Info.

Project Manager's feasibility Check.

Change control board CCB's approval.

Post approval – BA will do the requirement gathering and update existing documentation and co-ordinate the changes to relevant teams.

IT project team will deliver the change to client on UAT and then production server.

Post receiving UAT and Production Sign off for the change IT project team will review and close that change request.

11) What decision BA will take if client keeps changing his requirements more frequently?

Ans- BA will take all the changes suggested by client under change management process where client will fill the change request in submitter info project manager will review and evaluate the change request then change control board will approve the change pot receiving the approval from change control board, BA will start the requirement gathering for that particular change request.

12) What will BA do if client's stakeholders are cancelling meetings frequently due to which you cannot achieve your given timelines for documentation?

Ans- BA will understand the reason for cancellation and inform the point of contact BA get introduced during project kick off meeting and request him to allocate another stakeholder.

BA will also report this to project manager and if cancellation continues, BA will ask project manager to escalate it to client's business team and extent the project timeline.

13) Pre and post customization real life examples?

Ans- Pre-Customization is referred to the customization which will be done with respect to GAP analysis before developing the product

Eg. Missing features suggested by client, Addition features suggested by IT sales team.

Post-Customization is customization referred after delivering the product

Eg. Any customization post delivery where client want to add remove or change.

14) What are the artifacts of requirement gathering phase?

Ans- Meeting Invites

MOM

Diagrams on High Level and Low Level

UI Screens

Business Requirement Document (BRD)/ Technical Document (FRD)

15) What will be the role of BA if he/she doesn't complete the documentation in the timeline given by the project manager?

Ans- BA has to report PM related to the project deliverables every day before he leaves for the day by doing this PM will be aware about the reason for documentation delays, BA will also ask PM for the technical help delay and new updated timeline for the documentations. This time BA will make sure the documentation will be delivered in the given due timelines by the PM.

16) Is there any BA role in payment follow up?

Ans- No, there is no BA role in payment follow up. Payment follows up will be done by accounts team.

17) Give real life examples of high medium and low severity bugs.

Ans- High severity bugs have high impact on client's business. These bugs may stop the whole business process; hence it is termed as High Severity Bugs.

Eg. There are issues in payments, OTP is not getting generated, reports are not getting downloaded.

Medium Severity Bugs have medium impact on client's business because of this the client's business may not stop but there will be impact on Business process.

Eg. If any column missing in the reports, client cannot change their profile pictures.

Low severity bugs have low or no impact on other processes or client's business.

Eg. Change in the color, Fonts, Spelling Mistakes.

18) What is the role of BA if there is any conflict while assigning priorities of bug, defect, or issue between BA, testing team and client?

Ans- If it is bugging the conflict will be resolved internally between BA, developer team and testing team. If it is defect or issue BA will arrange meeting with client's team and explain them the technical reason for assigning High Medium or Low severity, BA will also understand client's business point of view.

Post discussion both teams will conclude the severity of defect or issue.

19) What decision BA will take if UAT deployment is in next hour and tester and developer found high priority bug due to which deployment could not be carried out and the client is already pissed off due to previous delays?

Ans- BA will first co-ordinate with the client and release the partial functionalities which is working and ask client to start testing it, meanwhile BA will ask developers to fix the other functionality where they found Bug. Post resolving that bug BA will release that functionality to client

20) What is the role of BA if bug/Defect/Issue is taking more time to fix than the given timeline?

Ans- BA will escalate this to PM and ask him to suggest how quickly they can fix that bug, defect or issue. BA will also request PM to provide expert development resource who can fix that bug, defect or issue quickly to avoid further delays.

21) What is the role of BA if client is taking more time for UAT testing?

Ans- BA will check how much testing has been completed and how much testing has been remaining, If for example 70% product testing has been completed and 30% is remaining, BA will suggest to client not to repeat same testing which they has completed. BA will also verify client's test cases and help them to complete UAT testing in time.

22) Is it possible that there is one functionality that is not working on production environment but working perfectly on development, testing and UAT environment and if yes, how will developers fix it? What is the role of BA in this whole scenario?

Ans- Yes, It is possible. Reason why this happens that one functionality is working on any one server which is not working on other 3 servers because the data which is present and which is created in real time.
We need to duplicate the data of Production Server to other 3 servers which is called as recreation of scenario. Once we recreate the problem on other 3 servers, developer will fix it on development server, tester will test it along with BA and then it is deploy on UAT server on which UAT client will test it and then they will give sign off and finally it will be deploy in Production Server.

23) Do you share test case document with client after testing, describe your answer?

Ans- It depends on agreement between two companies, if client wants IT company to share the document, they have to share the test case document.

24) Does client prepare Test case document?

Ans- If client has testing team or if they have out source testing to any third party organization, they do have test case document.

25) What is the role of BA in deployment process?

Ans- BA does not play any role in internal deployment, but there is involvement in UAT and production deployment as follows-
BA will take release document from development team and convey same document to client team. BA will co-ordinate with client's user and ask them to follow same steps mentioned in release document on the day of deployment. To make the deployment process smooth BA will take assistance from developer and tester. BA will be present on the day of deployment and monitor deployment process by taking remote desktop of client, If something goes wrong in deployment process BA will fix it with developers and tester. Post successful deployment BA will do sanity testing to make sure all features are working smoothly, Ba will also ask client's user to test the same and ask client's user to give sign off for that specific deployment.

26) What is difference between internal deployment, UAT deployment and PRODUCTION Deployment?

Ans- Internal Deployment always happens between development server and testing server.
UAT Deployment always happens between testing server to client UAT server.
Production Deployment will be happening from UAT server to Production Server

27) What is the role of BA at client side and Role of BA in third party organizations?

Ans- If BA is from client side, BA will understand the requirement from their business team and document the same. BA at client side will be involved in requirement gathering phase and convey all client requirements to IT BA. Client BA also verify the technical document prepared by ITBA. Client BA also prepares test case

document and involved in UAT and production testing. Client BA will give sign off on each UAT and production deployment.
BA role in third party organization- Third party organization can be involved in only development, only testing, only consulting or only maintenance and support. According to the services provided by third party organization, BA role differs.

28) How project initiation phase will be different if there is no product exist with IT company?

Ans- when IT company does not have any existing product, their sales and pre-sales team will do market research and also understand client's manual business.
Post this, they will prepare one demo for client, which will be showcased to the client in the first meeting. Rest all procedure will be same as project initiation phase.

29) What is the role of BA in GAP Analysis?

Ans-In gap analysis, BA will understand what features client wants in their existing product.
What features client don't want in existing product? What features they want to change in existing product? What features are missing in existing product? And after doing market research, BA will suggest additional features if they want to add in existing product of IT organization.

30) How BA will know which screens to be designed for POC?

Ans- BA will refer project scope document and existing product of IT company to prepare proof of concept, which will be demonstrated to the client later.

31) What is the role of BA if client make changes in POC again and again?

Ans- after demonstrating proof of concept to client, BA will verify the changes suggested by client with project scope document.
If there is any feature or a change suggested by client leading to a change in project scope, BA will notify it to project manager and make the changes in proof of concept again.

32) HOW GAP analysis will be done if there is a product present with IT company?

Ans- BA will demonstrate existing product of IT company to client post demo, BA will understand what existing features client wants.What existing features client wants to remove? What existing features client wants to change? BA will also understand missing features in existing product by understanding clients existing business thoroughly.
BA will also do market research or computer study to suggest more features which their IT company can develop.

33) What is RACI matrix? Is it coming throughout project or it changes time to time?

Ans- RACI matrix is a tabular representation of stakeholders involved in IT project from client side and IT side.
There are two RACI matrix prepared by BA. First is IT RACI matrix and second is client RACI matrix.
RACI matrix is not constant, it changes throughout the project depending on stakeholders' availability.

34) Who provides list of stakeholders in RACI matrix?

Ans- the point of contact to whom BA get introduced in project kickoff meeting, here she will be providing you list of stakeholders in RACI matrix from client side.

35) Why Requirement gathering will be done on High Level & Low Level?

Ans- in high level requirement gathering, BA understands clients existing business that means the departments and the dependencies of departments on each other.
In sync with that, BA prepares high level solution to be delivered to the client.
This all will be documented in BRD which will be signed up by the client. Post BRD sign off, BA will understand clients existing business process in detail.
The client's department experts referred as SMEs will give detail understanding of the department level processes including negative scenarios which will be further converted into technical document by business analyst with the help of IT experts.
This technical document is referred as SRS, FRD, FRS or low level document which is outcome of low level requirement gathering.

36) How will BA gather requirements if there is no existing Business?

Ans- BA will go through the basic needs or requirements of the client
by going through the tender or after meeting to the client. Be a will also do market research and understand new features existing in the market. Since there is no AS-IS business process BA a will ask client to define the outline of to be process that is product to be delivered. So post understanding outline of TO-BE business process (high level TO-BE process) BA a will start discussing to be process in detail that is TO-BE process on low level with client SMEs and prepare technical document. BA may suggest additional features which he understood after doing market research.

37) What challenges BA face in requirement gathering?

Ans- 1)Stakeholder Availability

2) Requirement Changes
3) Understanding exact requirement of the client (Communication Gap)
4) If client is not technically sound IT company may face challenges.

38) How will client signoff or approve technical requirement if client is not technically sound?

Ans- IT BA will explain the technical requirements to client. In such cases, client may hire consultants or business analyst who will understand technical
requirements and sign it off.

39) What are types of Requirements?

Ans- There are majorly two types of requirements.
1)domain requirements which is also called as AS-IS business process
2)technical requirements which is also known as TO-BE business process.
So further technical requirement will be divided into two parts
functional requirement and non-functional requirement.

40) Which documentation BA prepares?

Ans- gap analysis, project scope document, minutes of meeting, DRD or HLD,
SRS or technical document, RACI matrix, requirement traceability matrix. Sometimes BEA also prepares test case document, released document and database design document.

41) Which documentation client Prepares?

Ans- requirement document or BRD and if they have technical team test case document.

42) What is MOM? How to document MOM?

Ans- After every meeting with client, business analyst will convey discussion points in detail to client through email. The content of minutes of meeting is attendees from both the companies, their designation and attendance status, meeting agenda, discussion points in the meeting and responsibility matrix,
which is nothing but a table which shows the responsibility of stakeholders and the due dates.

43) How will you organize time if there are multiple projects assigned to you?

Ans- In case of multiple projects, BA has to organize time by prioritizing the projects with respect to the timelines allocated. BA also has to check and organize the projects with respect to stakeholders availability on multiple projects. BA has to keep his calendar updated with all the appointments and agendas does to be done. BA has to prepare project documentation parallel to all other activities and needs to take respective sign-offs in the given timelines.

44) What is Version/ Release/ Build ?

Ans- When developers deploy the developed files from development server to testing server, it is defined as a version.
When they move the approved version from testing server to UAT server, it is built and when they move approved build by the client from UAT server to production server, it is released.

45) What are different deployments?

Ans- There are three different types of deployments.
Internal deployment, which is from development server to testing server.
The UAT deployment, testing server to UAT server.
Production or go live deployment, UAT server to production server.

46) What challenges BA face in deployment?

Ans- If client users are not following same steps mentioned in the release document, deployment may fail. If something goes wrong in the deployment process, BA needs developers and testers to fix that issue. If these developers and testers are not competent enough to fix that issue, deployment may fail.
And third, technical dependencies. For example, connectivity issues, network or hardware related issues, user access related issues may fail the deployment.

47) What is stakeholder?

Ans- Stakeholder is a person from IT or client side who can change the requirement in the project. So, IT team can change the requirements technically. Client team can change the requirement from business side. Also end users or customers who are using that product can change the requirement indirectly by submitting the feedbacks. So for IT team, client team is a stakeholder.
For client team, IT team is a stakeholder and end users or customers are also stakeholder in the project.

48) How BA performs testing?

Ans- BA is involved in testing of each version, build and release, which is called as functional testing or black box testing. BA will also do sanity testing, which is high level testing of each release or build before deploying it to the client. BA will also do smoke testing, which is nothing but the testing done after successful deployment on UAT server and production server.

49) How BA resolves conflicts between client’s requirement changes & IT technical team?

Ans- The requirement changes will lead to rework to the technical team, such as UI designers and development team and testing team. BA has to take meeting with technical team and project manager and explain the requirement changes to the team in meetings. BA also explain the reasons of requirement changes frequently and approvals given by project manager on those changes. This way BA will resolve the conflicts between client requirement changes and IT technical team.

50) When can you expect Requirement changes more? How will you handle it?

Ans- Requirement changes will be expected in project initiation phase, requirement gathering phase, UAT phase and maintenance and support. BA will
handle all requirement changes through change management process,
by taking formal approvals from client project manager and change control board
by filling CR form change request form.

Software Development Life Cycle Methodology

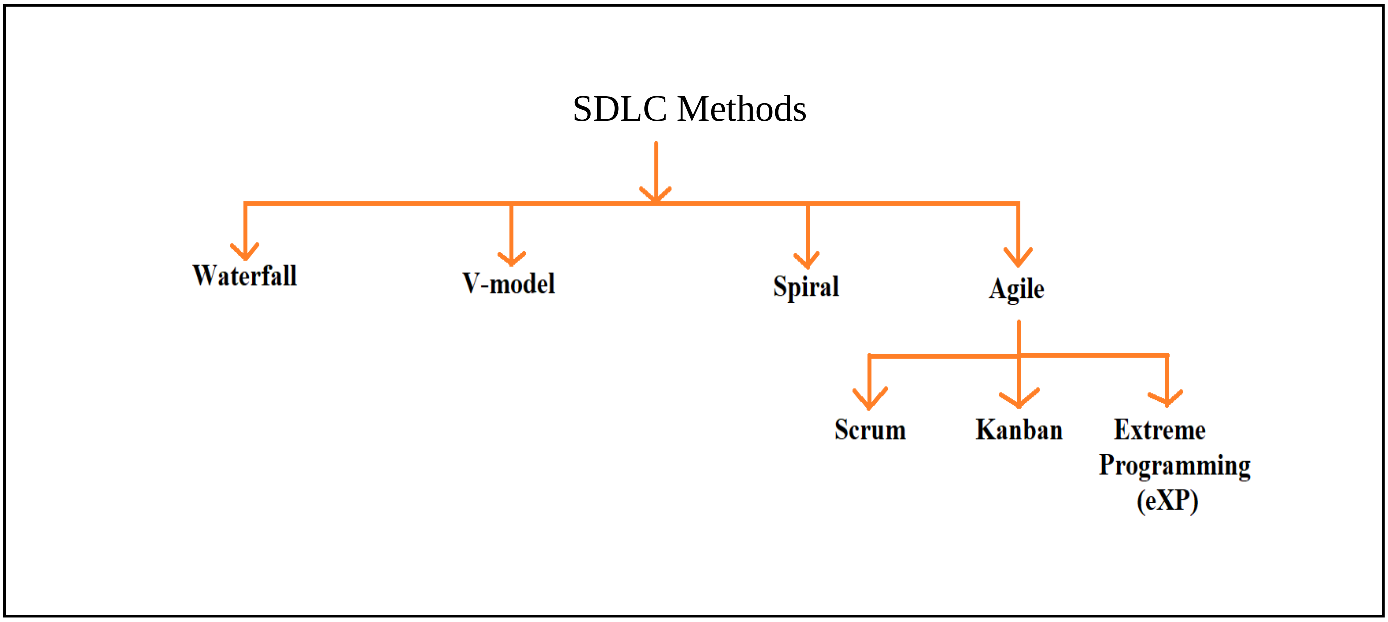


Fig. 15 (SDLC Methods)

There are two main methods widely used in Software Development in an Industries. Those are as follows –

1. **Waterfall**
   1.1 Traditional Method
   1.2 Top – Down Approach
   1.3 Sequential Method

2. **Agile – Scrum**
   2.1 Iterative Approach
   2.2 Incremental Delivery

1. Waterfall Method

Waterfall is a Traditional or Sequential Method. In this method you cannot go back to previous phases. It goes from Top to down.

Clients with clear Requirement they use Waterfall method.

This method also called as 1) Traditional Method, 2) Top – Down Approach and 3) Sequential Method.

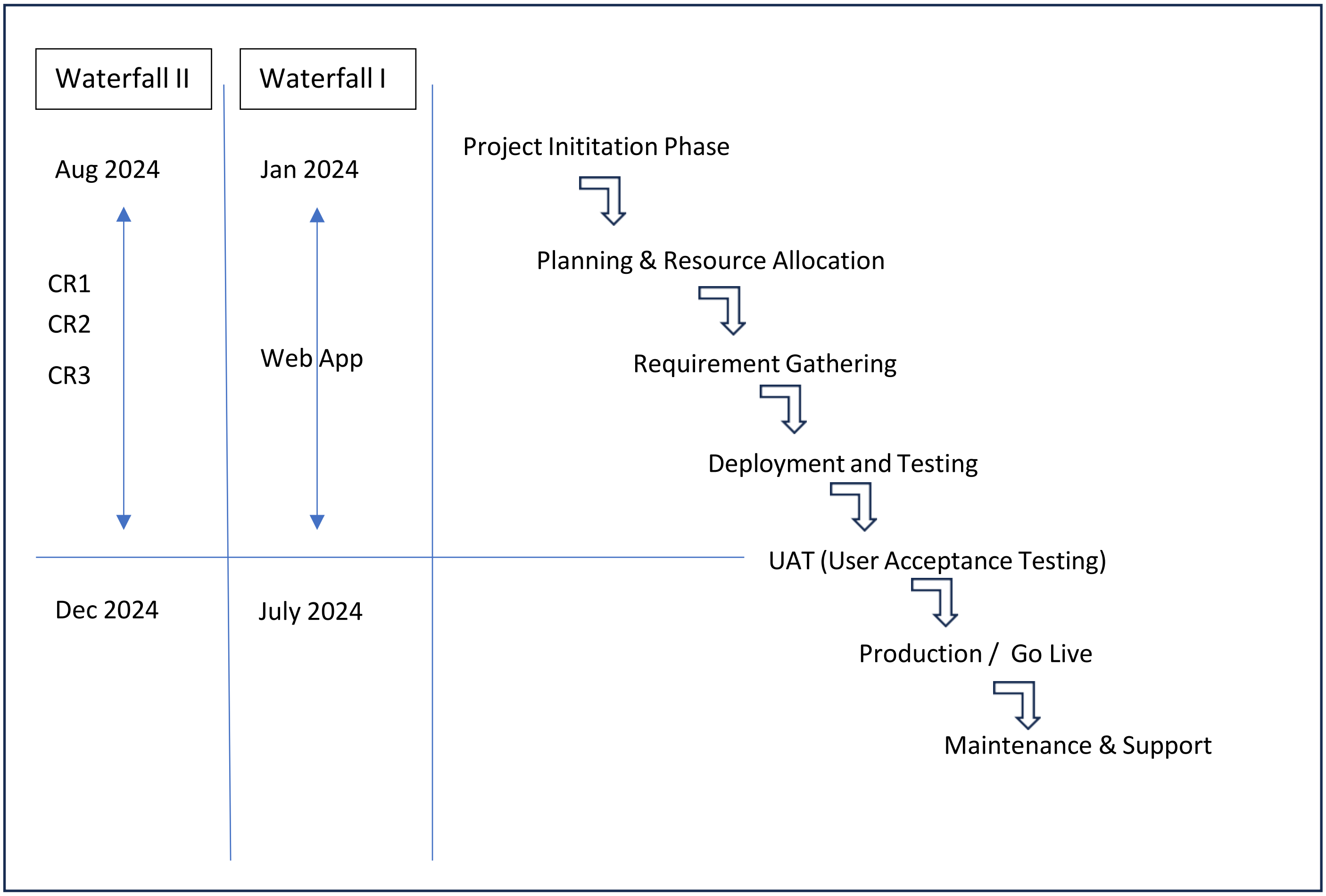


Fig. 16 (Waterfall Model)

Advantages and Disadvantages of Waterfall model –

Sr. No	Advantages	Disadvantages
1	Timeline is fixed	Client cannot implement changes as when required
2	Cost is fixed	Client must wait longer time for deliveries
3	Quality of Waterfall project is always better	Cannot implemented on a project with unclear requirements
4	Detailed Documentation	No clear visibility of the project to client.

Waterfall Q&A

1. Give two real time examples of below type of projects
i) Project with clear requirement
ii) Project with unclear requirement
iii) Complex project
iv) Customization project

i) Project with Clear Requirements:
1) Online Retail Website Development
2) Accounting Software Implementation

ii) Project with Unclear Requirements:
1) Enterprise Collaboration Platform
2) Research and Development Project for Innovative Technology

iii) Complex Project:
1) Space Exploration Mission
2) Large-scale ERP Implementation for a Global Corporation

iv) Customization Project:
1) Customization of Customer Relationship Management (CRM) Software
2) Customization of Open-Source E-commerce Platform

2.Give three different real-life examples in three different domains where you implement the waterfall method?

The waterfall model is a traditional project management approach where the project is divided into sequential phases, and each phase must be completed before the next one begins. While it may not be as prevalent as agile methodologies in certain domains, the waterfall model is still used in various industries, especially when project requirements are well-defined and changes are expected to be minimal. Here are three real-life examples in different domains where the waterfall method might be implemented:

1) Construction Industry: Building a Skyscraper
Domain: Construction
Description: Constructing a skyscraper involves a series of well-defined and sequential phases, from design and planning to construction and post-construction maintenance. The waterfall model is often used in the construction industry, where each phase, such as architectural design, structural engineering, and interior design, needs to be completed before the next one begins. Changes in the design phase can be costly and time-consuming, making a sequential approach beneficial.

2) Manufacturing Industry: Developing a New Automobile Model
Domain: Manufacturing
Description: When developing a new automobile model, the waterfall model can be applied in the manufacturing industry. Phases such as design, prototyping, testing, and production planning are sequential and require completion before moving to the next phase. Changes to the design after the manufacturing process has begun can be expensive and may disrupt the entire production line.

3) Pharmaceutical Industry: Drug Development
Domain: Pharmaceuticals
Description: In the pharmaceutical industry, developing a new drug involves a stringent regulatory process and well-defined phases. The waterfall model is often applied in drug development, with phases such as discovery, pre-clinical testing, clinical trials (phases I to III), regulatory approval, and manufacturing. Each phase has

distinct deliverables, and progression to the next phase is contingent on the successful completion of the previous one. Changes late in the process can lead to delays and increased costs.
In these examples, the waterfall model is suitable when the requirements are well-understood, and changes are expected to be minimal once the project is initiated. It allows for a structured and systematic approach, making it easier to manage projects with clear and predefined objectives. However, it may not be as adaptable to changes as more iterative and flexible methodologies like agile.

3. How to overcome disadvantages of waterfall model?

By using the Parallel Waterfall Model, we can shorten the project's total duration and complete the further stages at the same time.

4. What is the role of BA in waterfall model 1,2 and parallel waterfall models we have seen so far?

Certainly! Here are concise responses for each model:
Waterfall Model 1:

- Gather and document detailed requirements at the project outset.
- Act as a communication bridge between business stakeholders and the development team.
- Analyse and document requirements, managing changes as needed.

Waterfall Model 2:

- Participate in iterative analysis and feedback loops.
- Manage changes and enhancements to requirements based on iterative feedback.
- Contribute to risk analysis during each iteration.

Parallel Waterfall Model:

- Manage requirements gathering and analysis in parallel streams.
- Ensure consistency and alignment across parallel project streams.
- Address inter-stream dependencies and integrate results.

5. How maintenance & support works in the waterfall model & what is the role of BA in the same?

In the waterfall model, maintenance and support are typically considered during the final phase of the software development life cycle (SDLC), after the product has been deployed. The maintenance phase focuses on addressing issues, making enhancements, and providing ongoing support to ensure the reliability and effectiveness of the software. The BA collaborates with end-users, support teams, and stakeholders to identify and document any issues or bugs that may arise after the software has been deployed.

6.Does passport seva website built using a waterfall model, if yes justify the answer.

YES.
Clarity and Documentation – Government project often require extensive documentation for transparency and accountability. The waterfall model’s sequential nature ensures clear documentation at each stage aiding in project, tracking and auditing.

2. Agile Model

Agile means Rapid or Fast. This methodology was developed to cover the shortcomings of earlier, traditional methods like Waterfall. Unlike Waterfall, Agile readily accommodates the changes and hence, is time Efficient. IT Companies work on Software Development and Customization and Agile is applicable in both. This method does not collate Change Requests (CRs) to implement later but rather does them simultaneously. This methodology is best suited for Customization Projects as the environment there is Hyper changing. As agile methodology readily accommodates the changes hence, it doesn't require the Business to have an Existing Business Process. It is well suited for businesses which are new and are starting from scratch.

Advantages of Agile:

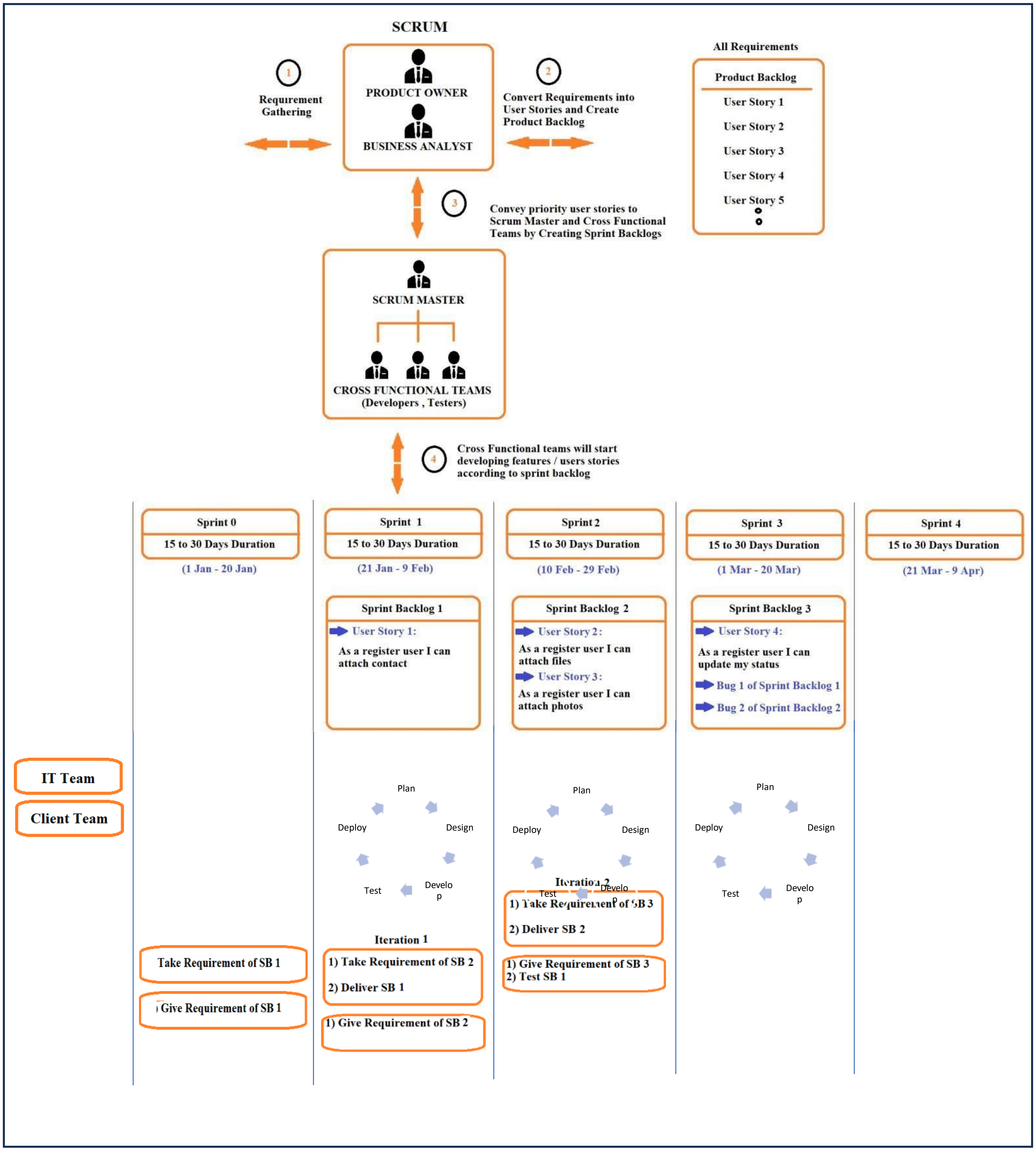
1. Fixed Timeline
2. Fixed Costing
3. Better Quality Results
4. Faster Deliveries

Disadvantages of Agile:

1. No proper documentation

2.1 Scrum

Scrum The Client and the Product owner do the Requirement Gathering. Product Owner creates Product Backlog and converts Clients' Requirements into User Stories. The Product Owner then prioritizes the User stories and convey to Scrum Master and Cross Functional Team, creating Spring Backlogs. Sprint Backlogs are basically time intervals for deliveries. The Client and The Product Owner decides the delivery timeline ranging from 15 days to 30 days i.e. [3 weeks- 5 weeks] The Client prioritizes the User stories that need to be delivered first and Sprint Backlogs are decided that way. Sprint 0 is often known as Planning Sprint. Where the client requests Sprint Backlog-1 (SB1) and IT accepts the request. Sprint 1 contains Delivery of SB1 and Clients' request of SB2 and IT's acceptance of the request. Sprint 2 contains Delivery of SB1 and Clients' request of SB3 and IT's acceptance of the request. Each Sprint Backlog goes through a cycle of – Planning, Designing, Developing, Testing and Display, which is why Agile is also known as Iterative Approach. Agile is also known as Incremental Delivery because completed work is delivered throughout the project. Both Iterative and Incremental approach helps to keep the work on check, hence making the process efficient.



SCRUM
1
Requirement Gathering
PRODUCT OWNER
BUSINESS ANALYST
2
Convert Requirements into User Stories and Create Product Backlog
All Requirements
Product Backlog
User Story 1
User Story 2
User Story 3
User Story 4
User Story 5
3
Convey priority user stories to Scrum Master and Cross Functional Teams by Creating Sprint Backlogs
SCRUM MASTER
CROSS FUNCTIONAL TEAMS (Developers , Testers)
4
Cross Functional teams will start developing features / users stories according to sprint backlog
Sprint 0
15 to 30 Days Duration
(1 Jan - 20 Jan)
Sprint 1
15 to 30 Days Duration
(21 Jan - 9 Feb)
Sprint 2
15 to 30 Days Duration
(10 Feb - 29 Feb)
Sprint 3
15 to 30 Days Duration
(1 Mar - 20 Mar)
Sprint 4
15 to 30 Days Duration
(21 Mar - 9 Apr)
Sprint Backlog 1
User Story 1:
As a register user I can attach contact
Sprint Backlog 2
User Story 2:
As a register user I can attach files
User Story 3:
As a register user I can attach photos
Sprint Backlog 3
User Story 4:
As a register user I can update my status
Bug 1 of Sprint Backlog 1
Bug 2 of Sprint Backlog 2
IT Team
Client Team
Plan
Design
Develop
Test
Deploy
Iteration 1
Iteration 2
Take Requirement of SB 1
Give Requirement of SB 1
1) Take Requirement of SB 2
2) Deliver SB 1
1) Give Requirement of SB 2
1) Take Requirement of SB 3
2) Deliver SB 2
1) Give Requirement of SB 3
2) Test SB 1

Fig. 17 (Scrum)

7.What is the role of BA in SCRUM project? What are the deliveries are they expecting from BA in SCRUM projects?

BA will take release document from development team and convey same document to client team. BA will co-ordinate with client's user and ask them to follow same steps mentioned in release document on the day of deployment. To make the deployment process smooth BA will take assistance from developer and tester.

Deliveries from BA in SCRUM:

1. Product Backlog
2. Time line
3. Release case document:
4. User Stories create

8.How documentation will be prepared in SCRUM projects?

Collect the users' stories and convert them into a product backlog. Then, communicate the document to the Scrum Master and the cross-functional team to prepare a timeline. Next, communicate with clients for product timeline approval. Maintain the sprint backlog and document user stories in the sprint backlog according to the timeline. The Business Analyst will be responsible for maintaining the release case document.

9.How costings and timelines decided in SCRUM projects?

In Scrum projects, costings and timelines are determined through an iterative and adaptive approach. The Scrum framework is based on agile principles that prioritize flexibility, collaboration, and responsiveness to change. Here's how costings and timelines are typically decided in Scrum projects:

1. High-Level Estimates:

Initiation Phase:

During the initiation phase, high-level estimates may be provided based on the overall scope and business goals.

These estimates are often rough and serve as an initial understanding of the project's potential size.

2. Product Backlog Refinement:

Ongoing Refinement:

As the project progresses, the Product Owner, with input from the development team, refines the product backlog.

More detailed estimates may be provided for individual user stories or backlog items.

3. Sprint Planning:

Sprint-by-Sprint Planning:

Before the start of each sprint, the development team estimates the effort required to complete the selected user stories.

This estimation is based on the team's capacity and velocity, considering factors such as complexity, dependencies, and uncertainty.

6. Fixed Time, Variable Scope:

Time-Boxed Sprints:

Scrum projects are often managed with fixed-duration sprints (e.g., 2 weeks).

The scope for each sprint is flexible, allowing the team to deliver the highest-priority features within the time-box.

In Scrum, costings and timelines are not fixed at the project's outset but are refined and adjusted as the project progresses, providing a more adaptive and responsive approach to changing circumstances and requirements.

Timeline is fixed and suggested by the client and costing is done as per the timeline and the resources allocated.

10. What is the role of BA in SCRUM project? What are the deliveries are they expecting from BA in SCRUM projects?

In a Scrum project, the role of a Business Analyst (BA) is crucial in ensuring effective communication, collaboration, and understanding of business requirements. While Scrum does not explicitly define the role of a BA, many organizations still find value in having individuals with BA skills to support the Product Owner, development team, and stakeholders. Here's the role of a BA in a Scrum project and the expected deliveries:

Role of BA in a Scrum Project:

Collaborative Requirements Gathering:

BAs collaborate with stakeholders to elicit, analyze, and document requirements.

They help ensure a shared understanding of business needs and assist in translating these needs into actionable user stories.

User Story Definition:

BAs contribute to the creation of user stories, ensuring they are well-defined, actionable, and aligned with business objectives.

They work closely with the Product Owner and development team to refine user stories during backlog grooming.

Acceptance Criteria:

BAs assist in defining acceptance criteria for user stories, providing clear guidelines for the development team to meet business expectations.

They help ensure that acceptance criteria are comprehensive and aligned with business goals.

Backlog Refinement:

BAs actively participate in backlog refinement sessions, collaborating with the Product Owner and development team to prioritize and clarify backlog items.

They contribute to maintaining a well-groomed and prioritized product backlog.

Communication Bridge:

BAs serve as a communication bridge between business stakeholders and the development team, helping to clarify requirements and ensure a shared understanding.

They assist in managing expectations and addressing questions from both sides.

Change Management:

BAs contribute to managing changes in requirements, working with the Product Owner to assess the impact of changes and update documentation accordingly.

They help maintain transparency around changes and their implications.

Collaboration with Development Team:

BAs collaborate with the development team during sprint planning, sprint reviews, and daily stand-ups to provide context and clarification on user stories.

They assist in addressing any questions or concerns from the development team.

Expected Deliverables from a BA in a Scrum Project:

Well-Defined User Stories:

BAs deliver user stories with clear and concise descriptions, capturing the essence of business requirements.

Comprehensive Acceptance Criteria:

Clear and comprehensive acceptance criteria that define the conditions of satisfaction for each user story.

Refined Backlog:

Active participation in backlog refinement sessions contributes to a well-groomed and prioritized product backlog.

Documentation Updates:

Regular updates to documentation, including user stories, acceptance criteria, and other relevant artifacts, to reflect changes and evolving requirements.

Effective Communication Records:

Documentation of effective communication between the development team, Product Owner, and business stakeholders.

Insights from Stakeholder Interactions:

Incorporation of insights and feedback from stakeholder interactions, sprint reviews, and retrospectives into the project's ongoing planning and execution.

In summary, while Scrum doesn't prescribe a specific role for a Business Analyst, organizations often find value in having individuals with BA skills to enhance the collaboration, communication, and documentation aspects of the Scrum framework. The role of a BA in a Scrum project is to support the team in delivering value to the business by ensuring that requirements are well-understood, documented, and aligned with business objectives.

11. Who will BA reporting too in SCRUM project?

In a Scrum project, the reporting structure for a Business Analyst (BA) can vary depending on the organization and its specific implementation of Scrum. Scrum does not prescribe a formal role for a Business Analyst within the core Scrum Team. Instead, Scrum defines three primary roles: the Scrum Master, the Product Owner, and the Development Team.

Product Owner:

In some organizations, the BA may report directly to the Product Owner.

The Product Owner is responsible for prioritizing the product backlog and making decisions about what features are developed.

Scrum Master:

Alternatively, the BA might report to the Scrum Master.

The Scrum Master serves as a facilitator and coach for the Scrum Team, helping to remove impediments and ensuring that the Scrum process is followed.

Functional Manager:

In other cases, especially in larger organizations, the BA may report to a functional manager outside the Scrum Team.

This could be a manager overseeing multiple Scrum teams or a manager within a specific business function (e.g., IT, operations).

No Direct Reporting:

In some organizations, especially those with a more self-organizing team structure, the BA may not have a direct reporting relationship within the Scrum Team.

The BA might be part of the cross-functional Development Team and work collaboratively with team members, including the Product Owner and Scrum Master.

12. What is the role of project team in SCRUM project?

In a Scrum project, the project team is a crucial component of the Scrum framework. The project team, also known as the Development Team, is a cross-functional group responsible for delivering a potentially shippable product increment at the end of each sprint. Here are key aspects of the role of the project team in a Scrum project:

1. Cross-Functional Collaboration:

The project team is cross-functional, meaning it includes individuals with diverse skills necessary for delivering the product. Cross-functional teams promote collaboration and the ability to handle various aspects of the development process internally.

2. Development and Testing:

Team members are involved in both development and testing activities.

The goal is to produce a potentially shippable product increment at the end of each sprint, which requires a balance of coding, testing, and other necessary tasks.

3. Ownership of Deliverables:

The project team takes ownership of the deliverables and is collectively responsible for meeting the sprint goal.

Each team member contributes to the successful completion of user stories committed to in the sprint.

4. Sprint Planning:

During sprint planning, the project team collaborates with the Product Owner to select user stories from the product backlog based on priority.

The team estimates the effort required and commits to delivering a set of user stories within the sprint.

5. Daily Stand-ups:

The project team participates in daily stand-up meetings where each member provides updates on their progress, discusses impediments, and collaborates on problem-solving.

Daily stand-ups promote transparency, communication, and quick resolution of issues.

6. Backlog Refinement:

The project team actively participates in backlog refinement sessions, collaborating with the Product Owner to understand and clarify user stories.

Refinement sessions ensure that backlog items are well-defined and ready for inclusion in upcoming sprints.

7. Sprint Review:

The project team participates in the sprint review at the end of each sprint to demonstrate the completed work to stakeholders.

The team gathers feedback from stakeholders and incorporates insights into future sprints.

In summary, the project team in a Scrum project is a self-organizing, cross-functional group responsible for delivering value through the continuous development and delivery of a potentially shippable product increment at the end of each sprint. The team's collaborative and adaptive approach is central to the success of the Scrum framework.

13. Is there development, testing, UAT and production server existing in SCRUM project?

Yes, in a Scrum project, it's common to have these environments.
These environments help maintain a structured and controlled release process in Scrum projects. The decision to move from one environment to another is typically based on the completion of specific development or testing activities and is guided by the priorities of the project and stakeholders.

14. What is the role of BA in deployment process in SCRUM project?

In a Scrum project, the role of a Business Analyst (BA) in the deployment process involves various activities to ensure a smooth and successful transition of the product from development to production. Here are some key responsibilities of a BA in the deployment process:

1. Gathering Deployment Requirements

2. Collaborating with Development Team

3. User Acceptance Testing (UAT):

- Collaborate with stakeholders, including end-users, during UAT to ensure that the deployed product meets their expectations and requirements.

4. Documentation:

- Create and maintain documentation related to the deployment process, including deployment plans, rollback procedures, and any specific configurations needed for different environments.

5. Deployment Planning:

- Participate in the planning of deployment activities, including determining the timing of deployments, considering any downtime, and coordinating with relevant teams.

6. Post-Deployment Support:

- Provide support after deployment to address any issues that may arise, working with the development and operations teams to resolve issues promptly.

The BA's involvement in the deployment process ensures that business requirements are met, and the transition to the production environment is as seamless as possible. They play a crucial role in facilitating communication and collaboration between different teams involved in the deployment process.

15. Which tool they use to maintain product backlog and sprint backlog in AGILE SCRUM?

commonly used tools for managing backlogs in Agile Scrum:
Jira, Azure DevOps and **AgileCraft.**

16. Is Sprint timeline are pre-decided or decided on the go?

The sprint timeline in Scrum is pre-decided and follows a fixed, time-boxed duration, typically two weeks to Six weeks as per client's suggestions.

17. Who is the decision maker to decide which user stories to be taken in specific Sprint?

the specific decision of which user stories to include in a particular sprint is typically made by the Scrum Team during the Sprint Planning meeting. The Scrum Team consists of the Product Owner, Development Team, and Scrum Master. Client feedback and priorities are considered during backlog refinement and Sprint Review meetings, providing opportunities for adjustments.

18. Do they have SCRUM team at client side? If YES explain the role of each team member?

Yes, in an Agile or Scrum framework, it is common to have a Scrum Team on the client side, especially if the client is actively involved in the development process. The client-side Scrum Team typically includes the following roles:

1. Product Owner (Client Side):

- Represents the client's interests and defines the product backlog by prioritizing features and user stories. They collaborate with the development team and make decisions about what functionality is delivered.

2. Stakeholders (Client Side):

- Include individuals or groups who have an interest in the product, such as end-users, business leaders, and other decision-makers. Stakeholders provide feedback, participate in sprint reviews, and help prioritize features.

3. Subject Matter Experts (SMEs) (Client Side):

- Individuals with specific domain knowledge or expertise relevant to the project. They provide insights, answer questions, and contribute to refining requirements.

4. Client-side Development Team (if applicable):

- In some cases, the client may have their own development team or contributors. These individuals actively participate in the development process, contributing to the delivery of product increments.

5. Client-side Scrum Master (optional):

- The role of a Scrum Master is to facilitate the Scrum process, remove impediments, and ensure that the team follows Agile principles. While the Scrum Master role is often associated with the development team, there might be a client-side Scrum Master if the client has a dedicated role for this purpose.

It's important to note that the structure of the client-side Scrum Team can vary based on the organization's preferences and the specific needs of the project. In some cases, the client might only have a Product Owner and stakeholders actively participating in the Agile process. The key is to foster collaboration and transparency between the client and the development team, ensuring that everyone is aligned on priorities and goals.

19.What is iterative approach and incremental delivery?

The iterative approach and incremental delivery are concepts commonly associated with Agile methodologies, including Scrum. Here's a brief explanation of each:

1. Iterative Approach:

- The iterative approach involves repeating a process or cycle with the aim of refining and improving it over time. In software development, this means breaking the project into smaller cycles or iterations. Each iteration typically includes planning, design, coding, testing, and review. At the end of each iteration, the team gathers feedback, learns from the experience, and uses that knowledge to enhance the next iteration.

- In an iterative approach, the emphasis is on delivering a working product incrementally, allowing for flexibility and adaptation to changing requirements. It enables continuous improvement, and each iteration builds upon the insights gained from the previous ones.

2. Incremental Delivery:

- Incremental delivery is the practice of delivering a project in smaller, functional pieces or increments. Instead of delivering the entire product at the end of the development cycle, increments are released regularly throughout the development process. Each increment represents a complete and usable subset of the overall product.

- The goal of incremental delivery is to provide tangible value to users early in the project and to allow for frequent feedback and adaptation. It helps manage risk by delivering functionality incrementally, ensuring that even if the project were to be halted at any point, there would still be a usable product.

In summary, the iterative approach involves cycling through development stages with a focus on learning and improvement, while incremental delivery involves releasing portions of the product in usable increments. Together, these concepts support Agile principles by promoting adaptability, customer feedback, and the delivery of value throughout the development process.

20. Who has the rights to stop specific sprint?

Product Owner has the authority to make the decision to stop the sprint and reevaluate priorities

21. Will you find SCRUM team at one location or different location

The location of a Scrum team can vary based on the organization's structure, size, and distributed nature. Scrum is designed to be flexible and can accommodate both co-located and geographically distributed teams.

22. Advantages and Disadvantages of SCRUM?

Scrum, like any project management framework, comes with its own set of advantages and disadvantages. Here's a breakdown:

Advantages of Scrum:

1. Adaptability:

- Scrum is highly adaptable to changes in requirements and priorities, allowing teams to respond quickly to evolving customer needs or market conditions.

2. Customer Satisfaction:

- Regular deliveries of potentially shippable increments ensure that customers receive value early and often, fostering satisfaction and feedback.

3. Transparency:

- Scrum promotes transparency through its ceremonies, such as Sprint Reviews and Daily Stand-ups, which enhance visibility into the project's progress.

4. Cross-functional Collaboration:

- Scrum encourages close collaboration among cross-functional team members, breaking down silos and promoting shared ownership of project goals.

Disadvantages of Scrum:

1. Learning Curve:

- Scrum introduces a new set of roles, ceremonies, and artifacts, which may require time and effort for teams and organizations to learn and implement effectively.

2. Lack of Prescriptive Guidance:

- Some teams may find the lack of detailed, prescriptive guidance challenging, as Scrum provides a framework but leaves specific practices to the team's discretion.

3. Dependency on Team Collaboration:

- Success in Scrum relies heavily on effective collaboration within the team. If team members struggle to communicate or work together, it can impact the project's success.

4. Incomplete Picture of the Project:

- The focus on short iterations may result in a lack of a holistic, long-term view of the project, potentially leading to challenges in overall project planning.

6. Not Suitable for All Projects:

- While Scrum is effective for many projects, it may not be the best fit for every type of project, especially those with highly detailed upfront requirements.

23. What is the maximum size of SCRUM team?

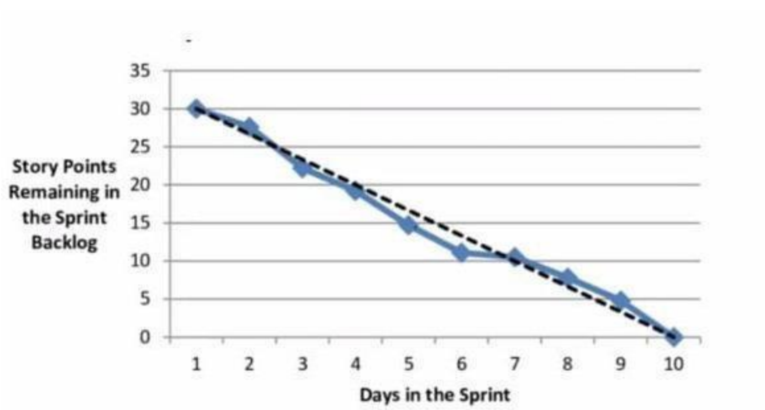
There is no specific maximum size for a Scrum Team, but it's recommended to have 3 to 9 members in the Development Team for effective communication and collaboration. The team consists of a Product Owner, a Scrum Master, and Development Team members who deliver the product incrementally. The optimal team size depends on the project's nature and complexity.

24. What is sprint task board?

A Sprint Task Board is a visual tool used in Scrum to display and manage the progress of tasks during a sprint. It provides a real-time overview of the work that needs to be done, what's currently in progress, and what has been completed.

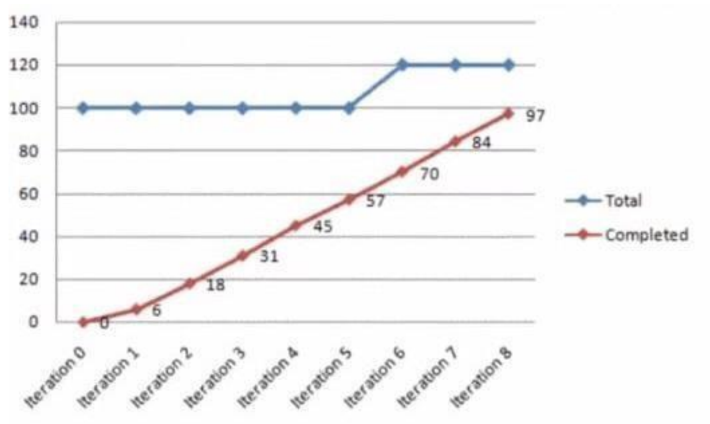
26. What is sprint burn down chart?

A Sprint Burn Down Chart is a visual representation that shows the progress of work completed in a sprint over time. It provides a quick and easy-to-understand view of how much work remains versus how much has been accomplished. The chart is typically used to track the completion of tasks, user stories, or story points throughout the duration of a sprint.
Sprint Burn Down Charts are valuable tools for agile teams practicing Scrum as they offer a clear and concise snapshot of the sprint's progress, fostering continuous improvement and adaptability.



27. What is sprint burn up chart?

A Sprint Burn-Up Chart is a visual representation that tracks the progress of work completed within a sprint over time. Unlike a Burn-Down Chart, which shows the remaining work, a Burn-Up Chart illustrates both the work completed and the total scope of work from the beginning of the sprint. This chart is particularly useful for visualizing how the team is progressing toward the overall sprint goal and how the scope might be evolving.
While a Burn-Down Chart focuses on what's remaining, a Burn-Up Chart provides a broader perspective on how the team is meeting its sprint goals and handling changes in scope. Both charts can be valuable tools for different aspects of sprint planning and execution.



28. What are story point?

Story points are a unit of measure used in Agile project management, particularly in Scrum, to estimate the relative size and complexity of user stories or tasks within a project. They are a way for Agile teams to express the effort and complexity involved in completing a certain piece of work, without specifying a particular unit of time.
It's important to note that story points are a tool for estimation, not a precise measure of time. They allow teams to plan and prioritize work effectively while embracing the uncertainty that is inherent in software development. Each team may have its own interpretation and approach to using story points, and the goal is to achieve a shared understanding within the team.

29. What is velocity?

Velocity, in the context of Agile project management, is a metric used to measure the amount of work a Scrum team can complete in a given iteration or sprint. It provides insight into the team's historical performance by calculating the average amount of work completed over several sprints.
It's important to note that while velocity is a useful tool for planning, it is not a guarantee of success or a measure of individual team member performance. It is a collaborative metric that reflects the overall capability of the team and helps in making informed decisions during sprint planning.

30. What is poker planning?

"Poker planning," often referred to as "Planning Poker," is a collaborative and agile estimation technique used by Scrum teams to collectively estimate the effort or relative size of user stories or tasks. It is a gamified approach that involves team members using a deck of cards with specific values to express their opinions on the complexity or effort required for a particular piece of work.
Planning Poker is a fun and effective way for agile teams to estimate work, fostering collaboration and improving the accuracy of effort estimates.

31. What is DOD?

DOD stands for "Definition of Done." In Agile and Scrum methodologies, the Definition of Done is a set of criteria or standards that a product increment must meet for the team to consider it complete and potentially shippable. It is a shared understanding among the Scrum Team, including the Product Owner and Development Team, about what it means for work to be finished. The Definition of Done plays a crucial role in maintaining a consistent and high-quality development process in Agile projects.

32. Explain AGILE ceremonies in below format

Sr. No.	Meeting	Attendees	Duration	Point to Discuss	When to Commence
1.	Daily Standup Meetings	Scrum Master, Product Owner, Cross-Functional Team	15 min	What's the Update on Yesterday Meeting, What Is the plan for Today, What Are the Challenges you Faced.	Morning or Evening Everyday
2.	Sprint Planning Meeting	Scrum Master, Product Owner, Cross-Functional Team	1 to 2 hours	Sprint Backlog Story Point Estimation	Beginning of Each Sprint
3.	Sprint Review Meeting	Scrum Master, Product Owner, Cross-Functional Team, Client	1 hour Depending On Sprint User Stories	You have to Demonstrate The User Stories in the Specific Sprint During Delivery and Collect Feedback from Client.	At the End of Each Sprint
4.	Sprint Retrospective Meeting	Scrum Master, Product Owner, Cross-Functional Team	1 hour Depending On Sprint User Stories	What went Well and what Wrong and Good Practices	At the End of Each Sprint Mostly After Sprint Review Meeting

33. Define User Stories of Flipkart customization? Create product backlog, create sprint backlog and prepare sprint timeline?

Note: Min 20 and Max 30 User Stories.

: Sprint 0: IT team takes requirement of SB1 and client team give requirement of SB1 Timeline:

15-30 days duration

Sprint 1: IT team takes requirement of SB2, deliver SB1 and client team give requirement of SB2.

Sprint backlog:

User story 1: **Registration and Login**

Iteration 1 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 2: IT team takes requirement of SB3, deliver SB2 and client team give requirement of SB3.

Sprint Backlog:

User Story 2: **Choose Language**

User Story 3: **My Account**

User Story 4: **My Addresses**

Iteration 2 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 3: IT team takes requirement of SB4, deliver SB3 and client team give requirement of SB4.

Sprint Backlog:

User Story 5: **My Cards and Wallets**

User Story 6: **Refund**

Iteration 3 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 4: IT team takes requirement of SB5, deliver SB4 and client team give requirement of SB5. Sprint Backlog:

User Story 7: **My Orders**

User Story 8: **Return and Exchange**

Iteration 4 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 5: IT team takes requirement of SB6, deliver SB5 and client team give requirement of SB6.

Sprint Backlog:

User Story 9: **My Wishlist**

User Story 10: **My Cart**

Iteration 5 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days.

Sprint 6: IT team takes requirement of SB7, deliver SB6 and client team give requirement of SB7.

Sprint Backlog:

User Story 11: **Flipkart Plus**

User Story 12: **Flipkart Pay**

later User Story 13:

Flipkart Credit

Iteration 6 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 7: IT team takes requirement of SB8, deliver SB7 and client team give requirement of SB8.

Sprint Backlog:

User Story 14: **My Reviews**

User Story 15: **My Notification**

Iteration 7 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 8: IT team takes requirement of SB9, deliver SB8 and client team give requirement of SB9.

Sprint Backlog:

User Story 16: **Flipkart Super Coin**

Iteration 8 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 9: IT team takes requirement of SB10, deliver SB9 and client team give requirement of SB10.

Sprint Backlog:

User Story 17: **Shopping Categories**

User Story 18: **Sell on Flipkart**

Iteration 9 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 10: IT team takes requirement of SB11, deliver SB10 and client team give requirement of SB11.

Sprint Backlog:

User Story 19: **Flipkart Videos**

User Story 20: **Flipkart Game zone**

Iteration 10 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Sprint 11: IT team takes requirement of SB12, deliver SB11 and client team give requirement of SB12.

Sprint Backlog:

User Story 21: **Help and Support**

User Story 22: **Privacy Policy**

Iteration 11 (Plan- Design- Develop- Test- Deploy)

Timeline: 15-30 days

Meeting Invite

Gmail **Darshan Murkute <darshanmurkute2308@gmail.com>**

Invitation

1 message

Darshan Murkute <darshanmurkute2308@gmail.com> 24 January 2024 at 12:04
To: Omkar Phatak <work.omkar@gmail.com>

Greetings Omkar Phatak,

I hope this message finds you well. The collection of questions for obtaining information about your company is provided in attachment, to discuss and gather requirements for the improvement of Easy Car Rental's business process, I would like to schedule a meeting with you. Please look over the questions, it will give me additional insights into your company. Your opinions and ideas are very important to us in making sure the new solution fits your business requirements perfectly.

Meeting Details:

Date: 25th January 2024

Time: 11.00 am Venue

Duration: 2 Hours

Location: At BATI

Agenda:

1. Brief overview of the purpose and goals of the requirement gathering process.
2. High-Level Requirement Gathering
3. Low-Level Requirement Gathering
4. Discussion on the next steps in the requirement gathering process and any additional information needed.

Logistics:

- Please confirm your availability for the proposed date and time.
- The meeting will be conducted [in person at the specified location / via [Insert Video Conferencing Tool]].
- If there are specific documents or information you'd like to prepare beforehand, please let us know.

Your participation and input are invaluable, and I look forward to collaborating with you to ensure a successful outcome.

Thank you, and I appreciate your time and cooperation.

Best regards,

Darshan Sitaram Murkute
M- 8976133639 | darshanmurkute@abc.com
Business Analyst : ABC Tech Mumbai

ECR_BA_Roleplay_Questions_Darshan_Murkute.pdf
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Minutes of Meeting

Date: - Monday, January 29th 2024.

Time: 11:00 AM to 13:00 PM IST

Company Name: -

ABC Tech,

XYZ compound,

Dombivli -420101.

Client Name: -

Easy Car Rental Pvt Ltd.

Hyderabad – 440201

Topic: - Meeting with Easy Car Rental representatives.

Attendees: -

NAME	DESIGNATION	Present/Absent Status
OMKAR PHATAK	M.D (ECR)	PRESENT
GUNESH UPADHYE	BUSINESS ANALYST	PRESENT
DARSHAN MIRKUTE	BUSINESS ANALYST	PRESENT
DEVENDRA MURKUTE	BUSINESS ANALYST	PRESENT

Meeting Agenda: - To discuss the business requirements of Easy Car Rental organisation.

Discussion Points: -

1. What is your business process?

Answer: Our office in Mumbai serves as the starting point for customer interactions. Customers visit our office, provide details about their desired travel from source to destination, and receive car suggestions. If the customer is satisfied and a car is available, they proceed with the booking, filling out a form that includes customer, passenger, payment, and driver information.

2. How many locations are you serving, and what are the names?

Answer: For a list of all locations served, you can contact Shruti from our customer support team.

3. How many office branches do you have, and where are they located?

Answer: We currently have one office in Mumbai, and there are no other branches.

4. How many employees are working under you?

Answer: We have approximately 100 employees, including those in customer support, accounts, car maintenance, drivers, and the business team.

5. Are all employees full-time, or are some on a contract basis?

Answer: All employees are on a full-time basis, with a probation period of 3 months.

6. Do you operate in B2C only, or are you also involved in B2B?

Answer: Presently, we are focused on B2C operations only.

7. How many cars do you currently have?

Answer: We have a fleet of 60 cars, all owned by us.

8. Do you provide drivers or just car rentals?

Answer: We provide car rentals with drivers included.

9. How do you hire and conduct background checks for drivers?

Answer: Yes, we conduct background checks for all our drivers during the hiring process.

10. What is the age bracket for hiring drivers?

Answer: We usually hire drivers between the ages of 22 and a maximum of 55.

11. How do you handle safety concerns if a male driver has a female passenger?

Answer: While such scenarios are rare, we provide a centralized customer support number for immediate assistance if a passenger feels unsafe.

12. Do you provide female drivers?

Answer: Currently, we do not have female drivers.

13. How do you reach customers and market your services?

Answer: We also engage in third-party marketing to attract customers.

14. Is there a minimum day booking condition or a specific time limit for renting a car?

Answer: Customers can book immediately if cars are available. There is no specific time limit, and they can book up to 30 days in advance.

15. What are the mode of payment?

Answer: We take cash, debit and credit card, UPI, online banking, and bank transfer.

16. What documents do you check for customers at the time of booking?

Answer: We accept government-issued photo IDs such as Aadhar card, or passport.

17. Do you take a deposit from customers before handing over the car?

Answer: No, we do not take deposits. Instead, we take an advance payment of 50% of the total amount.

18. Do you have pre-decided packages for car renting, or is it based on customer requirements?

Answer: We do not have packages. We have pre-defined rates for each car.

18. How much fuel do you provide when handing over the car?

Answer: The car is handed over with a full tank of fuel.

19. How are customers charged - kilometers basis, hourly basis, or something else?

Answer: We charge customers on a kilometer basis.

20. How do you handle extra kilometer driven by the customer?

Answer: Additional kilometer are charged based on the excess distance travelled by the customer.

21. How do you track customer driving within the specified location?

Answer: Our drivers operate the cars, and customers do not drive the vehicles.

22. Do you provide a subscription model for customers?

Answer: No, we do not offer a subscription model at the moment.

23. Are there different charges for weekdays and weekends?

Answer: No, the charges remain the same regardless of weekdays or weekends.

24. Is one-way trip service available?

Answer: Yes, one-way trip services are available.

25. Do you allow pets in the car, and if yes, what are the conditions?

Answer: No, we do not allow pets in the cars.

26. How are you showing the fleet of car to the customers?

Answer: On the specific date whatever cars are available those will be shown to the customer.

27.How do you handle car to the customer?

Answer: I'll tell you something guys. We don't have customer driven approach here.

We provide driver to the customer every trip driver from our office is mandatory. So again our driver pick up car from easy car rental office and they reach to the source of the trip.

28. How customer is ensuring that the car is good working condition?

Answer: Before every trip the car will be checked by car maintenance department after their verification and approval only, we send the car to that specific trip.

29. Do you provide any benefit to regular or loyal customers?

Answer: We don't have that model right now.

30. Do you provide assistant to customer if car breaks down during the journey?

Answer: Yes. If it is within the range of 30 km from our office and customer allows us then we send different car. If customer is not okay with that, we have option according to which we provide 100% refund to the customer.

31. What happens if car involves in an accident?

Answer: Customer can wait till the time we provide different car or they offer 100% refund.

32. Do you provide travel insurance to customers?

Answer: Travel insurance is always covered in travel permit cars by government of the day.

33. How do you deal with the fines imposed during the journey?For example over speeding by driver.

Answer: We will deduct that from the salary of driver.

34. Do you provide a toolkit?

Answer. Yeah it is always there.

35. Are there any frequent last moment cancellation? If yes then how are you dealing with it?

Answer: Last minute cancellations we don't have a refund in such cases. They can cancel the booking.

36. Is there any age brackets while providing the cars with the customer?

Answer: There must be adult in all the cases. If child is travelling alone they have to travel with adult mandatory. No child can travel alone. Adult can travel alone and senior citizens can travel alone. But in case of child, they have to have adult or senior citizen with them.

37. Are you providing diesel or petrol cars?

Answer: We have both variants.

38. Do you provide any referral money to customer who refer your business to others?

Answer: No not right now.

39. Is it all of those passenger must have photo ID and Contact Id?

Answer: No, we will take one point of contact. Let us say there are six people travelling. We take one point of contact information from customer.

40. A to B, B to A. Do you allow different car in round trip? from A to B is different and

car B to A is different?

Answer: No, we don't allow that.

41. Pick up points from A taking up seven people. So, what is preferred one pick up point or more than one pickup points?

Answer: Pick up doesn’t matter as we are charging on a travelled kilometer, so if a passenger wants to pick up his or her friends from different location our driver will go to that particular location and pick those passengers also but the extra km or distance travelled by the customer he has to pay for those.

42. Does customer can select the routes by which he wants to ride?

Answer: Yes, customer can select their own routes as far as we start the kilometer at the source. They can go to their destination from any route they want because toll anyways customer is going to pay if there is a route which takes more kilometer or less kilometer. We are fine with that. So, customer can select their own routes.

43. Toll and other during trip charges, who is responsible for that?

Answer: Tolls and other charges, parking charges and all that is not included in the trip amount. Trip amount has to be paid by customer before the trip starts. Whatever expenses they have to take care that will be taken care by customer directly while the trip is in progress.

44. What about the extra charges?

Answer: Extra charges if customer needs specific music to be played in the car or if they want food at the source because we have a list of menu where you can order food if you want which driver will carry before the trip starts. So, customer has to pay for those extra services food and music.

42. Can I select multiple cities or can I rent a car for different cities? Is it possible for the city?

Answer: Multiple cities if you are talking about multiple city example like I want to travel from Mumbai to Pune and then Pune to Nagpur. So, we consider that trip as a Mumbai to Nagpur the route selection is via Pune. We allow that but at the last moment if you if your trip is from Mumbai to Pune and if you want to extend it to Nagpur then we must check the availability of car and if it is available yes, we allow that.

43. Can I extend my trip if he has what is the process?

Answer: You can extend your trip but if car is available in that scenario only you can extend the trip.

44. How fast I can rent a car next five minutes, ten minutes or do you have to wait for the

tea?

Answer: No there is no wait time as such. You can you can rent a car in the last minute also if

car is available we have no problems to rent the car. How in advance you can rent the car I told you that 30 days that is the maximum advance period of renting the car.

45. Can customer select specific driver if they want?

Answer: No, customers cannot select a specific driver.

46. How are payments calculated for specific trips, including extra charges or penalties?

Answer: Detailed charges are handled by Neha from the accounting department. High-level charges include night charges, 18% GST, a 10% convenience fee, and extra charges for food and music services.

47. What is the passenger security policy, and is there a designated emergency number?

Answer: In case of emergencies or unsafe situations, customers can call the customer support number displayed on the back of the car seats.

48. Which currencies do you accept for payment?

Answer: We accept payments only in Indian Rupees.

49. What is the cancellation and refund policy, and how long does it take for a refund?

Answer: Customers can cancel anytime with varying refund percentages. Refunds are credited to the original payment method within 1 week. Refund depends basically on the duration of cancellation, if customer cancels a week before he receives 20% refund, if he cancels prior 2 weeks before then he receives 30% refund and if he cancels 2 week before or more he will receive 40% refund.

50. Do you have any rewards points system for customers after payment?

Answer: No, we do not currently have a rewards points system.

51. Is there any feedback process for customers or drivers?

Answer: No, we do not have a feedback process for customers or drivers.

52. How do you track your cars during a journey, and how are drivers allocated for specific trips?

Answer: Car tracking is done manually by calling the driver. For specific locations, we have a set of minimum 5 drivers assigned. The allocation depends on the availability of these drivers.

53. How do you decide the days required to travel from Mumbai to different destinations?

Answer: There is a register with details about the time and distance required to reach different cities. Mr. Karthik from the customer support team can provide you with this information.

54. When any car return to ECR, is there any mandate to send car for servicing? If yes, how much time will it take before the car is again available for renting?

Answer: 48 hours, the car will be ideal.

Responsibility Matrix: -

Sr. No.	Department	POC	Email	Mobile No.	Responsibility	Due Date	Comments

Gmail

Darshan Murkute <darshanmurkute2308@gmail.com>

Minutes of Meeting (MOM) for Approval

1 message

Darshan Murkute <darshanmurkute2308@gmail.com> 24 February 2024 at 18:19
To: Omkar Phatak <work.omkar@gmail.com>

Dear Sir,

I hope this email finds you well. Following our recent meeting on 25th January 2024, I am pleased to share the Minutes of Meeting (MOM) for your review and approval.

The MOM document captures the key discussions, decisions, action items, and next steps outlined during our meeting. It serves as a comprehensive record of our discussions and ensures alignment on project objectives and deliverables.

Please find attached the PDF file containing the MOM document. Kindly review the contents and provide your feedback or approval at your earliest convenience. Should you have any questions or require further clarification on any points discussed, please do not hesitate to reach out to me.

Your prompt attention to this matter is greatly appreciated as we aim to maintain project momentum and progress in a timely manner. Your feedback and approval are crucial to moving forward with the next steps outlined in the MOM.

Thank you for your continued collaboration and support. I look forward to receiving your feedback and approval on the MOM document.

Best regards,

Darshan Murkute
Business Analyst at ABC Tech

MINUTES OF MEETING -BA Role Play.pdf
152K

Unified Modeling Language

UML is a graphical language for visualizing, specifying, constructing and documenting information. It is a visual representation of businesses via Diagrams. It can be bifurcated into Behavioral and Structural diagrams which represent functional and non-functional requirements in the form of diagrams to the client as well as developers and bridge the gap of understanding making the communication ease.

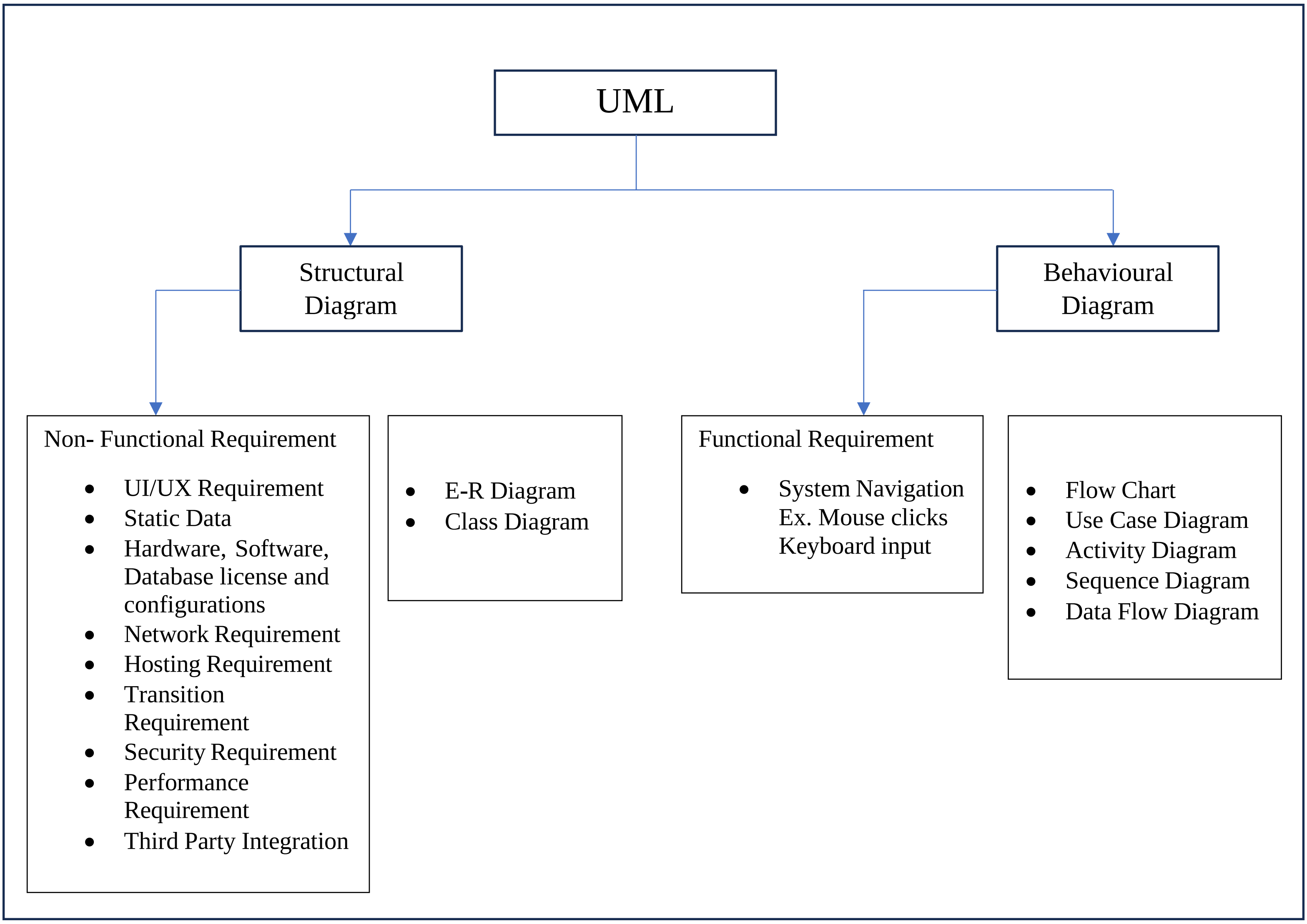


Fig. 18 (UML Diagram)

Behavioral Diagram

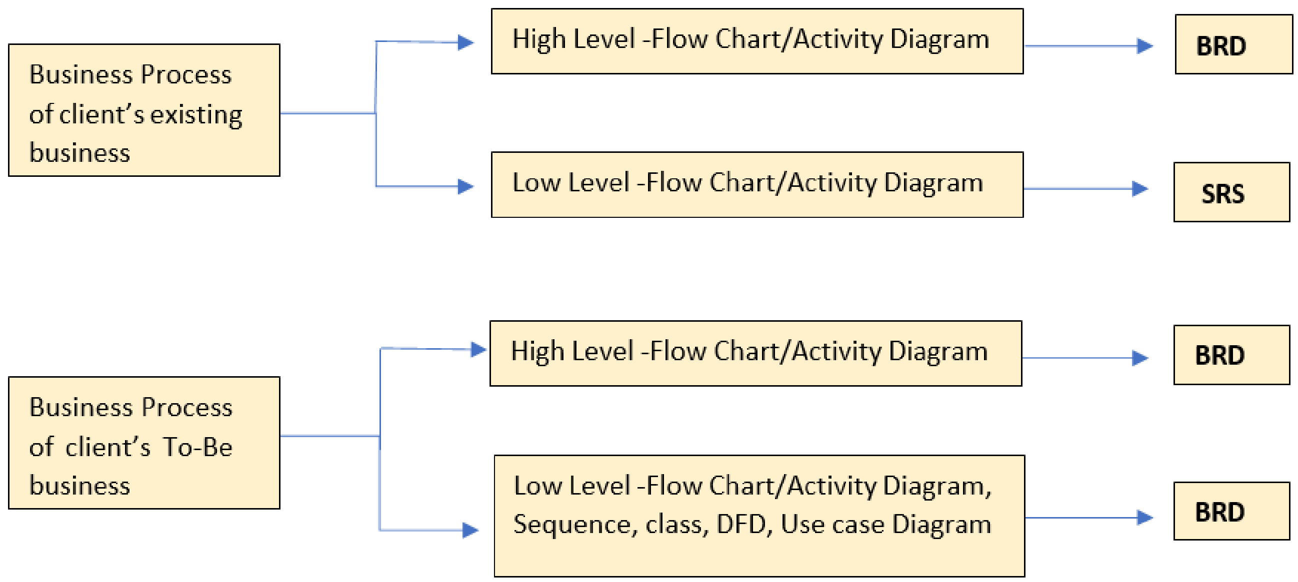
It represents Functional requirements of the system and depicts the dynamic elements of the system i.e. the elements that are dependent on time.

- Flow Diagram
- Activity Diagram
- Use Case Diagram
- Sequence Diagram
- Data Flow Diagram

Structural Diagram

It represents Non-Functional requirements of the system and emphasizes on static structure of the system.

- ER Diagram
- Class Diagram



Flowchart

Flow Chart represents separate steps of a process in a sequential order. They map out a process so that one can easily communicate it to other people.

Notation -

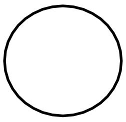
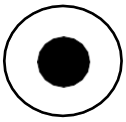
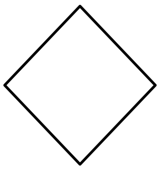
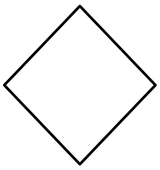
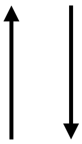
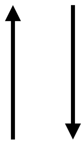
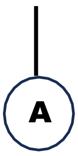
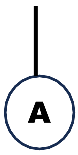
	Flowchart	Activity Diagram
Start		
Stop		
Process		
Decision		
Message/Data Flow		
Connector		

Fig. 19

AS-IS High Level ECR –

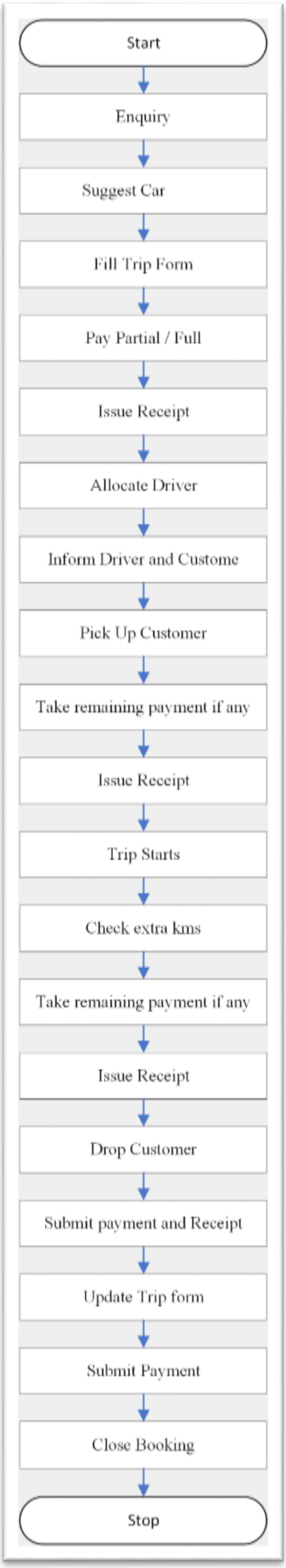
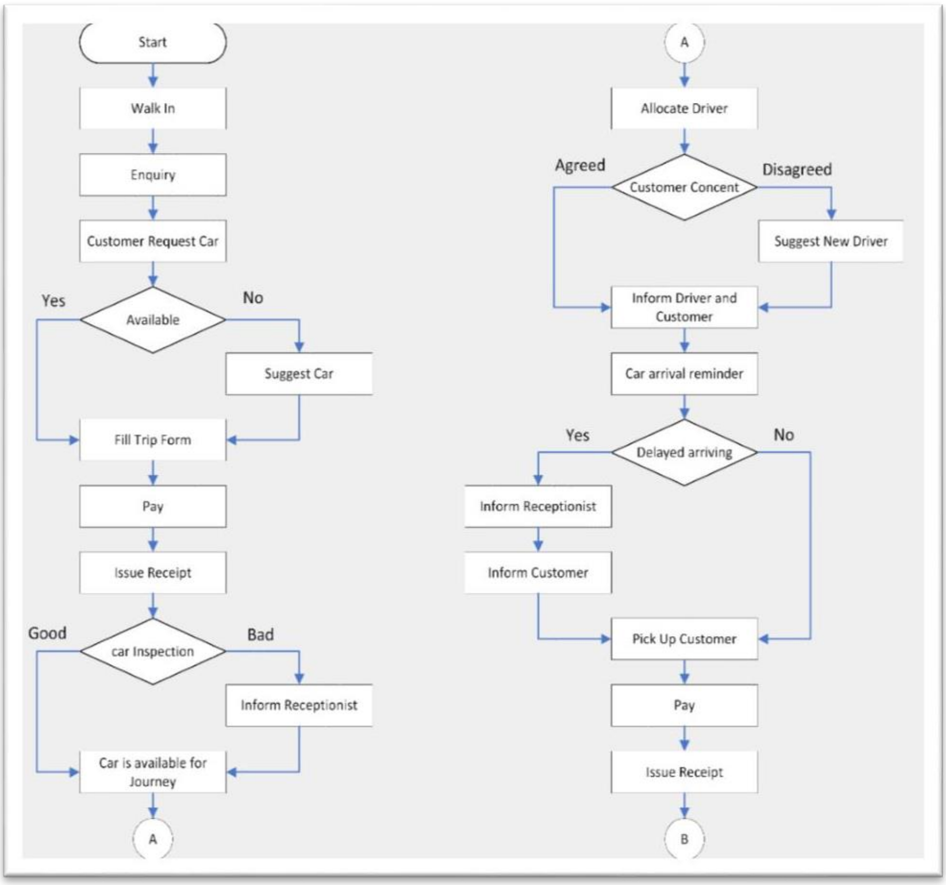
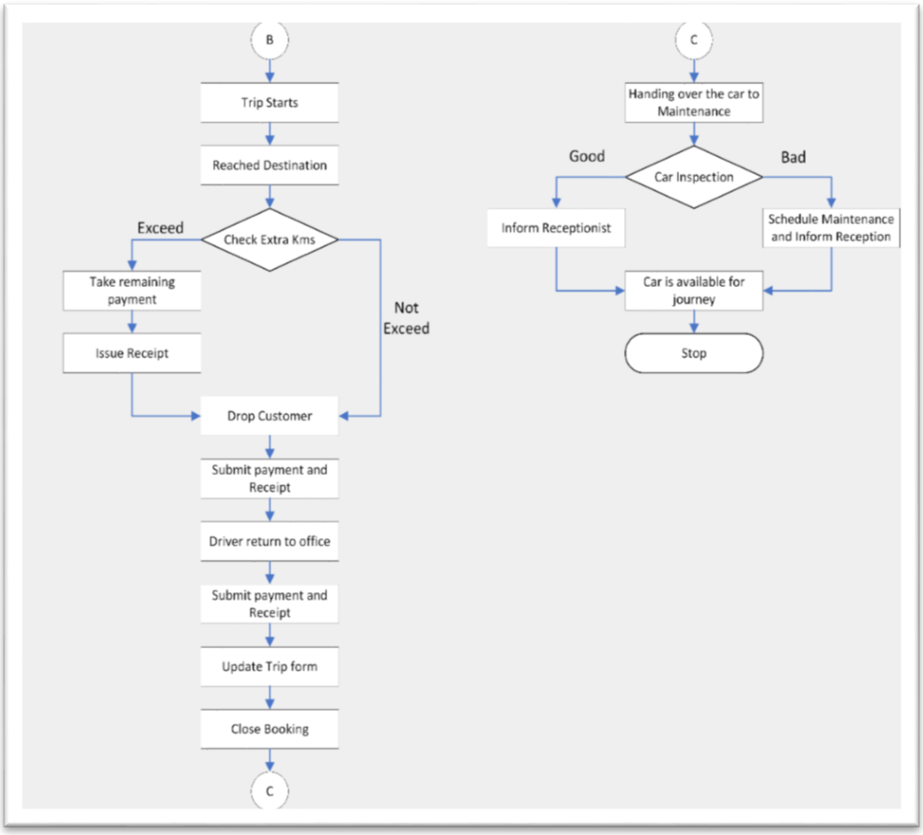


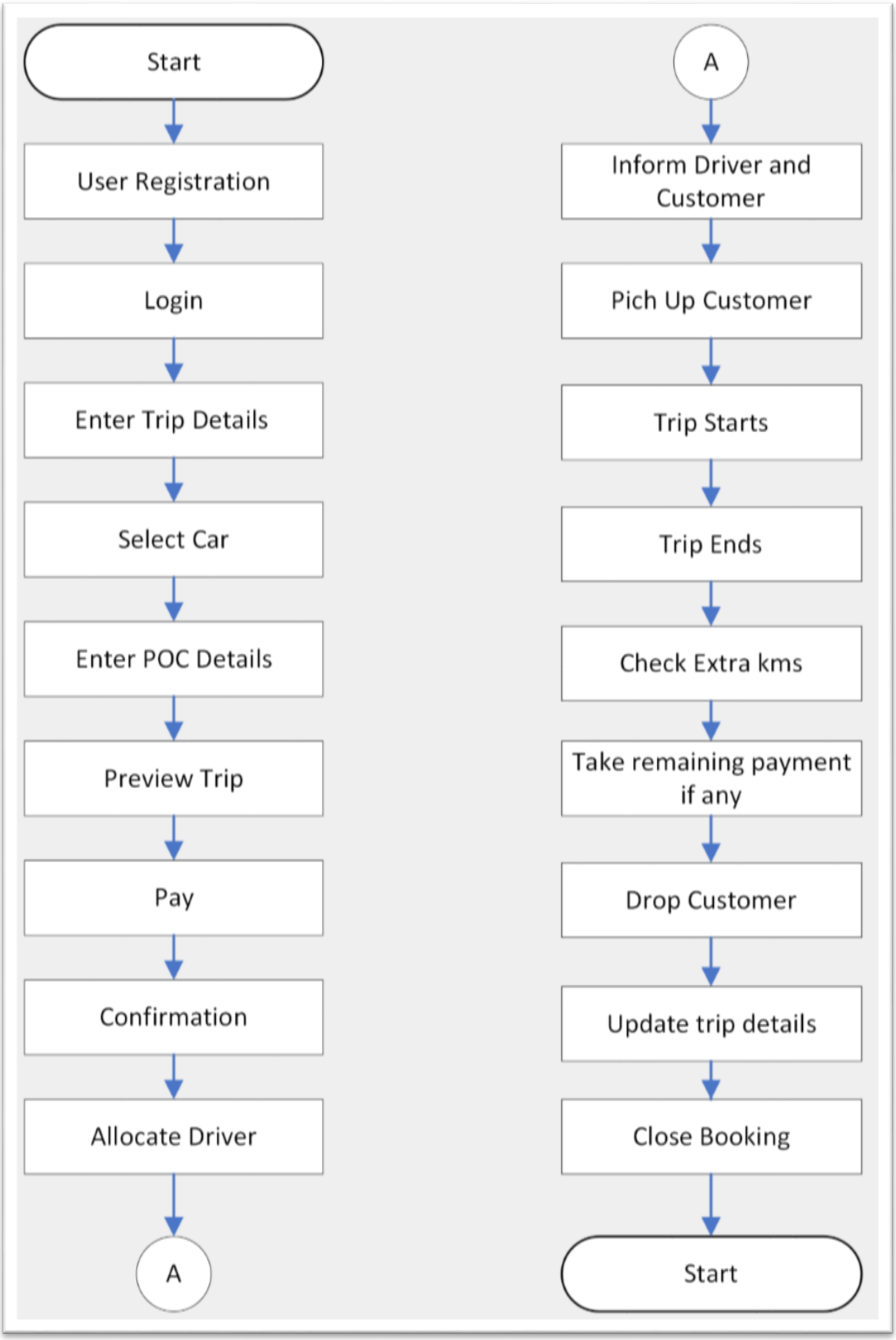
Fig. 20

AS – IS Low Level (Fig 21)

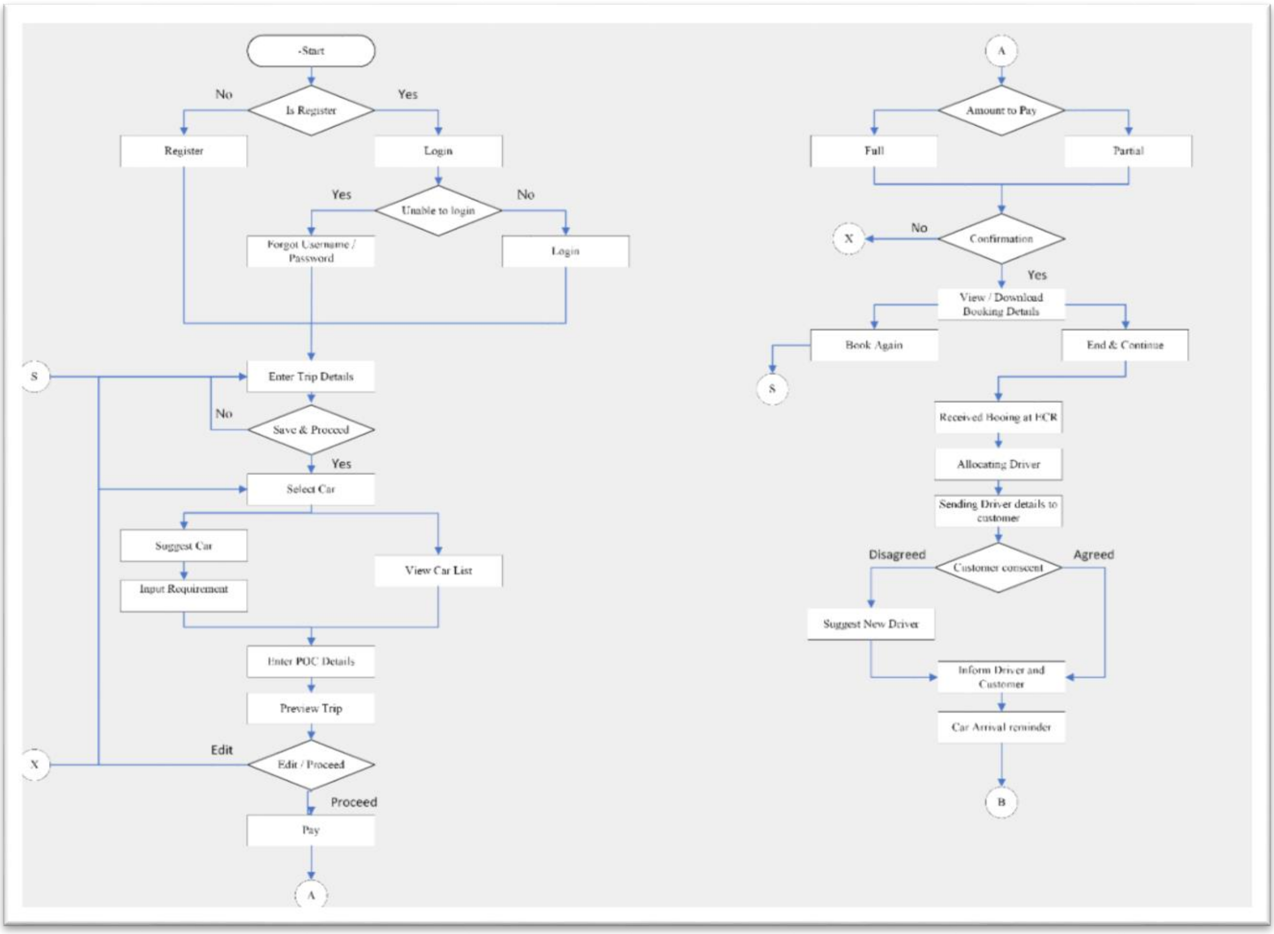


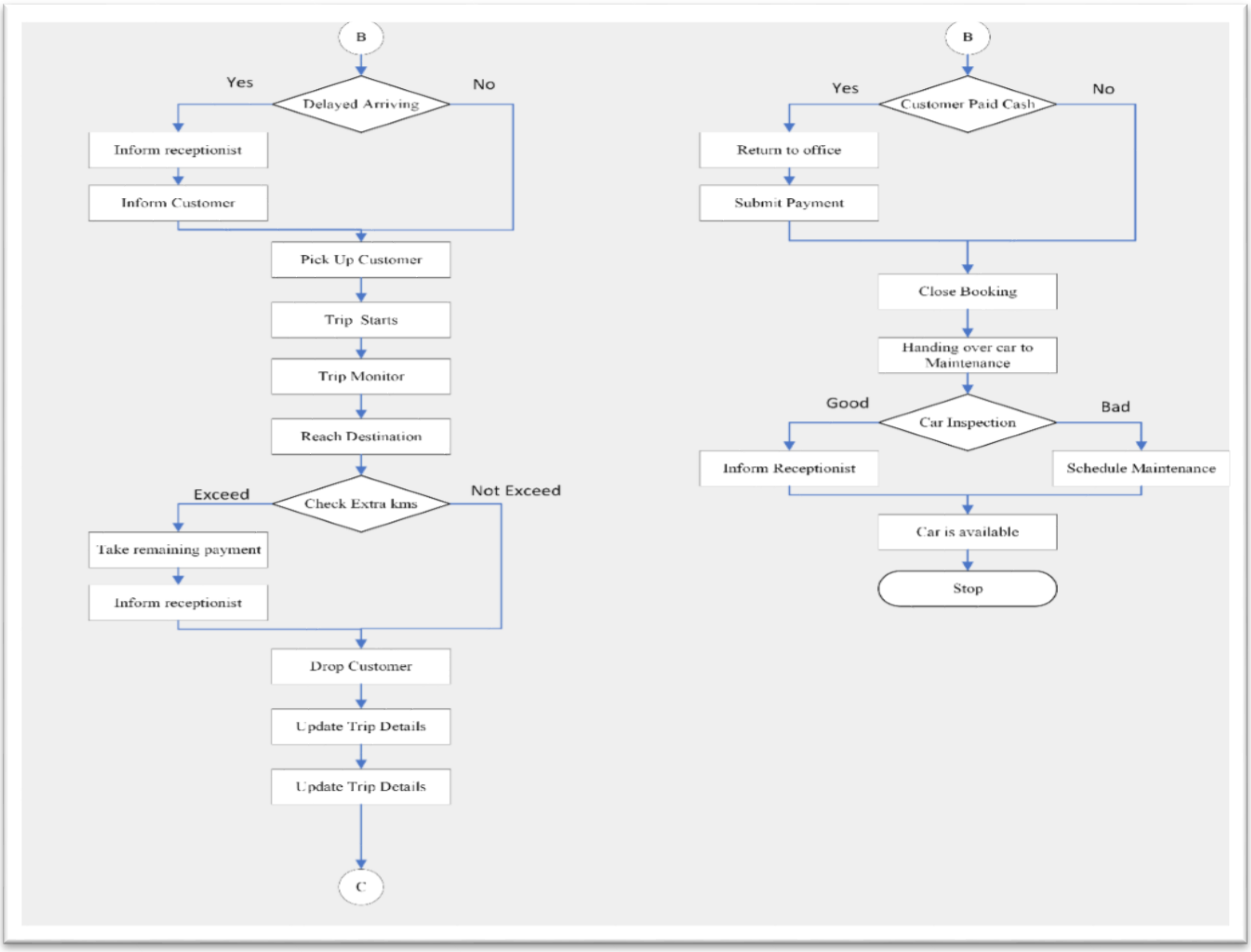


TO-BE High Level (Fig 22)



TO-BE Low Level (Fig 23)





Activity Diagram

Activity Diagram portrays the control flow from a star point to a finish point showing the various paths that exist while the activity is being executed. Each user activity is depicted in this diagram for better understanding.

AS-IS High Level Business Process

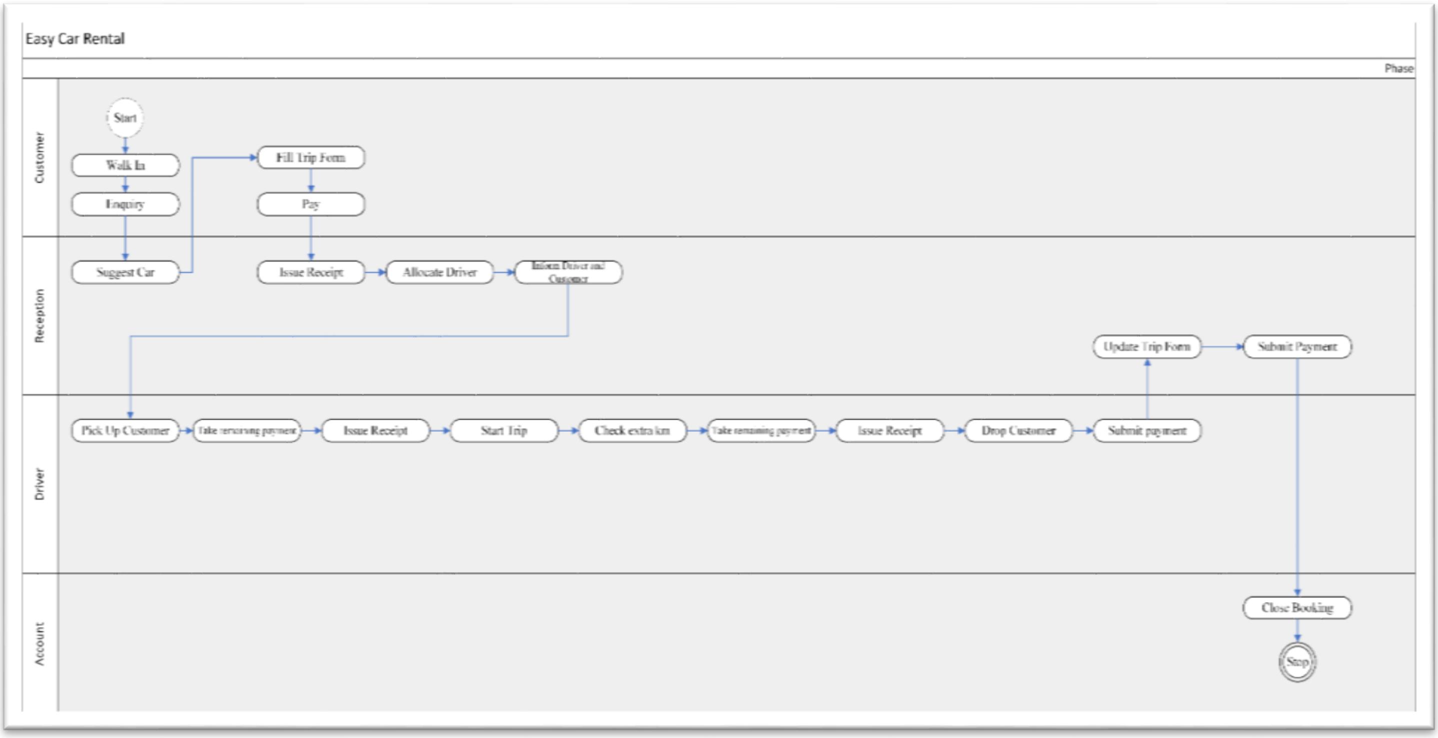
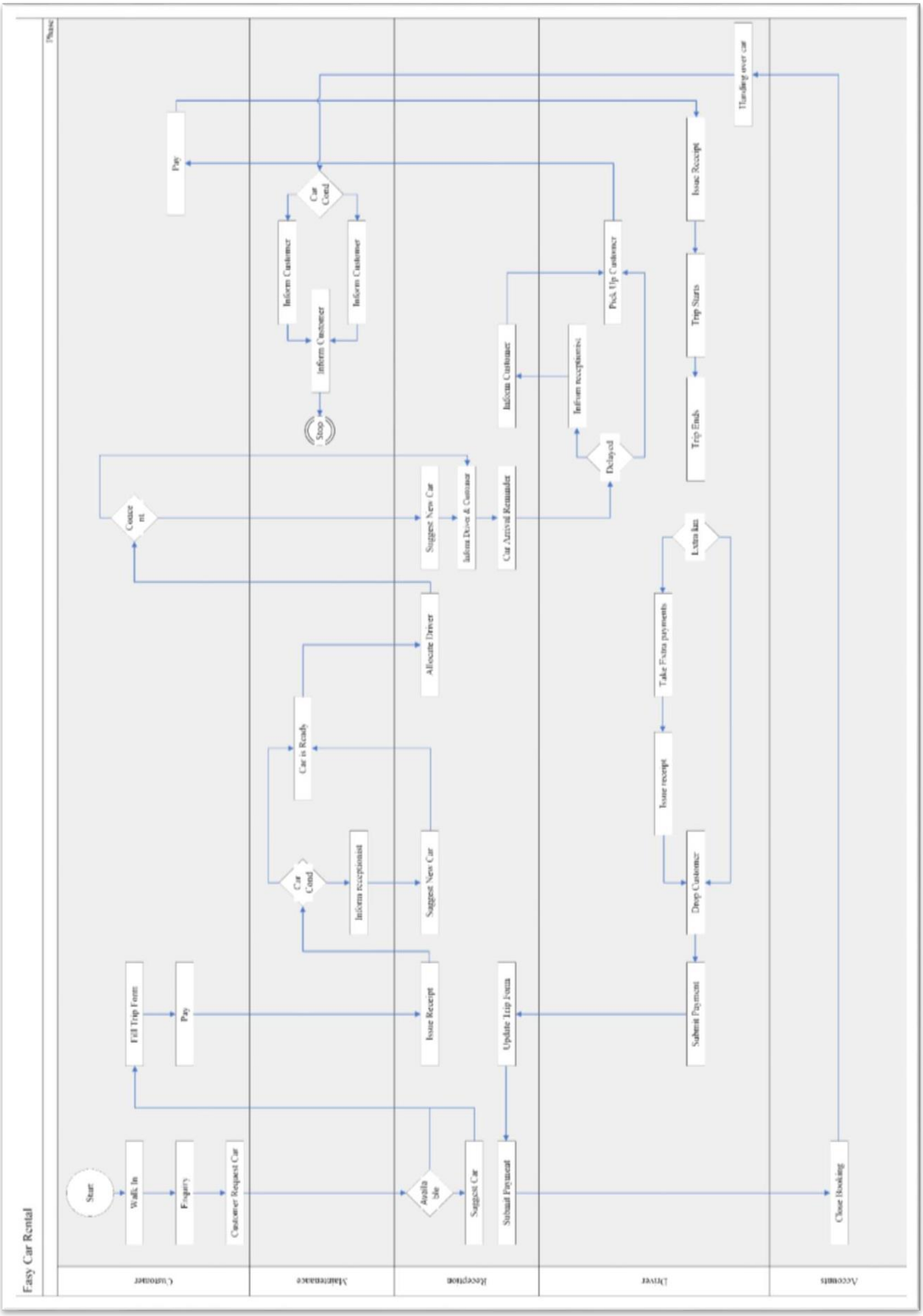
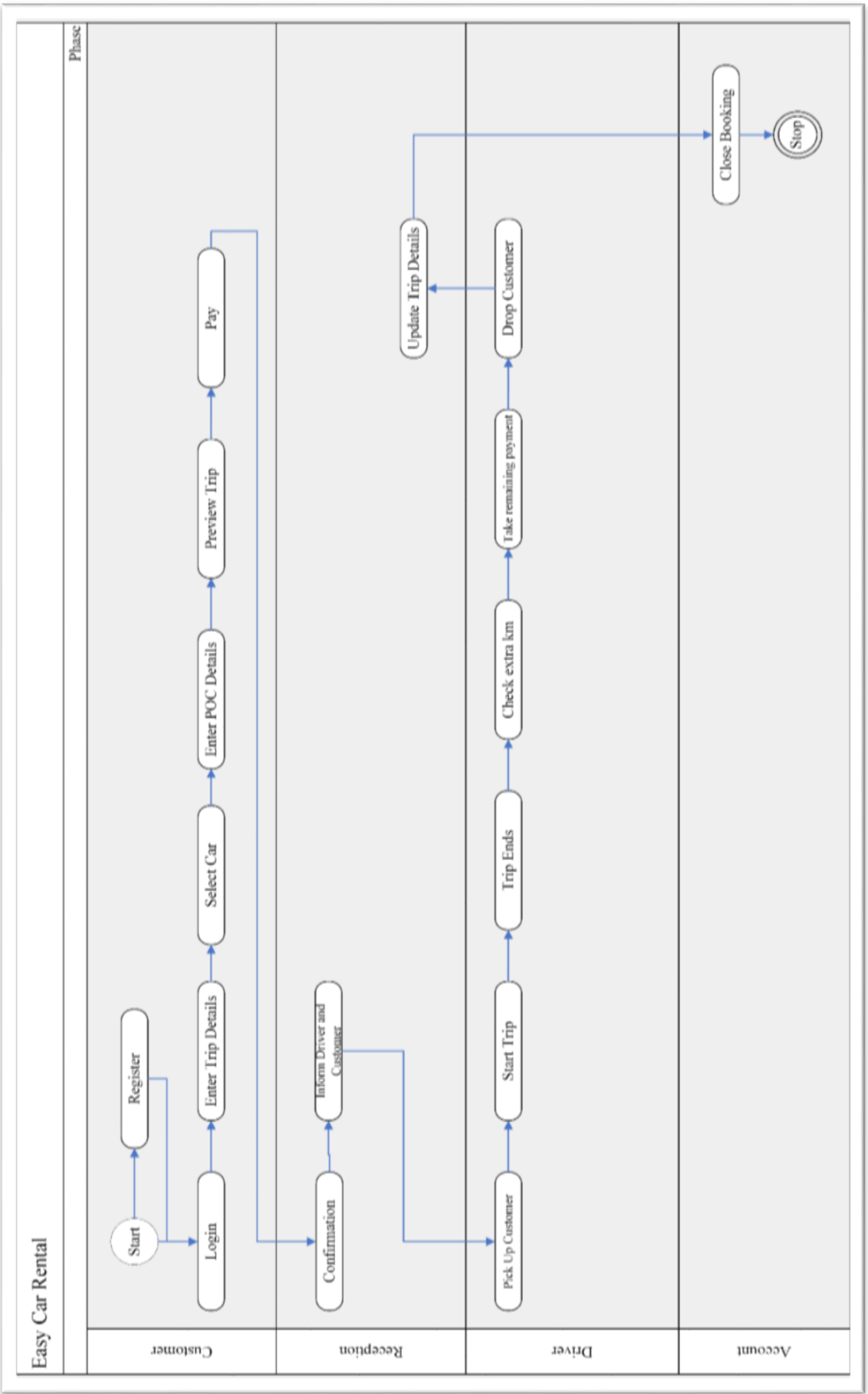


Fig 24

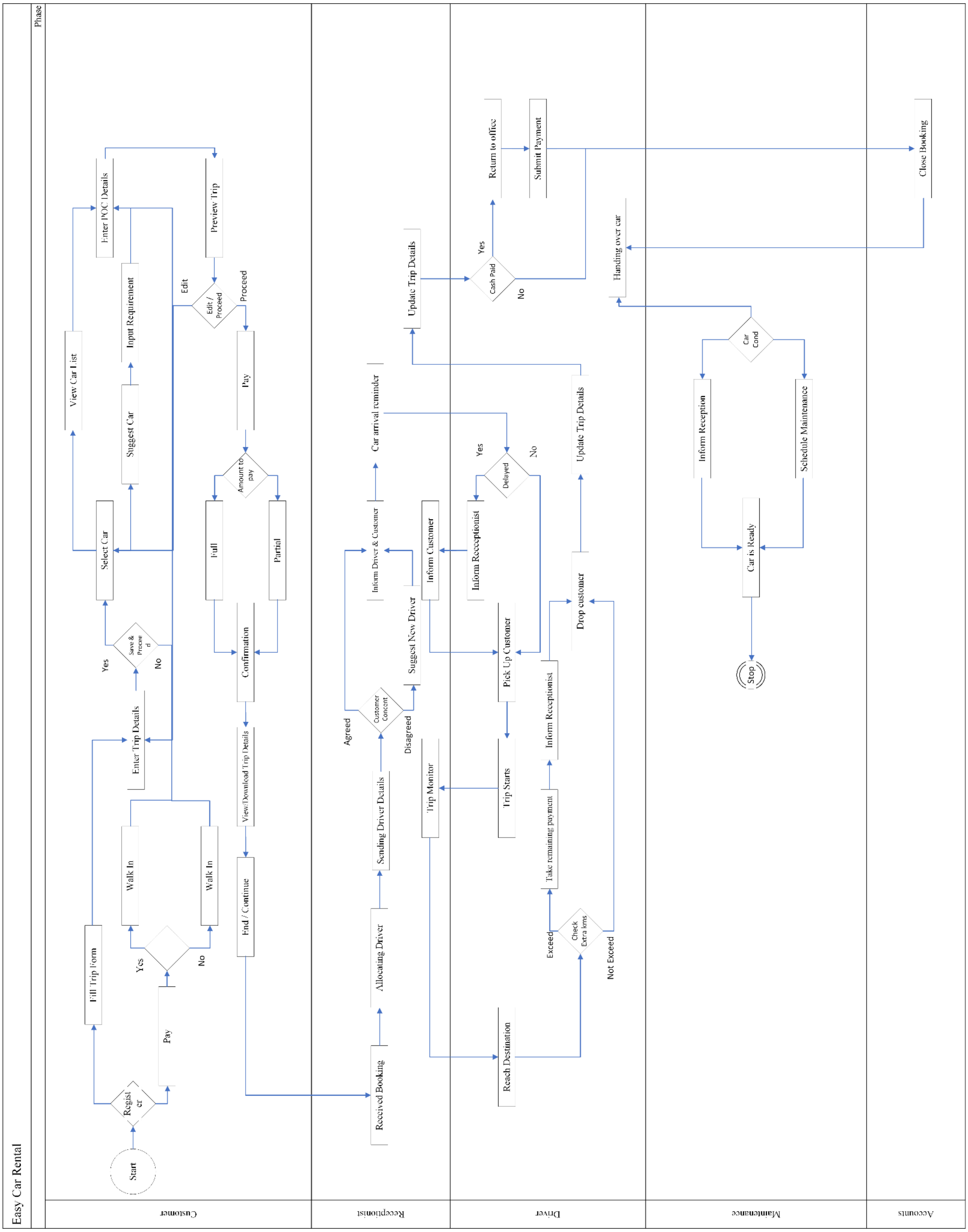
AS-IS Low Level (Fig 25)



TO-BE High Level (Fig 26)



TO-BE Low Level (Fig 26)



DATABASE DESIGN

Database design has 3 phases:

- Conceptual Phase
- Logical Phase
- Physical Phase

Conceptual Phase: In this phase, Entities and Attributes are defined.

Database Design Steps

Conceptual

1) Find Entities and Attributes

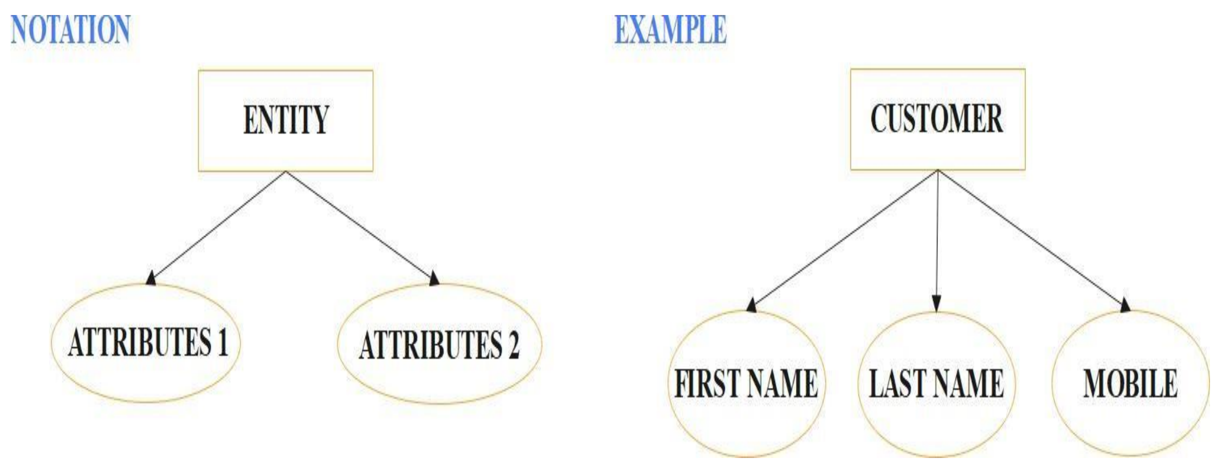


Fig 27

Logical

1) Define Relations between Entities.
2) Draw Entity Relationship (E-R) Diagram.
3) Notation

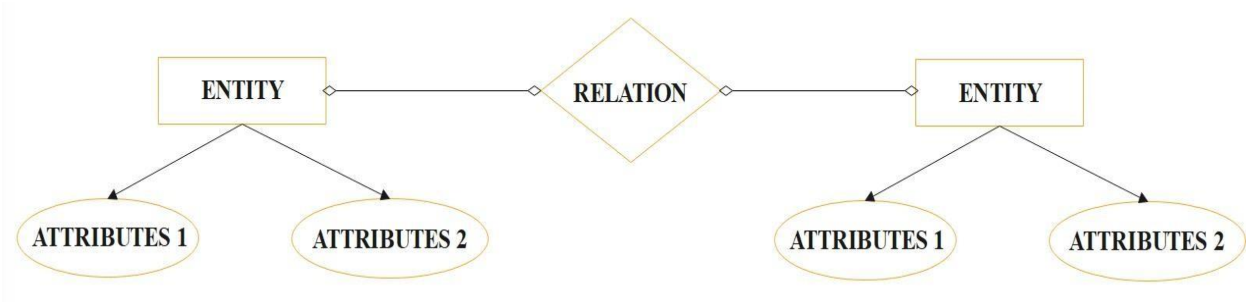


Fig. 28

Entity - Relation diagram for Easy Car Rental

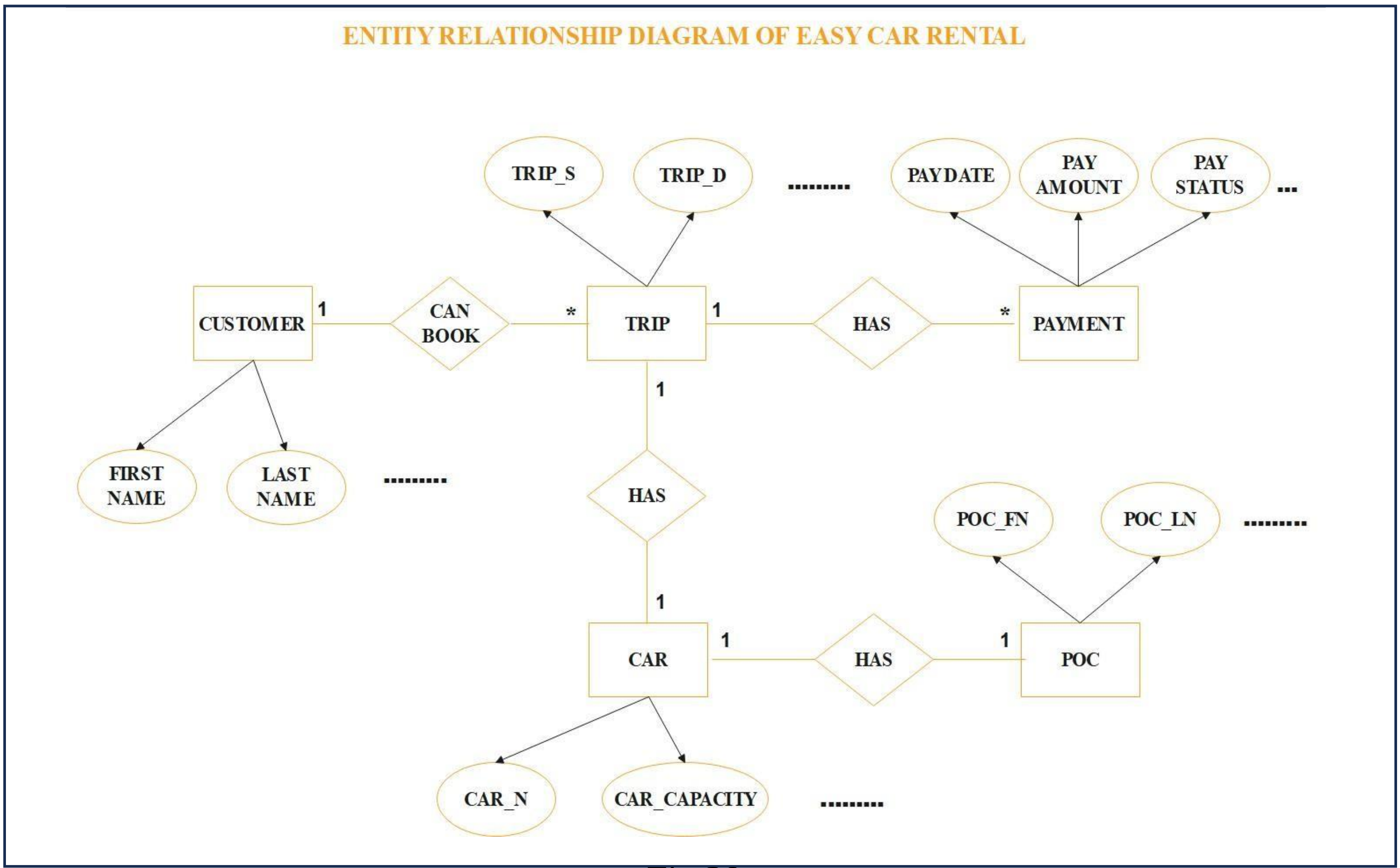


Fig 29

Physical

1) Define Primary Key (pk) and Foreign Key (fk).
2) Draw Class Diagram.

Class diagrams are the main building block in object- oriented modelling. They represent objects, their relationship, attributes, and operation.

Class Diagram

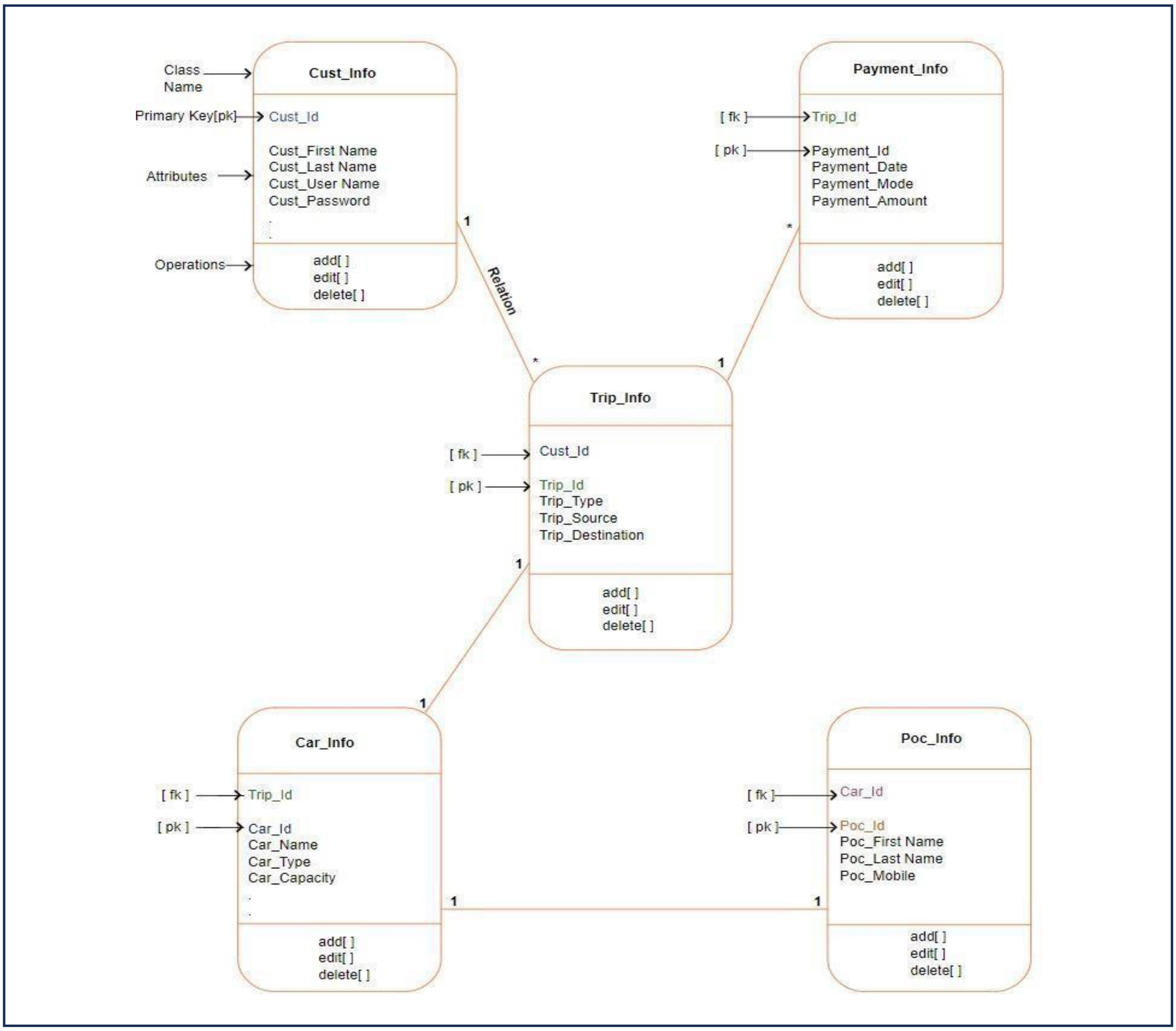
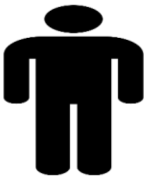
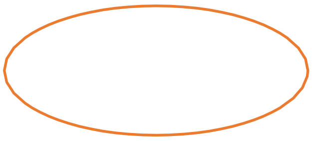


Fig. 30

Use Case Diagram

Use case diagram is a graphical depiction of a user's possible interactions with a system with the help of actor, use case, sub-use cases and relations.

Shape	Name
	**Actor**
	**Use case**
	**System Boundary**

Relationship

RELATIONSHIP NAME	MEANING
<<include>> 	**All Sub Use Case are Mandatory.**
<<extend>> 	**Only One Sub Use Case is Mandatory.**
<<Generalization>> 	**All Sub Use Case are Optional.**

Use Case Diagram for Easy Car Rental

1. End User

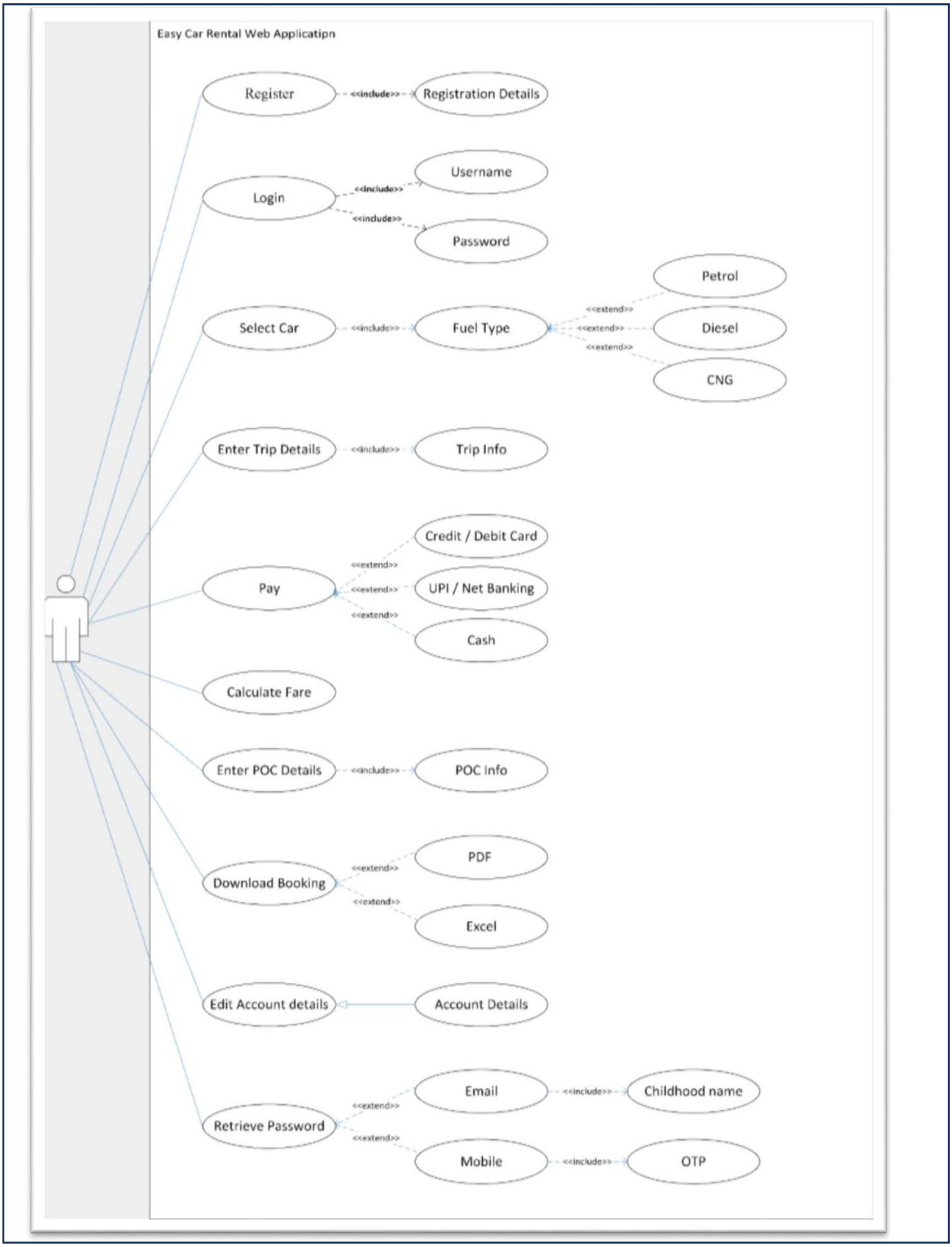


Fig. 33

2. Admin

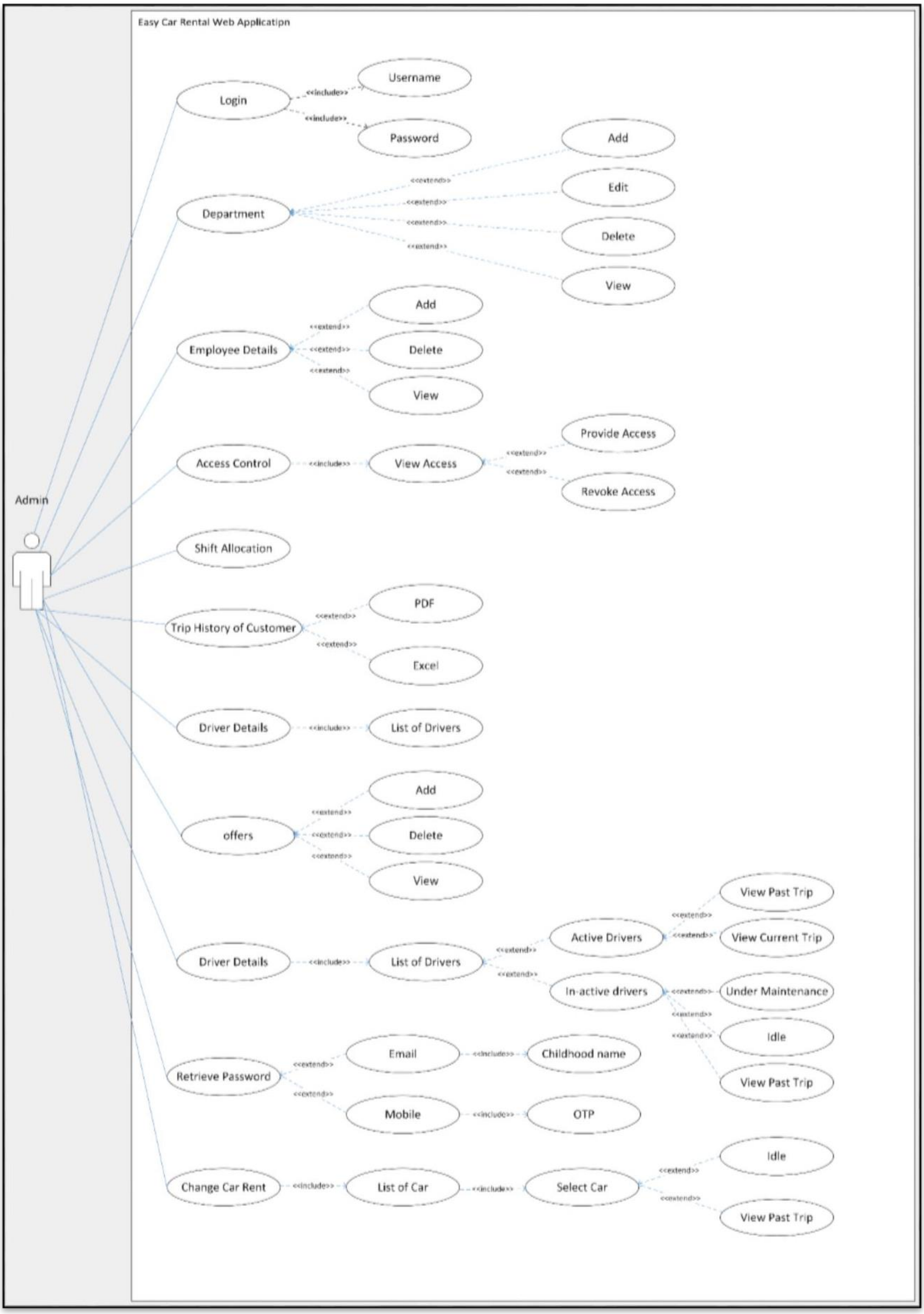


Fig. 34

3. Customer Support

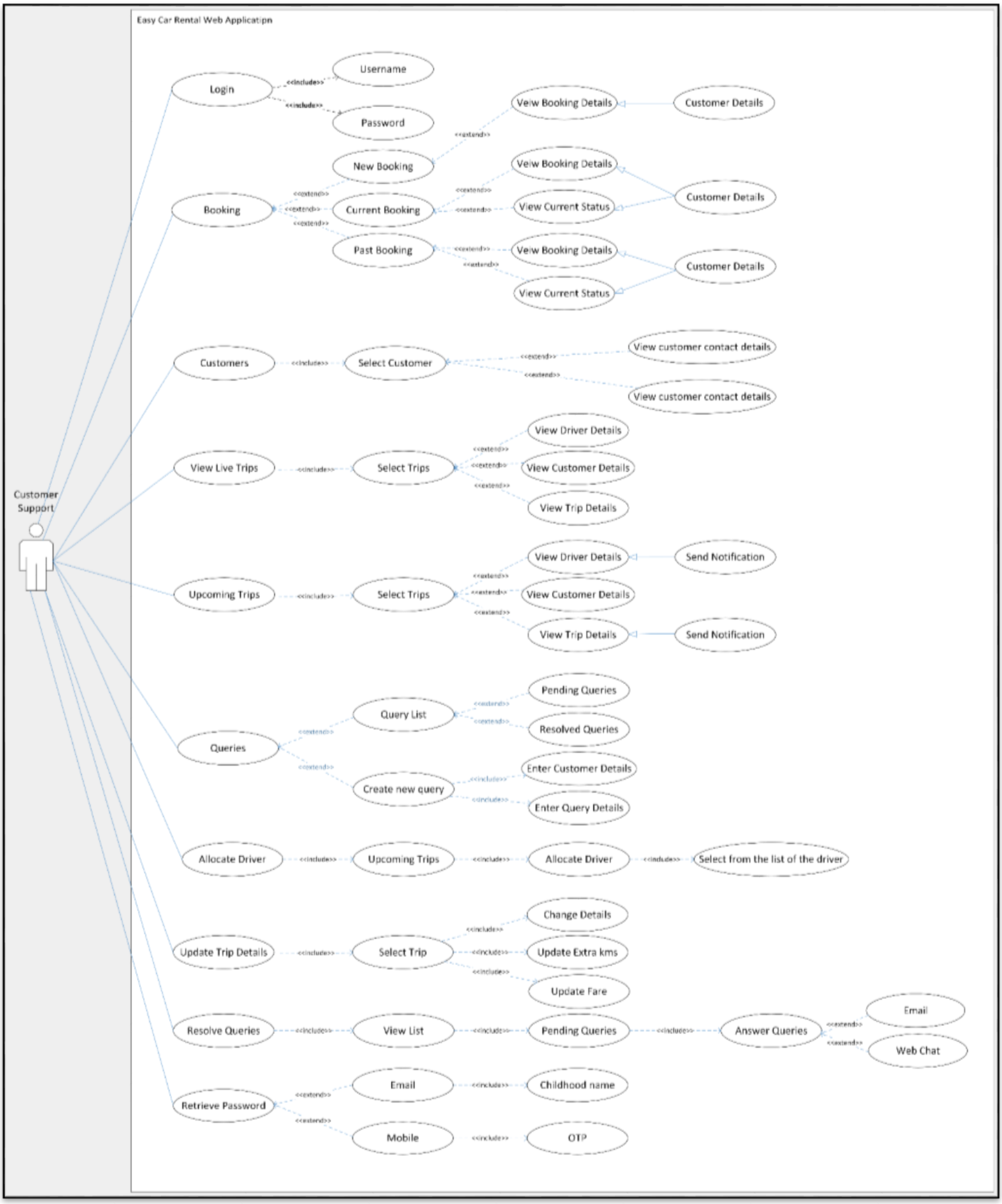


Fig. 35

4. Driver

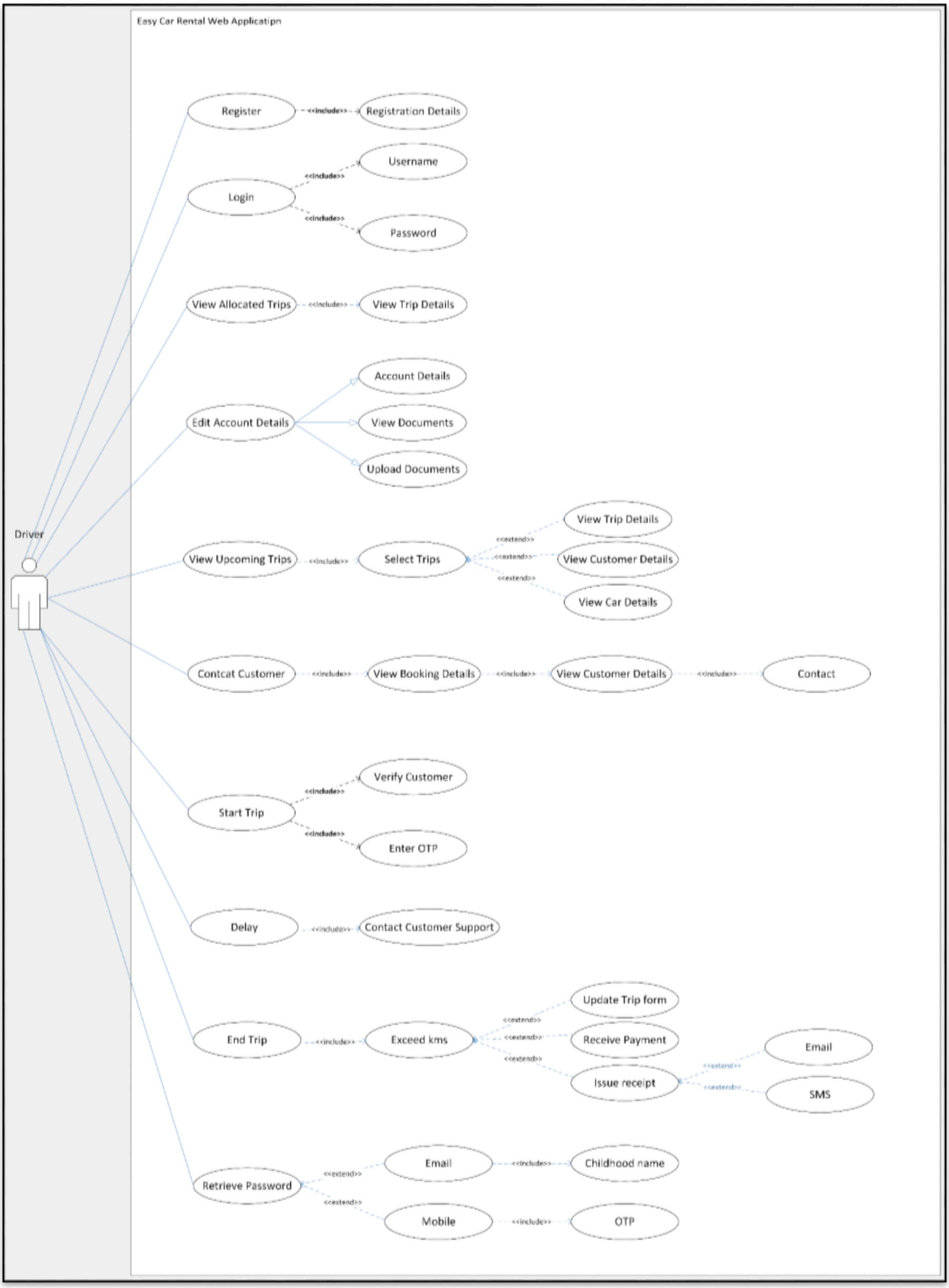


Fig. 36

5. Accounts

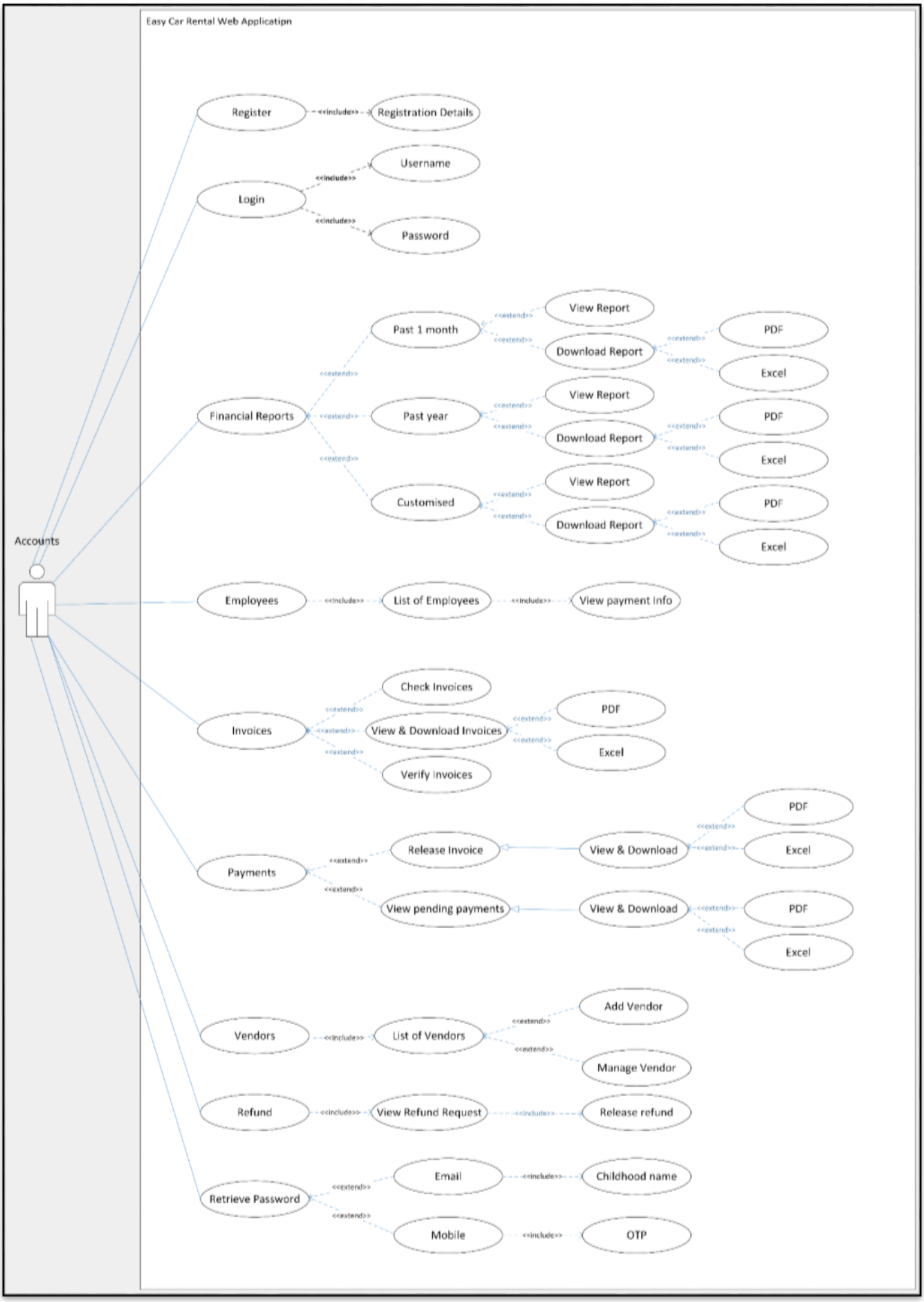
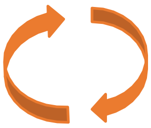


Fig. 37

Dataflow Diagram

Data flow diagram is a way of representing a flow of data through a system. It has no control flow and provide information about the outputs and inputs of each entity. Here, numbering is done to track the flow.

Notations

Shape	Name
	**Entity**
OR	**Process**
	**Database**
	**Message Flow**

Dataflow Diagram for Easy Car Rental

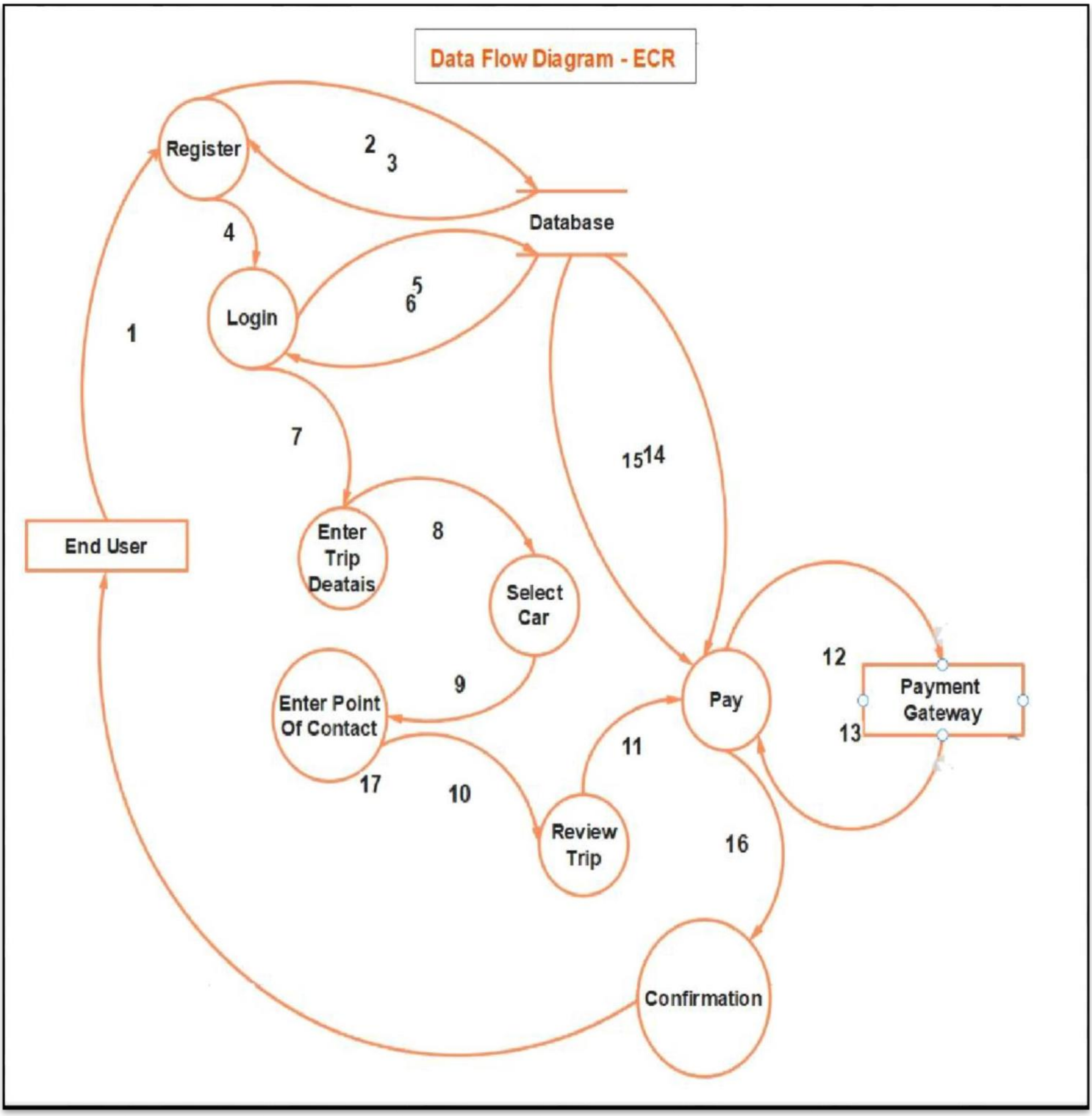
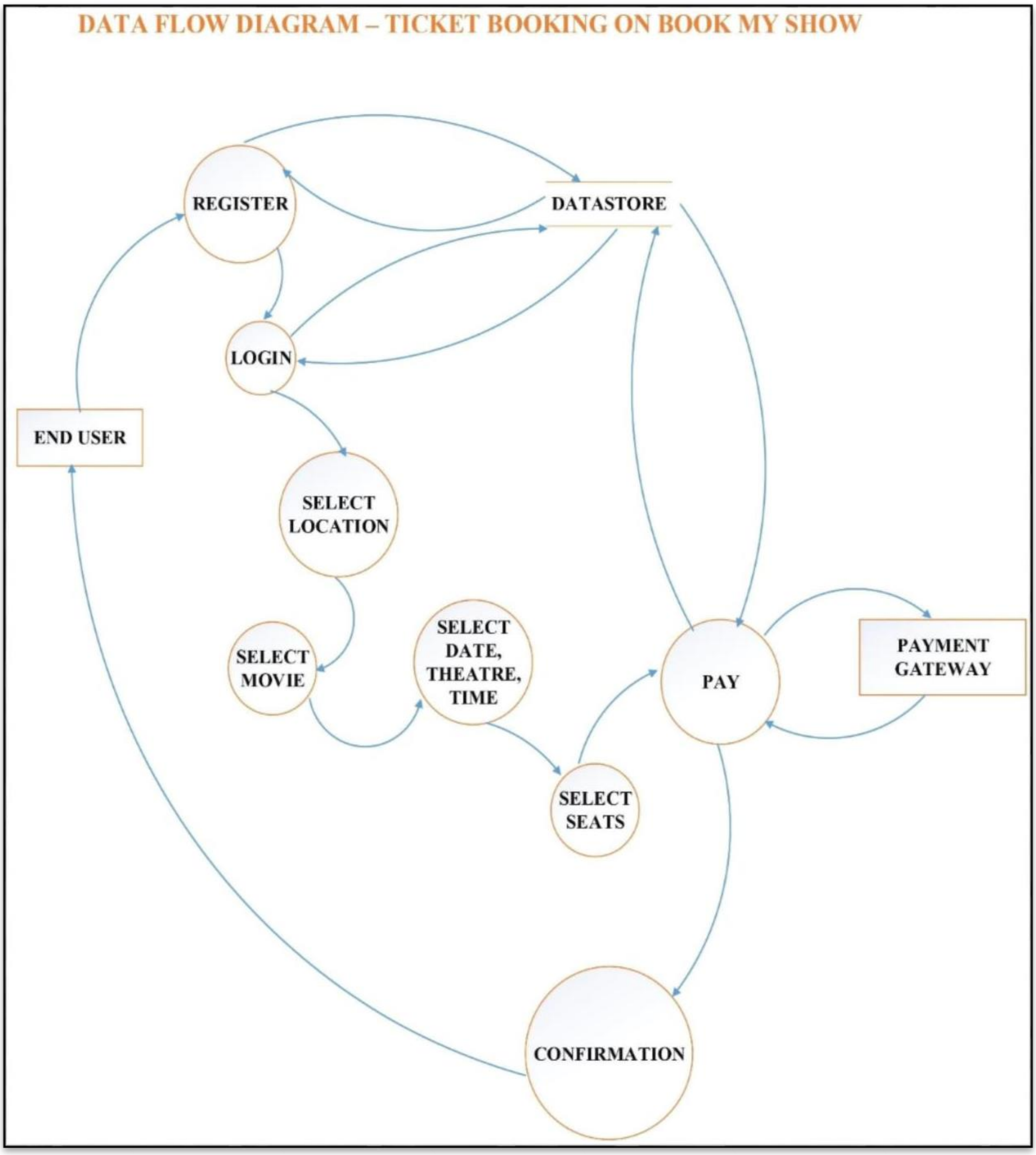


Fig. 38

Data Flow Diagram for Book My Show App



Sequence Diagram

Sequence Diagram shows object interactions arranged in time sequence with the help of lifelines, activators, object process and user. It is particularly helpful in knowing how long a certain process has been active in the entire project.

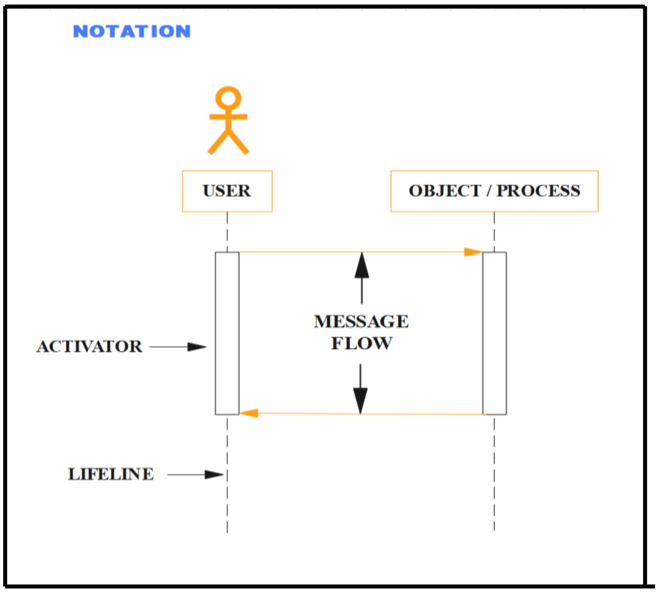


Fig. 31

Sequence Diagram for Easy Car Rental

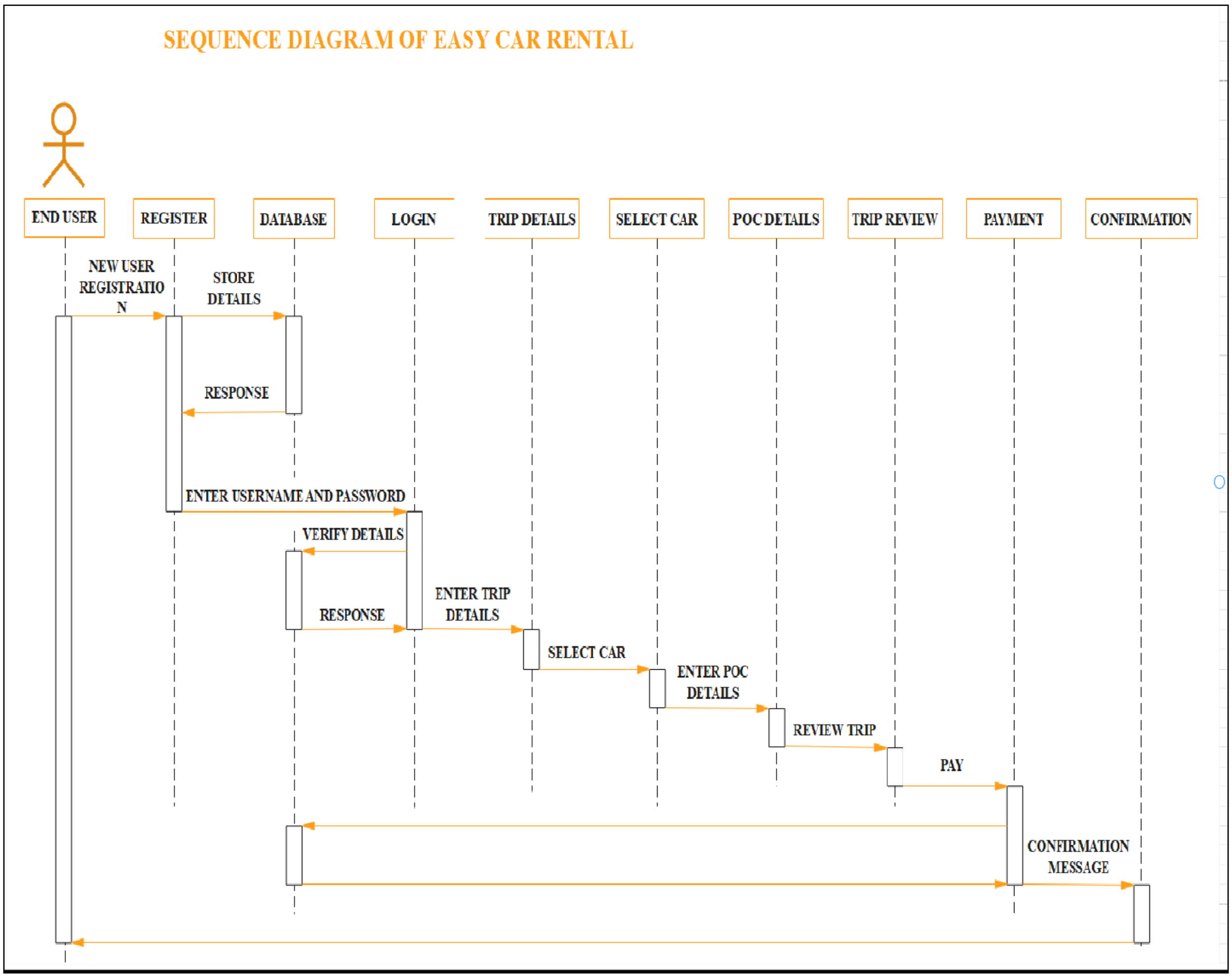
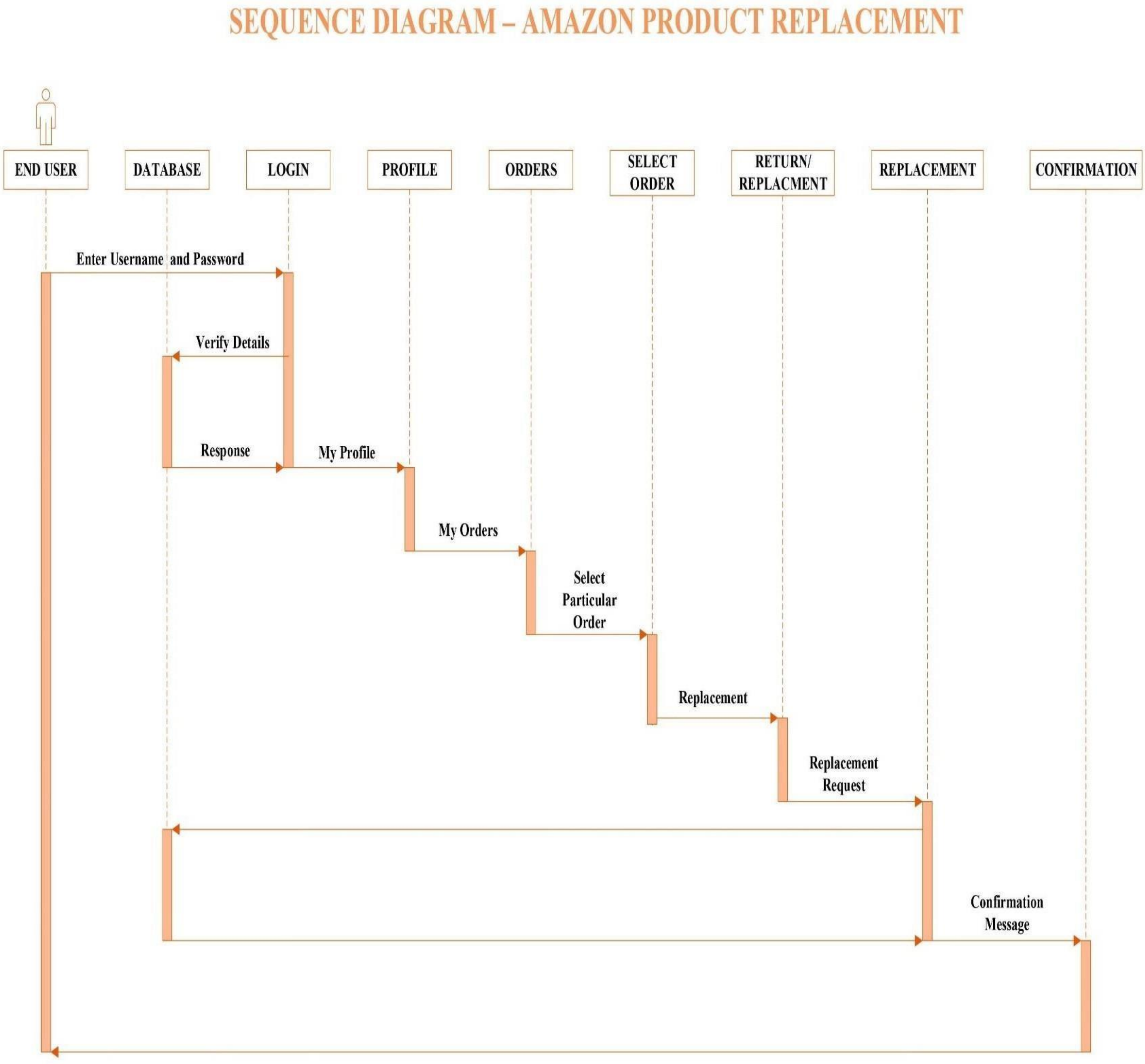


Fig. 32

Amazon Product Replacement Sequence Diagram



Business Requirement Document

Project Name – Easy Car Rental

Document History

VERSION	PREPARED BY	PREPARED DATE	REVIEWED BY	REVIEW DATE	CHANGE LOG
V1.0	GUNESH	22nd Feb 24	OMKAR	23rd Feb 24	NA
V1.1	GUNESH	10TH Mar 24	OMKAR	11TH Mar 24	3.1, 4.1

Index

1. Introduction

Easy Car Rental is an India based car renting business. The company operates within the state and rents out cars to customers along with drivers. To increase their reach and expand its business with minimum redundancies, ECR has decided to go online.

2. Problem Statement

2.1 Human Error: In manual business, human error and redundancies relating to data, accounts, bookings become unavoidable.

2.2 Tracking of Car: Due to lack of technical assistance, the tracking of Customers and getting their real-time access was not possible.

2.3 Less Customer Reach: Offline business limits the reach up to nearby areas which can be fixed by switching to online model.

3. Project Scope

User

Login as a New User	New User can visit the website and get registered by filling out the details, create personalized Username and Password and Login using that to further book a car.
Login as a Registered User	Once registered, one just has to login using Username and Password, if either of them is wrong "Incorrect Username/ Password" is popped.

Receptionist

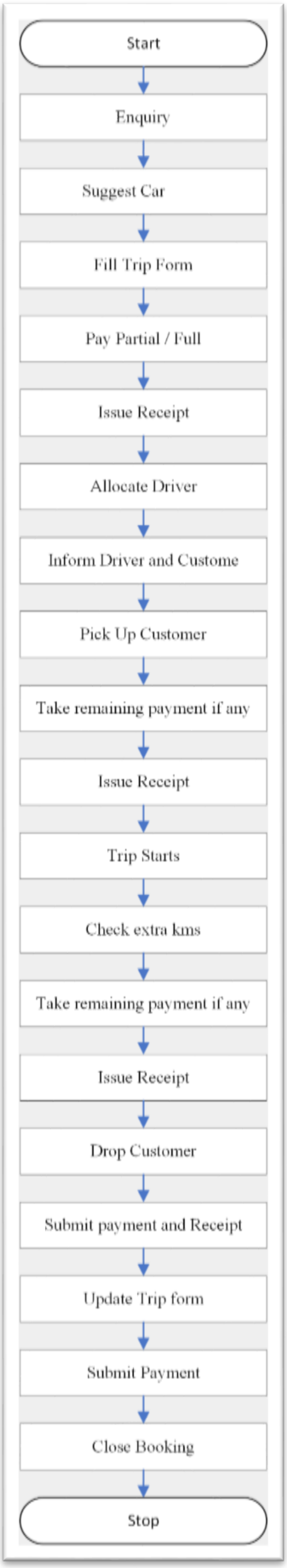
Login	Receptionist would be able to login to the system with valid credentials
Booking	For walk-in customers or for online customers facing some troubles, Receptionist can do the booking with valid credentials.
GPS Tracking	Receptionist would be able to track real-time location through the entire journey in order to keep track in case of emergencies and send services if needed.
Notification	Receptionist would be notified the progress. From Pick-up to Drop-off.
Update Trip Details	Receptionist would be able to update the trip as it proceeds and finally close the booking when customer is dropped off at the final destination.

Accounts

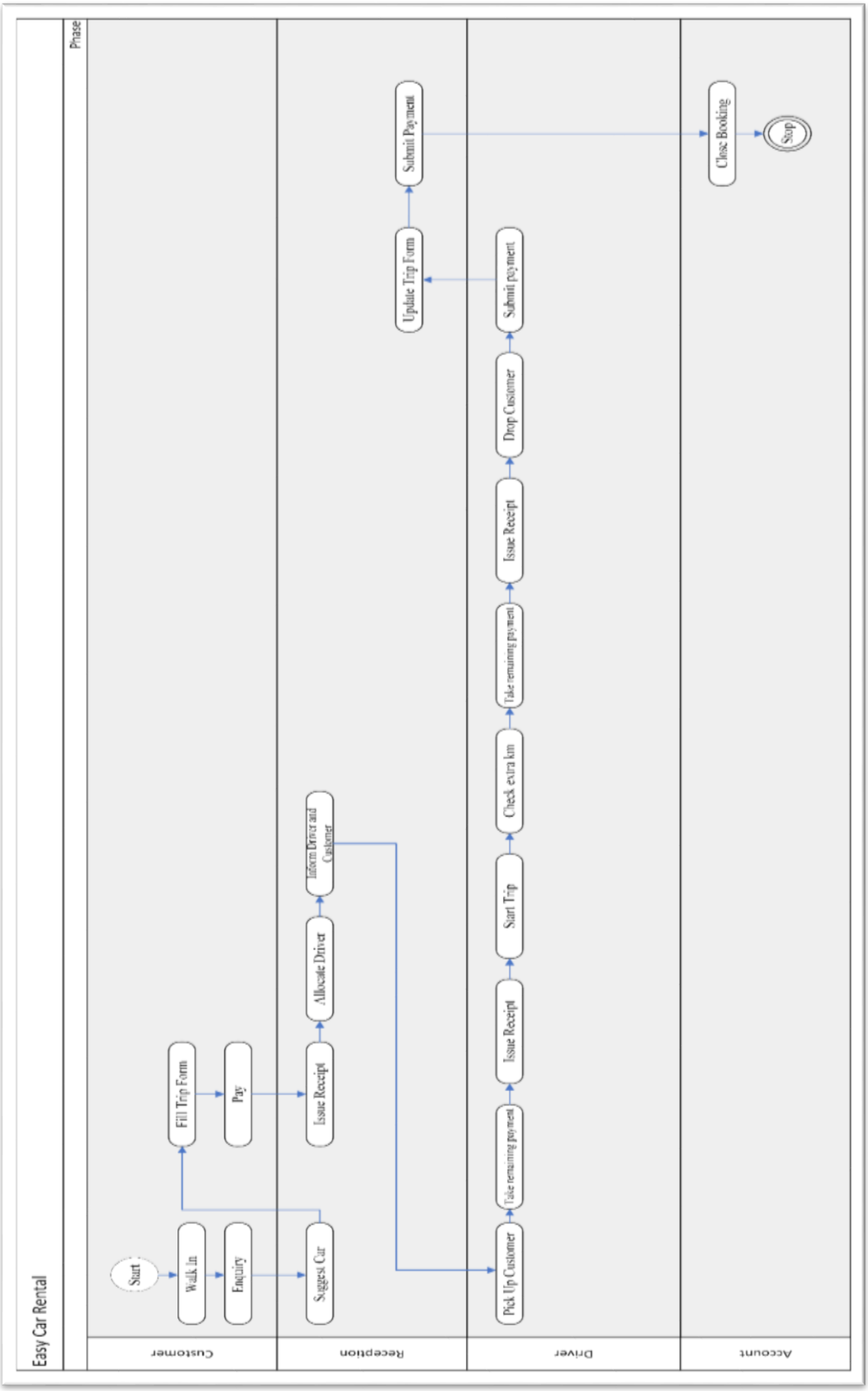
Login	Accountant would be able to login to the system with valid credentials.
Extra KMs/ Miscellaneous Charges	Gas expenses and extra charges in case of added KMs/ Fine/ Tax/ Penalty/ Waiting charges would be notified to and accessed by the accountant.
Refund	In the cases of Emergency Return/ cancellation or cancellation as per company guidelines, accountant would be notified.
Receipt Record	Whenever a payment is made and receipt is issued or whenever the driver or walk-in customer makes the payment in exchange of receipt, accountant would be able to upload this entire payment record in customer’s portfolio.

4. AS-IS High Level Business Process

4.1 UML diagram on High Level (Flow Chart)



4.1 UML diagram on High Level (Activity Diagram)



4.2 Description

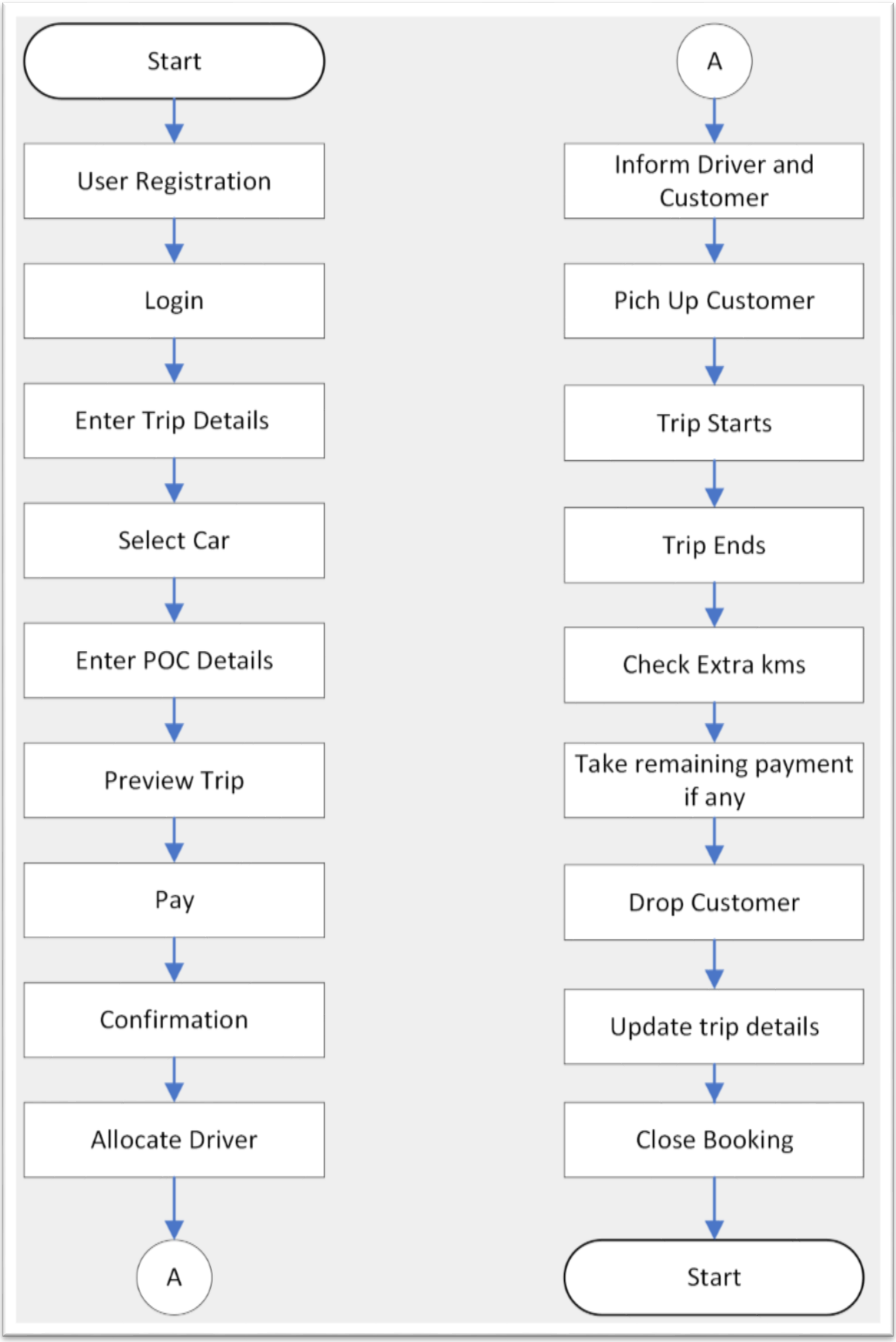
Customer reaches out to store to enquire about their services. Customer then books the car as per the number of days, source and destination provided by the client.
Advance Payment of 50% amount of total charges is paid by the client, mode of payment is via Debit card, Credit Card, UPI payment, transfer or cash or Internet banking. Customer picks the car as per the number of passengers (4-seater/ 6-seater/ 8-seater).

Cars are allotted along with drivers only. After booking, confirmation acknowledgement receipt is released. Prior to the trip, car and driver is allocated and details are sent to the customers. If the cancellation is done by the customer, 70% amount of the total charges that was taken as Advance Payment will be deducted. If a customer informs 5 days prior about the cancellation only 50% amount of the Advance Payment will be deducted, rest will be returned. Rest 50% of the charges along with Petrol/ Diesel and added kilometers (if any) would be paid by the customer at the end of the journey.

If, under some unavoidable circumstances, the booking is cancelled by the Company, full refund is given to the customer. Driver will contact POC a day prior to the trip for further confirmation. At the end of the trip, the Driver will leave the Customer at the requested address and the take the rest of the fees from the customer and hand over the final receipt. The copy of the receipt and payment is then submitted by the driver to the receptionist who then updates the trip form and closes the booking.

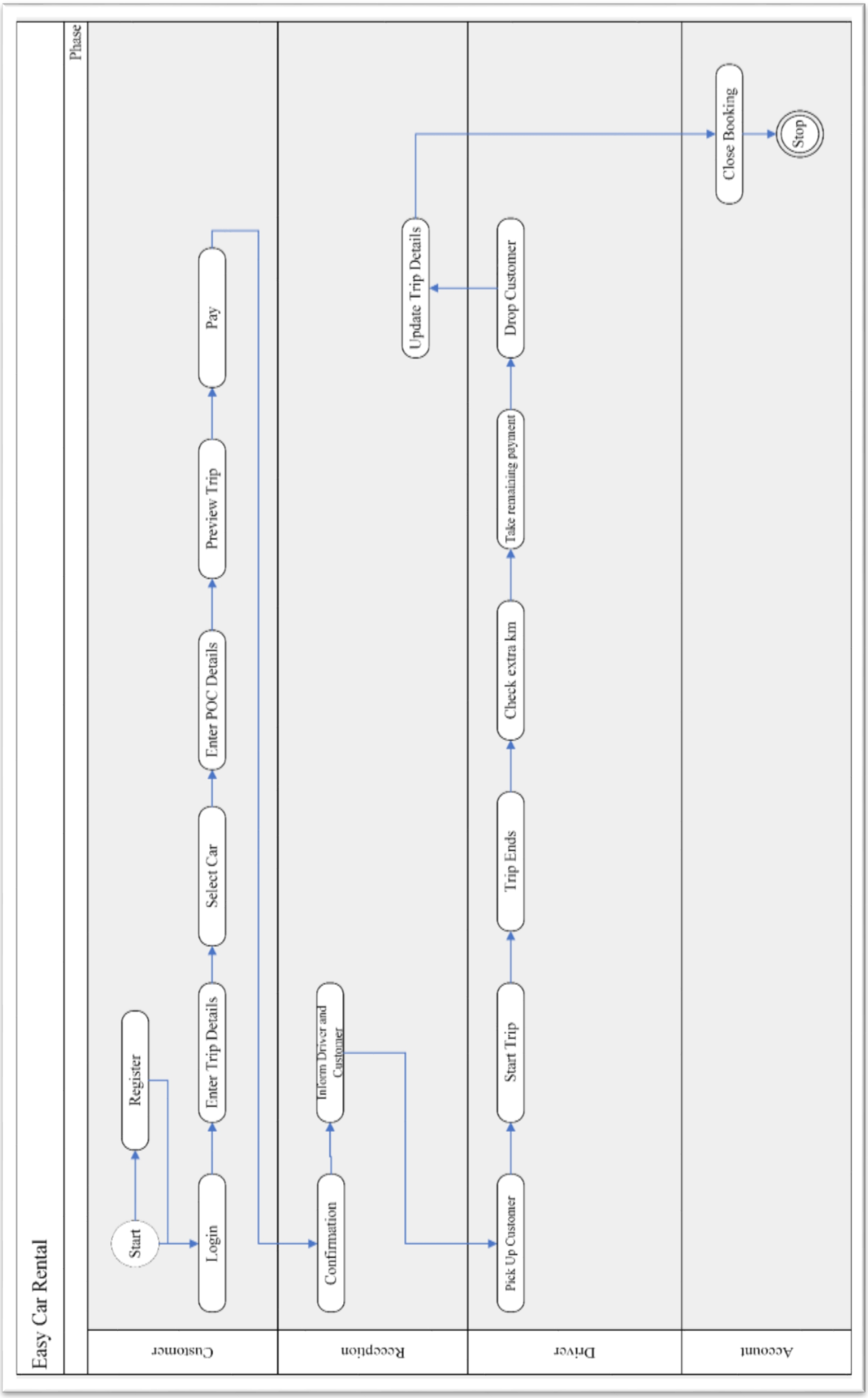
5. TO-BE High Level Business Process

5.1 UML Diagram on High Level (Flow Chart)



5.1

UML Diagram on High Level (Activity Diagram)



5.2 Description

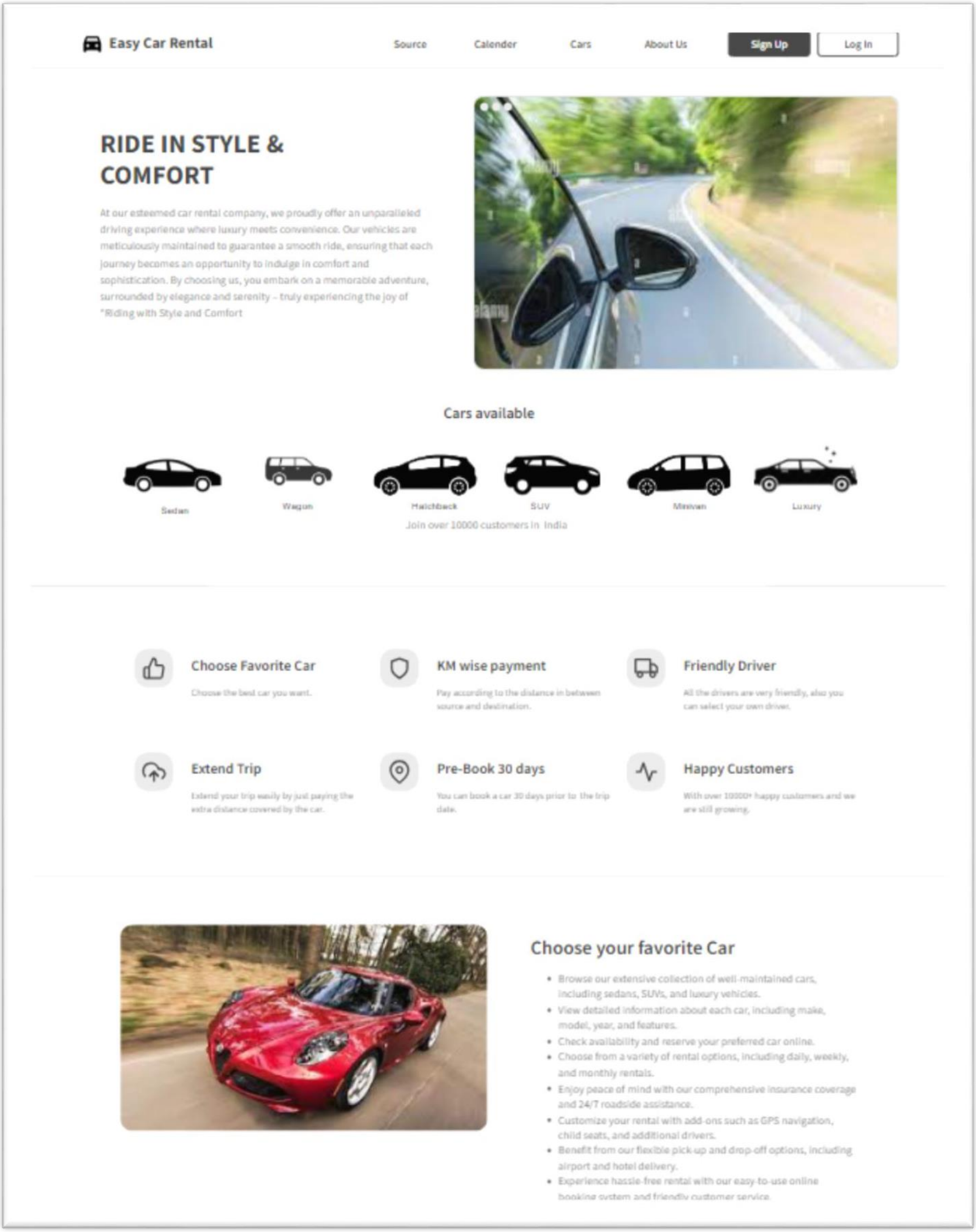
Registration is the primary step to be done by customer by filling the required information. Customer needs to create their personalized Username and password and login using that. Trip information form including Trip date, Source, Destination, and No. of people for the trip, the desired car is filled. Further, customer have to fill the details of Point of Contact for the trip including pickup point and time, contact information, pickup and drop off address.

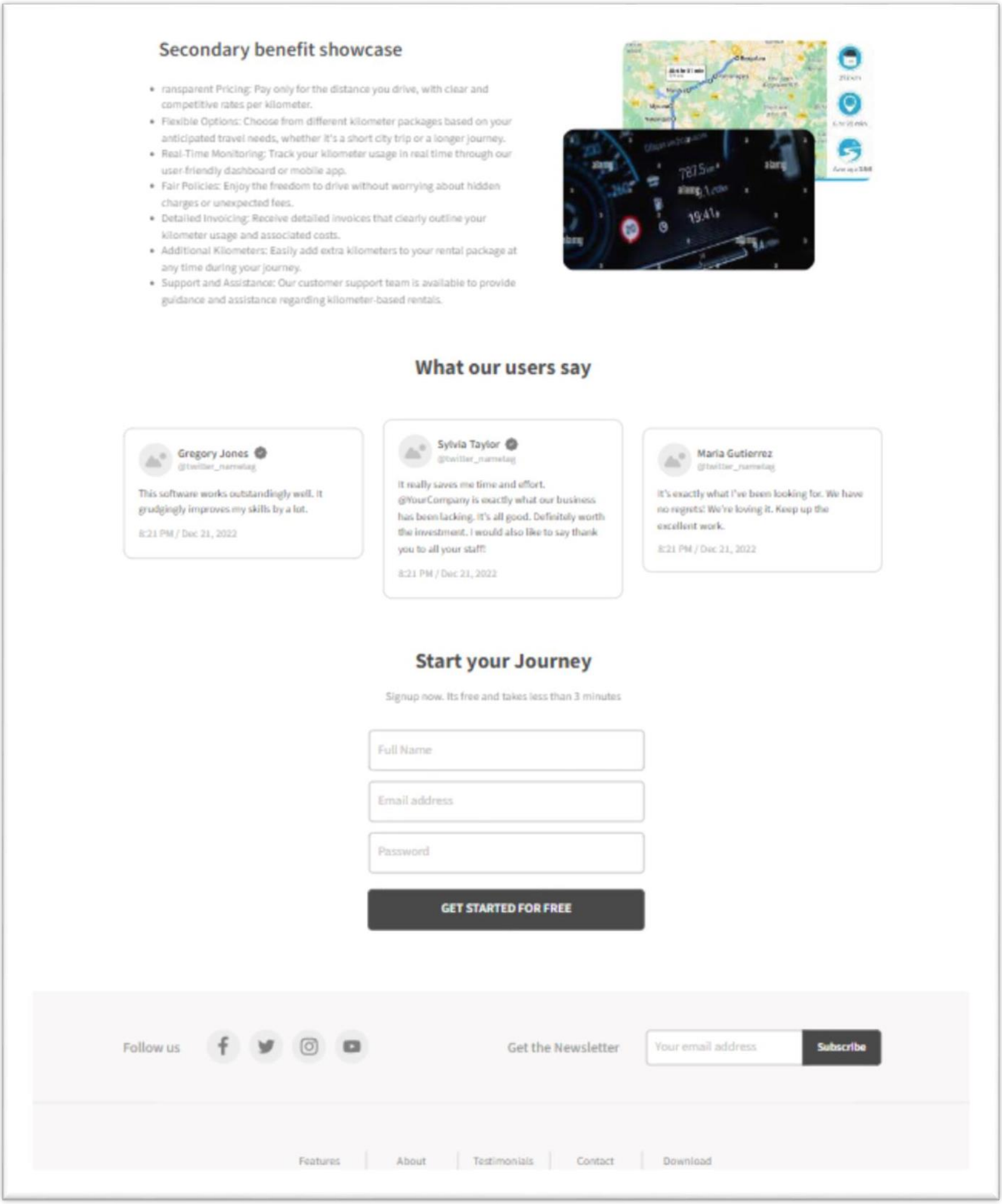
Post confirmation of POC details, Customer gets redirected to payment page where they have to make a choice of Payment mode. Debit Card, Credit Card, Net Banking, and UPI Money Transfers are available for payment process. After successful payment an online receipt will be generated and confirmation message would be flashed. Driver is allocated 5 days prior to the trip date whose information would be available online along with their ID.

Real time tracking of customers would be available throughout in their journey. At the end Driver will feed extra Kms and other miscellaneous expenses into the app. Application/ Website would calculate and show the sum total. Customer would pay the remaining amount, if any. Online receipt would be generated and trip details would be filled in the form once destination is reached, closing the booking of the customer.

6. Functional Requirement

6.1 User Interface – Screen 1 – Web Page

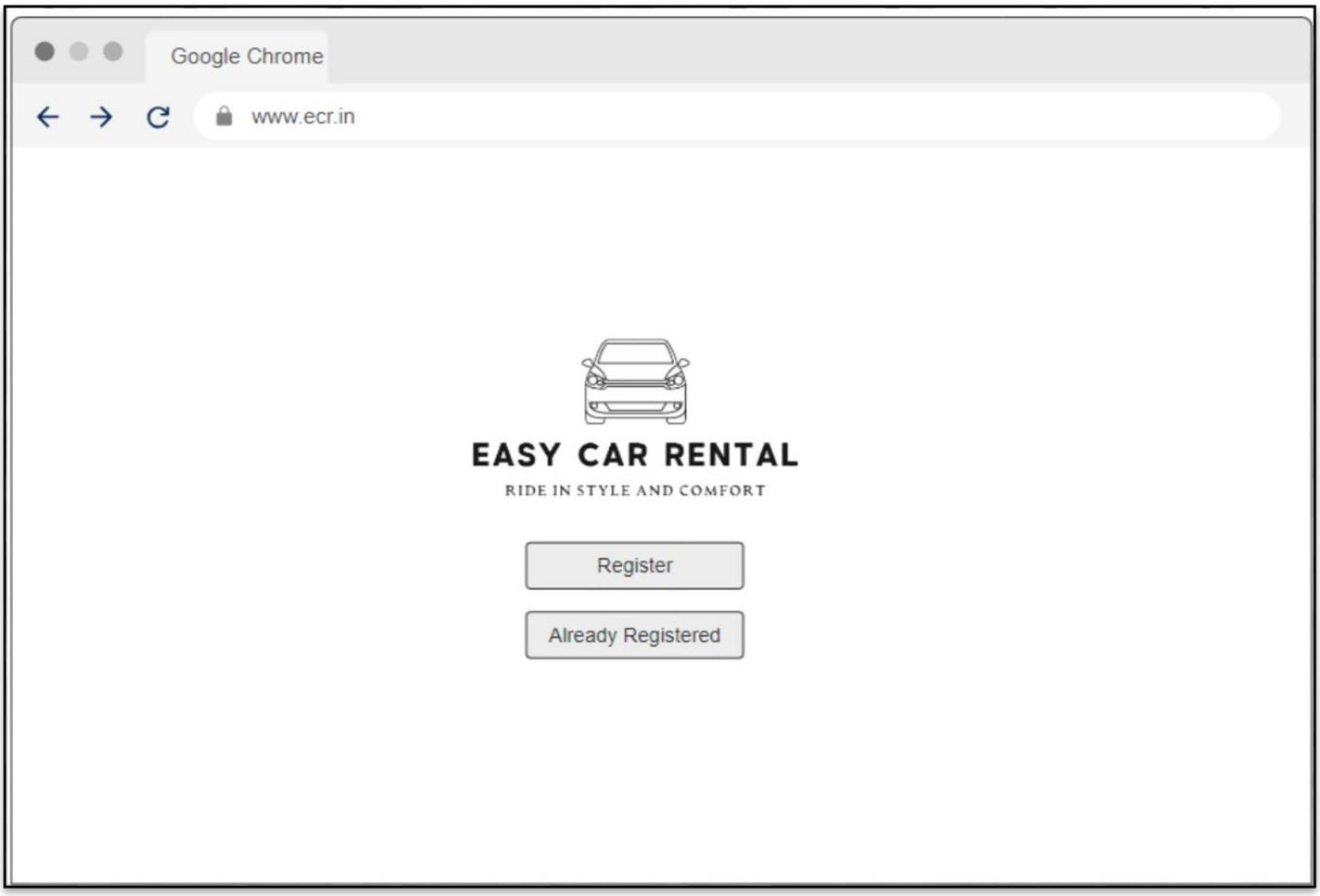




When the user / customer visit for the first time on ECR's website they can find the web page as shown above.

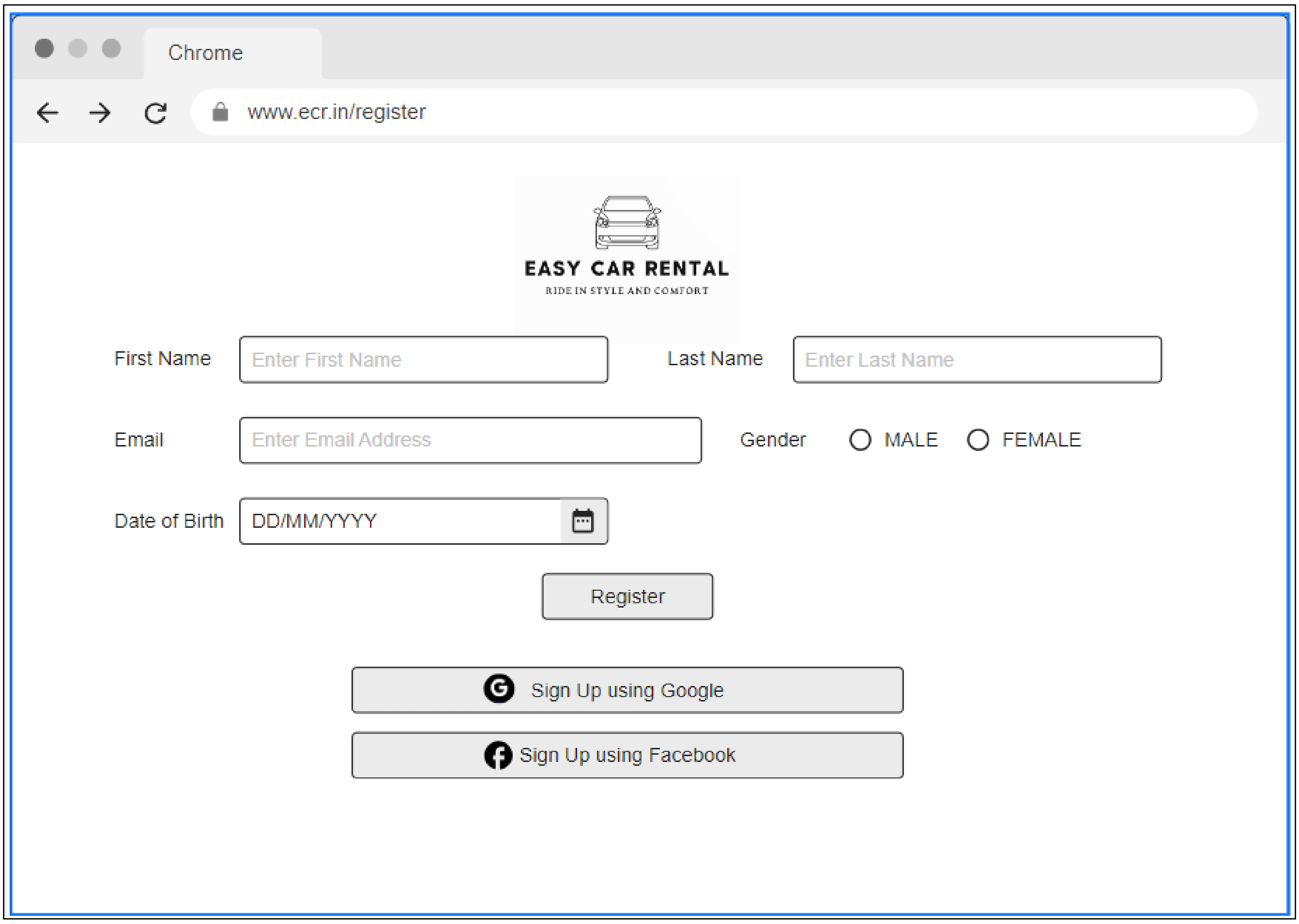
Here Customer can click on register to register himself or he/ she can click on login. Also user can view facilities that ECR is providing .

6.2 User Interface – Screen 2 – User Registration / Login Page



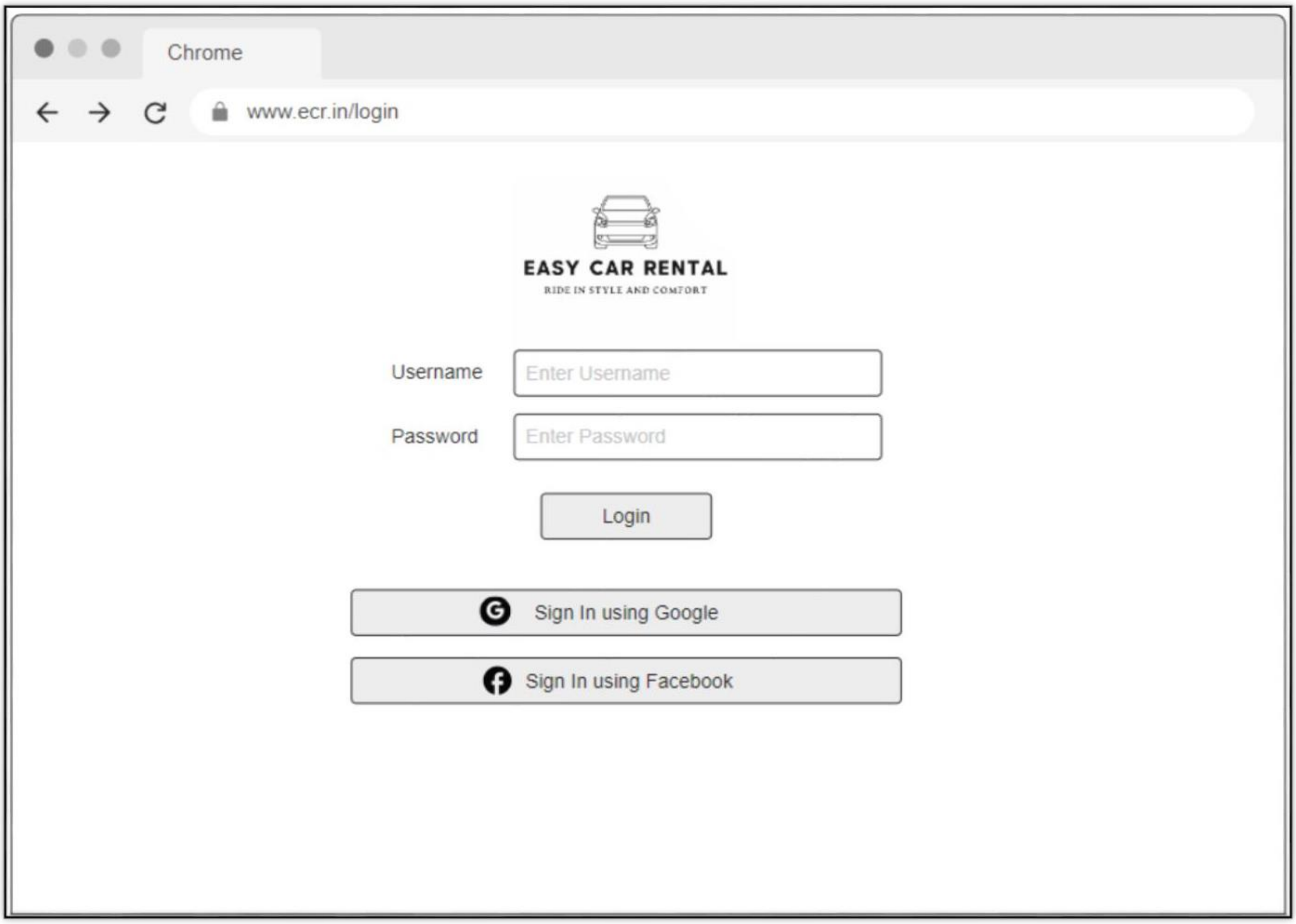
Here user can select either user wants to login or register.

6.3 User Interface – screen 3 – Registration Page



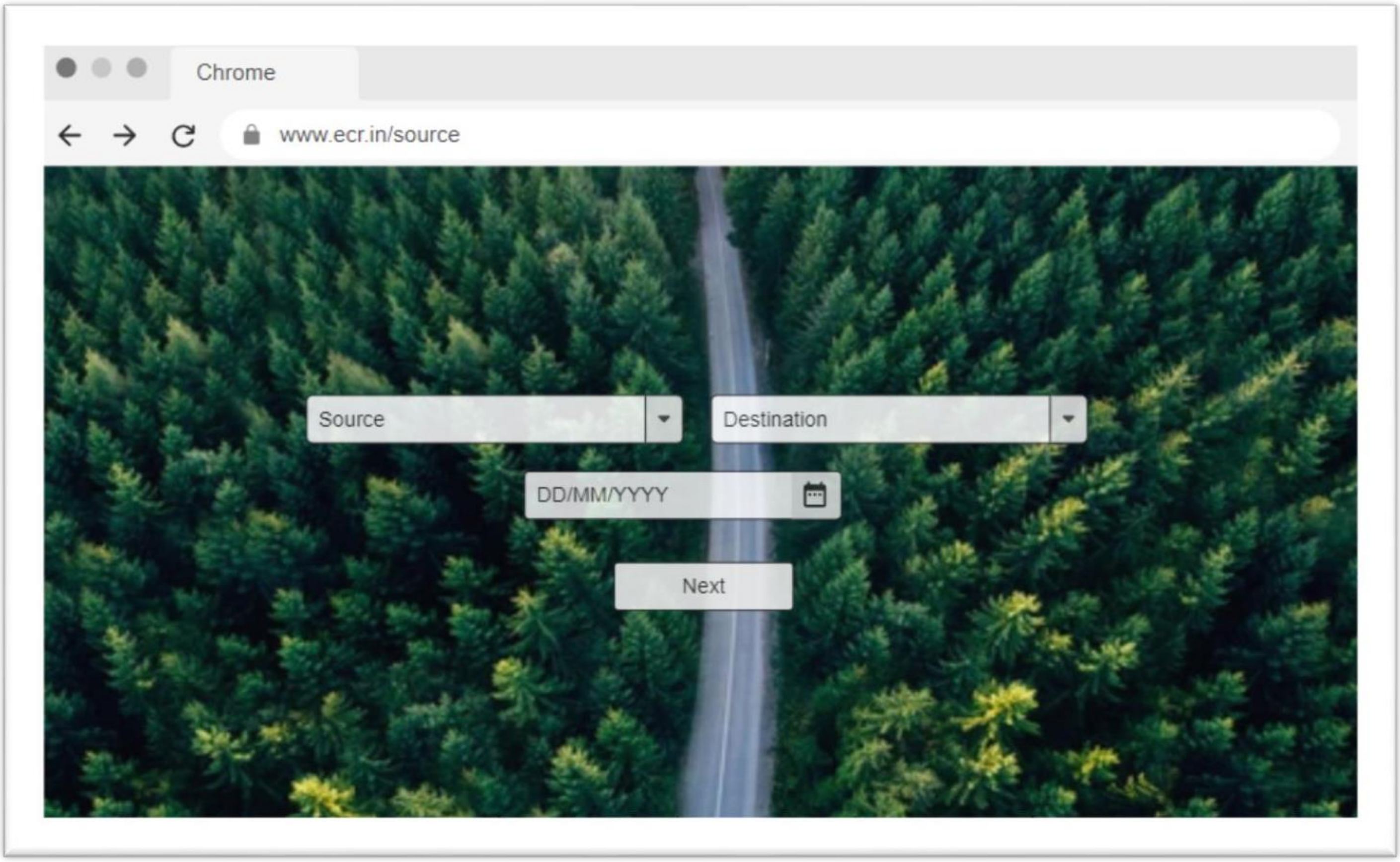
On this page new user will input their personal information and register themselves to our portal.

6.4 User Interface – Screen 4 – Login Page



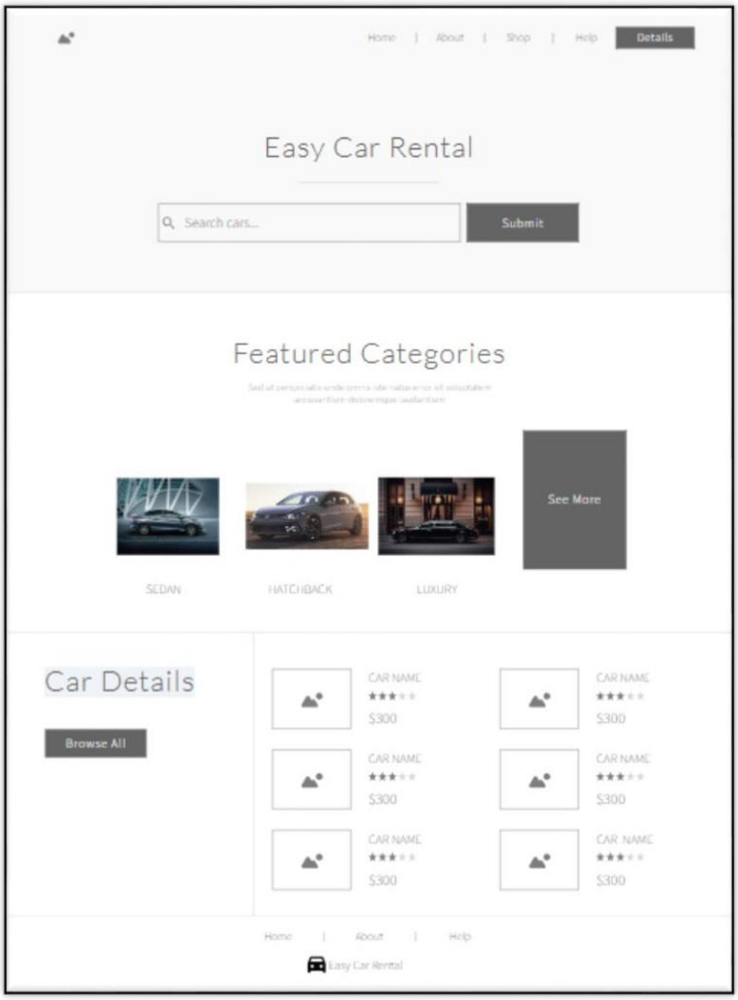
After registration user can login to their personal account by putting their personalized username password. Also, user can login using google as well as Facebook.

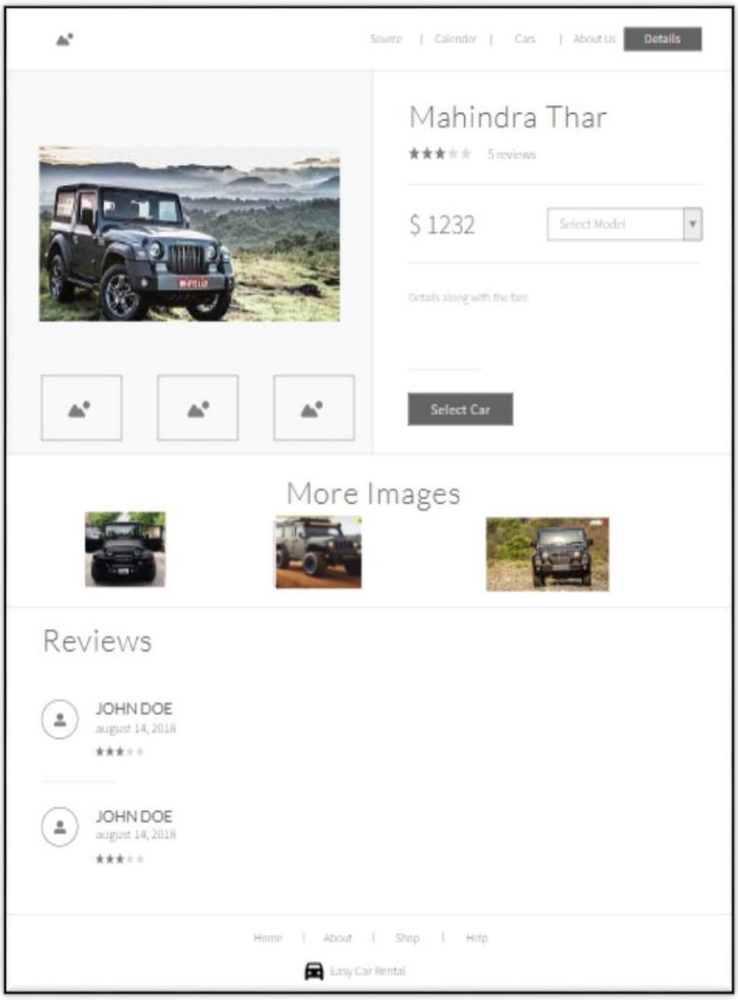
6.5 User Interface – Screen 5 – Choosing Source and Destination



Customer has to pick the source and the destination along with Departure and Arrival time. Based on this information, the app calculates the total kms of the journey and gives out a rough estimate of total cost of journey, excluding the extra kms / miscellaneous expenses.

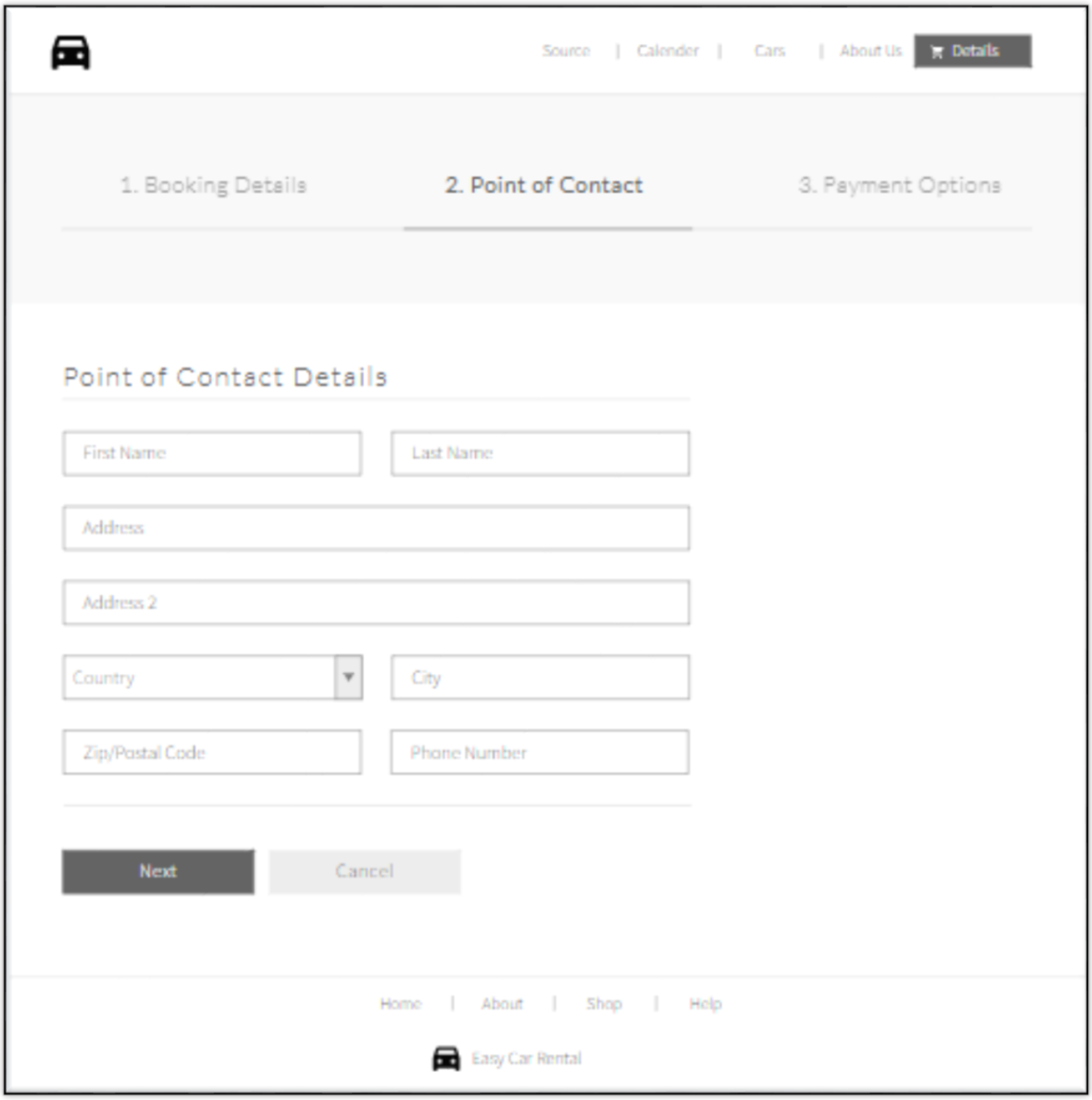
6.6 User Interface – Screen 6 – Select Car





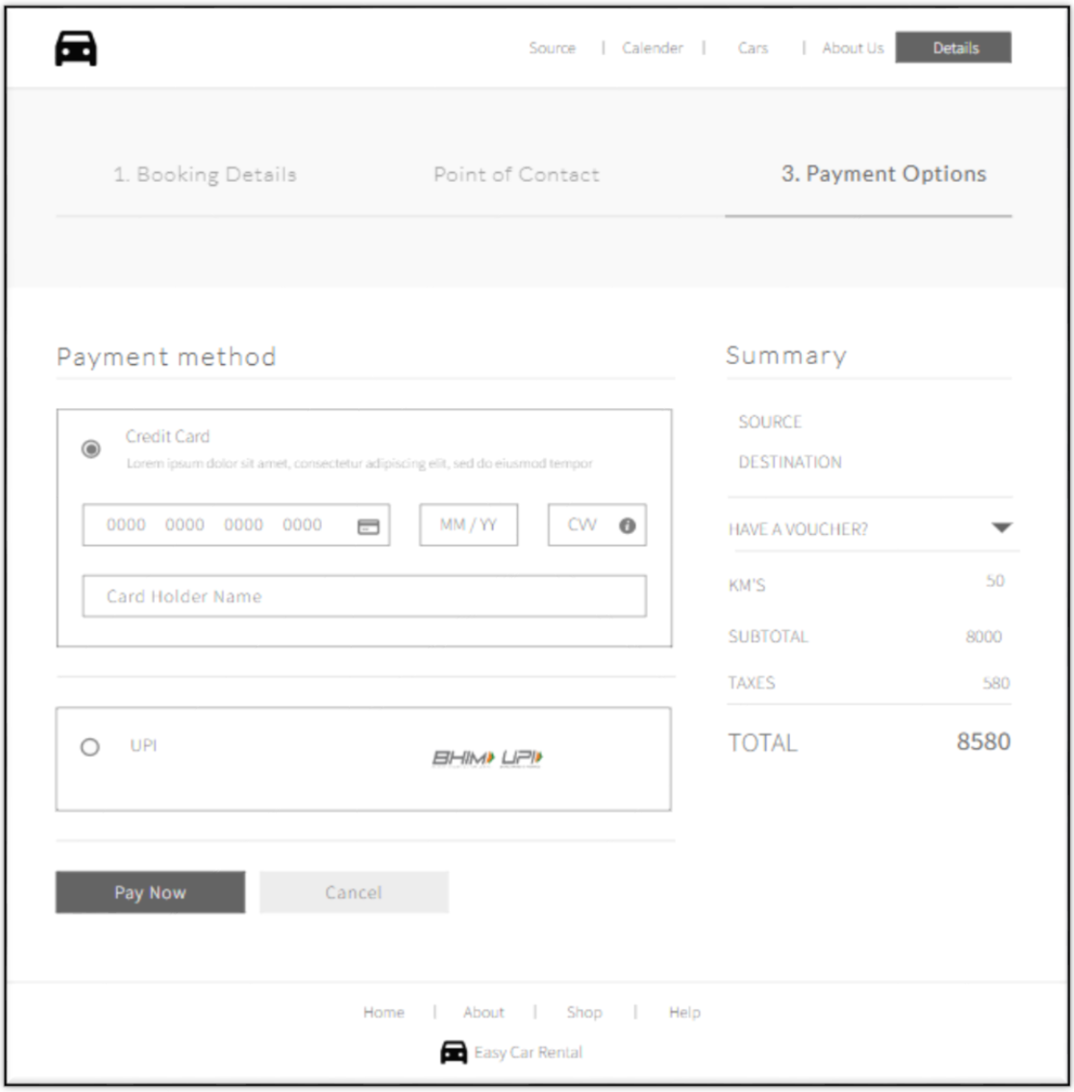
As per the number of Passengers, Customer can choose the vehicle. Further there is a drop down to select the vehicles as per the Car Category, Fuel type and Car Brand. Once a car is selected, Customer is directed to the next screen where POC details are filled. User can also select their favorite car from the list.

6.7 User Interface – Screen 7 – Enter POC Details



After filling out the trip information details, Point of Contact details are taken in order to provide Pick-up information to the driver. This includes, Name of first Point of Contact, Contact Number, Pickup Address, and Drop off Address, Pickup Date and Pickup Time.

6.8 User Interface - Screen 8 – Payment



Several modes of Payments are present here, UPI, Credit/ Debit card, Net-banking. Customer can pay as per their mode of convenience. Once Payment is successfully done, E-receipt is generated.

7. Non- Functional Requirement

7.1 UI / UX Requirements

Aiming better reach and higher quality services, Easy Car Rental is made super user friendly. With its accessible website and undemanding booking procedure, Customers can travel effortlessly.

7.2 Static Data

About ECR: Easy Car Rental is a New-age car rental service which was formed seven years ago in Mumbai, with an intention to make rental and travel easy for people. After serving people over last decade, Easy Car Rental has now become online. In the hope to provide better services and reach more people, ECR has also expanded to nearby States. With us, travelling is no longer a luxury which is reserved for only a few, our easy on pocket packages are customers' happy choice.

Safety:

Smart travelling is our go to move. Electronic Id's of both Car and Driver are made available to passengers. With tracking system to access real- time location, to SOS services, ECR is here to make your travel experience safe and enjoyable**.**

7.3 Hardware Configuration

- OS: Windows 10 7.3
- 700 MHz processor
- 512 MB RAM
- 5 GB Hard drive space

7.4 Software Requirement

- Java Query, CSS, HTML, Jira
- AWS (Cloud computing)

7.5 Hosting Requirement

Website URL: www.easycar.in

7.6 Security Requirements

Server and system should follow Authentication, Authorization, Data Protection & Non repudiation protocols.

7.7 Database

SQL

7.8 Performance Requirement

Time to switch between Screens/Pages should be as minimum as possible. Number of Users using the website at the same time without any hindrance should be as maximum as possible. Loading time of Page / Bank processing should be quick and effortless at the time of payment.

7.9 Third Party Integration

Payment Gateway: Razor pay

8. Assumption & Constraints

8.1 Assumption on Existing Business

- Only 18+ can register.
- One person can book a single car.
- Cars are allotted only with drivers.
- Tolls are included in the package.

8.2 Constraint regarding application

- Global currency will be INR.
- File upload size will be up to 1MB.
- Users will be limited.

Software Requirement Specification

Project Name - Easy Car Rental

Software Requirement Specifications

Project Name : Easy Car Rental

Document History

Version	Prepared By	Prepared Date	Review By	Review Date	Change log
V1.0	Omkar	4th Feb 20	Omkar	4th Feb 20	NA
V1.1	Omkar	20th Feb 20	Omkar	21th Feb 20	3.1 , 4.1

Index

1. Problem Statement

1.1 Display Available Vehicle: Users should be able to view available vehicles and filter results by type, price, and location. Filters should be intuitive and easy to use, allowing users to quickly locate the ideal vehicle for their needs.

1.2 Immediate Confirmation of Email: Upon completing a successful booking, users should immediately receive confirmation emails containing all relevant information about their reservation. Confirmation emails should be sent instantly and contain clear instructions for picking up the reserved vehicle.

1.3 Modify Reservations: Users should be able to modify their reservations, including changing pick-up or drop-off locations, adding optional extras, or extending the rental duration. Changes should be made easily and intuitively, with minimal impact on the original reservation.

2. Project Scope

The primary objective of this project is to develop a web-based car rental platform that enables users to browse and book vehicles for their transportation needs. The platform will cater to individual consumers seeking affordable and convenient car rental services, as well as corporate clients requiring fleet management solutions.

1. Web-based car rental platform featuring an intuitive user interface and seamless integration with third-party platforms.

2. Ability to view available vehicles and filter results by type, price, and location.

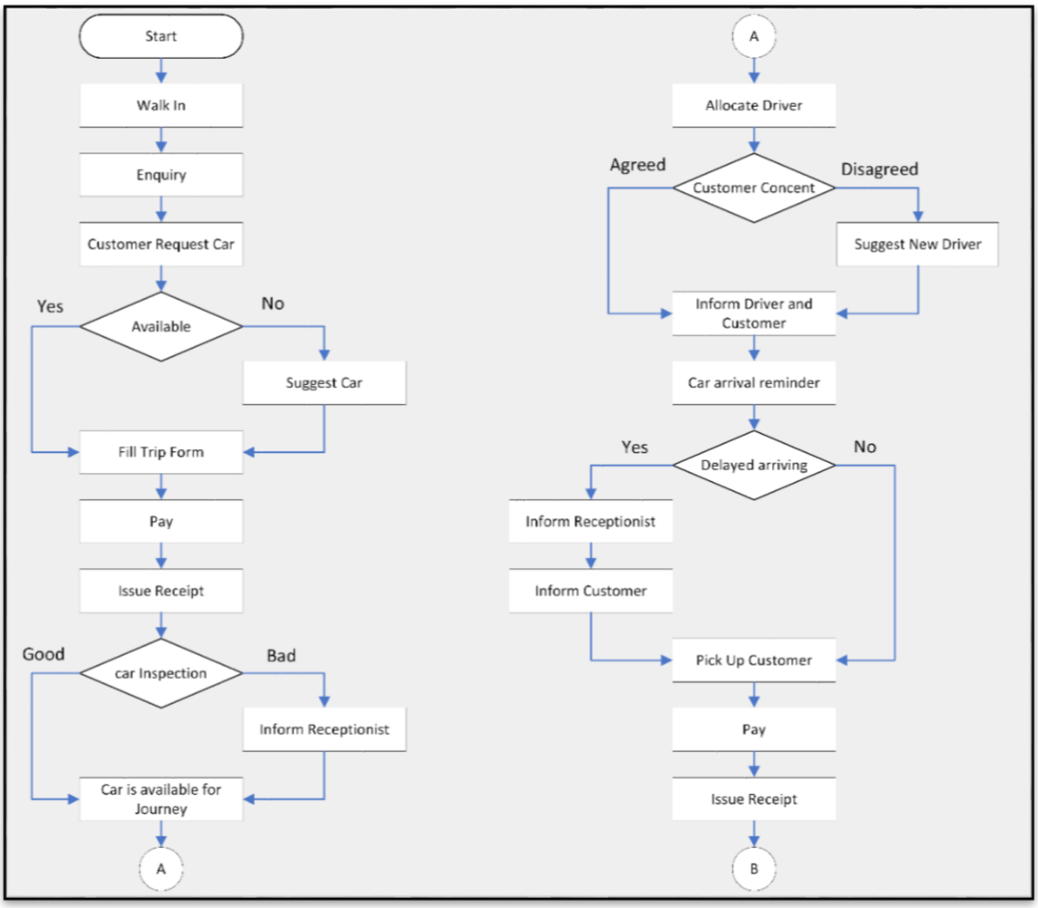
3. Streamlined booking process that requires minimal user input and generates immediate confirmation emails.

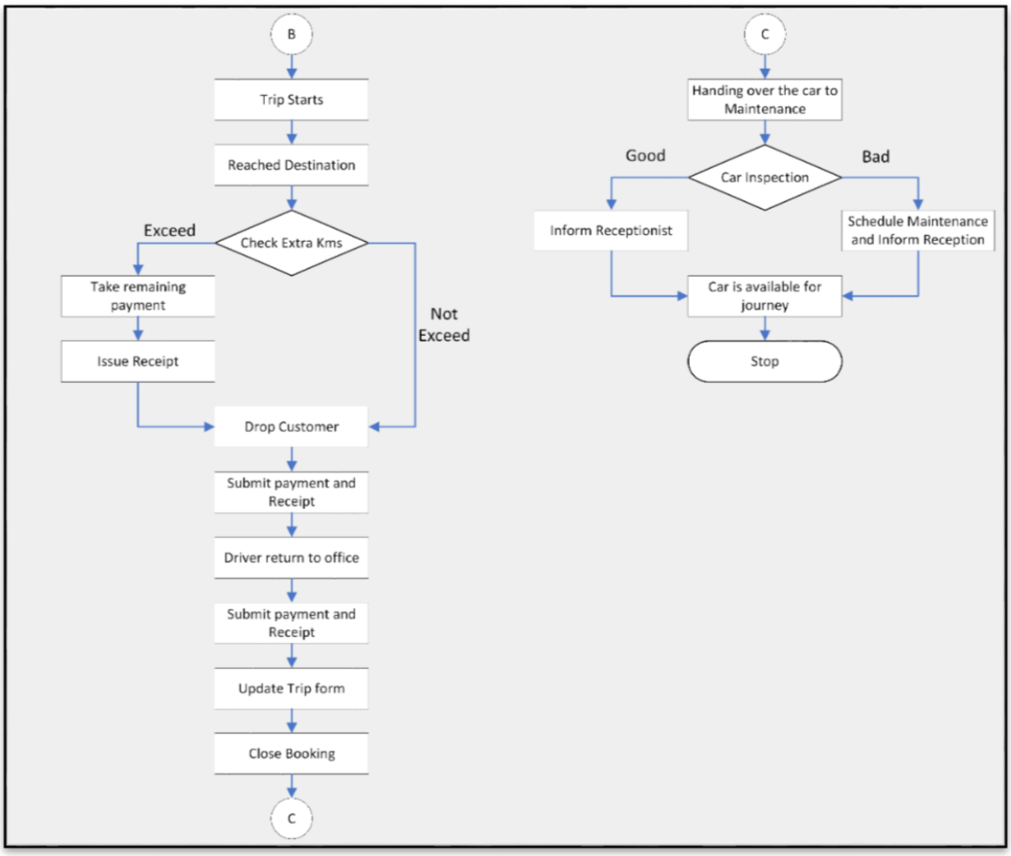
4. Capacity to modify reservations, including changing pick-up or drop-off locations, adding optional extras, or extending the rental duration.

5. Secure payment processing functionality utilizing multiple payment methods, such as credit card payments, Apple Pay, Google Wallet, and PayPal.

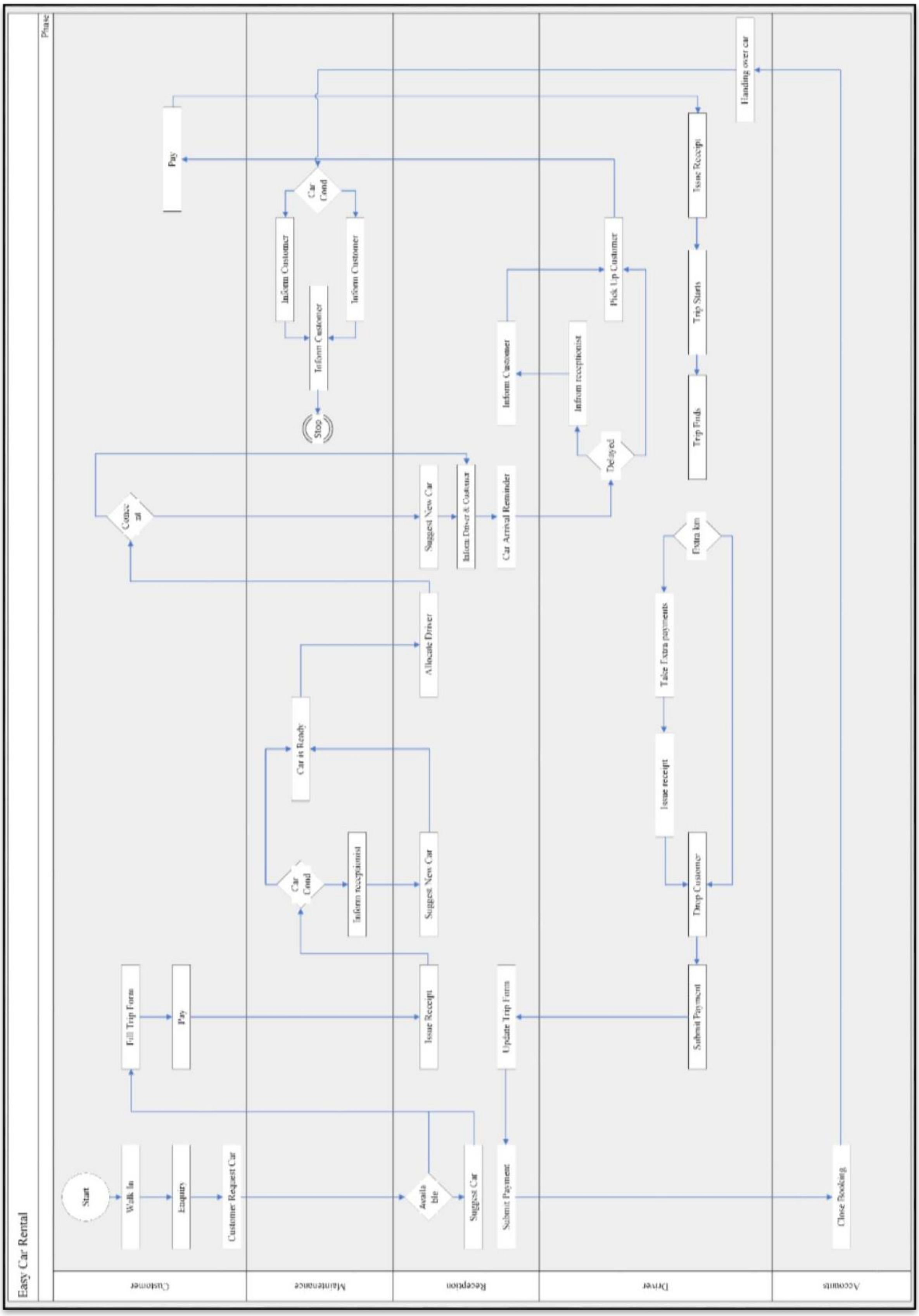
3. AS-IS Business Process

3.1 UML Diagram on Low Level (Flow Chart)





3.1 UML Diagram on Low Level (Activity Diagram)



3.2 Description

Customer will walk in, and will enquire to book a ride. Customer will then request for the best suited car according to his/her requirement if the car is not available receptionist will suggest different best suited car to customer or else customer will directly fill the trip form. Then customer will pay as per his/her convenience (full/Partial) and receptionist will issue receipt to the customer. Then after in the backend maintenance officer will inspect the car. If the car is in good condition, then the car will be allocated or else by informing receptionist and customer new car will be allocated.

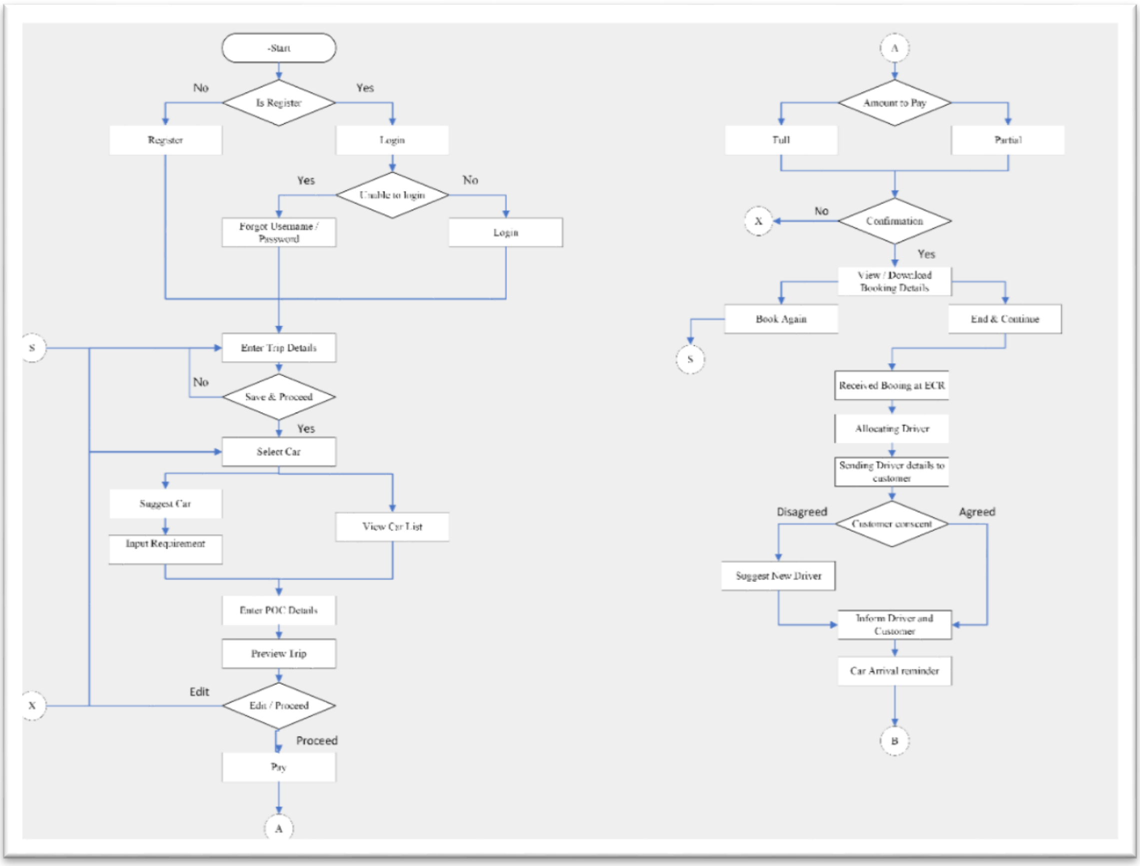
Before the trip receptionist will allocate a driver for the trip if customer has any problem with the driver, then he can ask to change the driver. At the day of trip, receptionist will inform driver and customer about the trip. Receptionist will send message to customer about the car arrival. If the car is delaying by any chance, then driver will inform receptionist immediately and receptionist will take required measures.

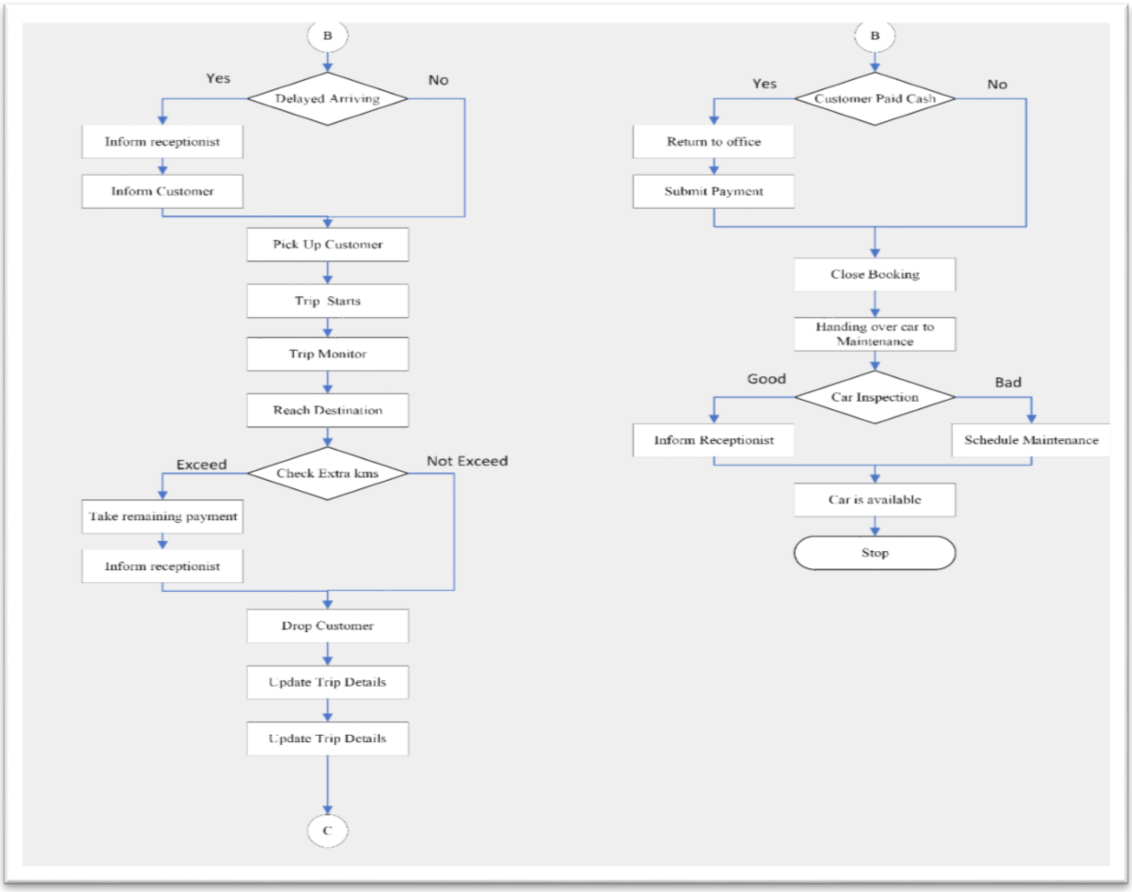
Later Driver will pick up the customer, here customer must pay the remaining amount if any, driver will right away issue a receipt to customer. From then trip will starts, Driver will drive the car and take customer to his destination, then he is supposed to check whether the car travel any extra kms, if yes customer has to pay for the extra kms.

Driver will then return to ECR's office, he will submit the payment and receipt. Accountant will then close booking. Driver will then ride the car to maintenance office where car inspection will be taken place. If car needs any maintenance, maintenance officer will inform receptionist and then will schedule maintenance, else the car will be idle for 72 hours and then car will be again ready for its next ride.

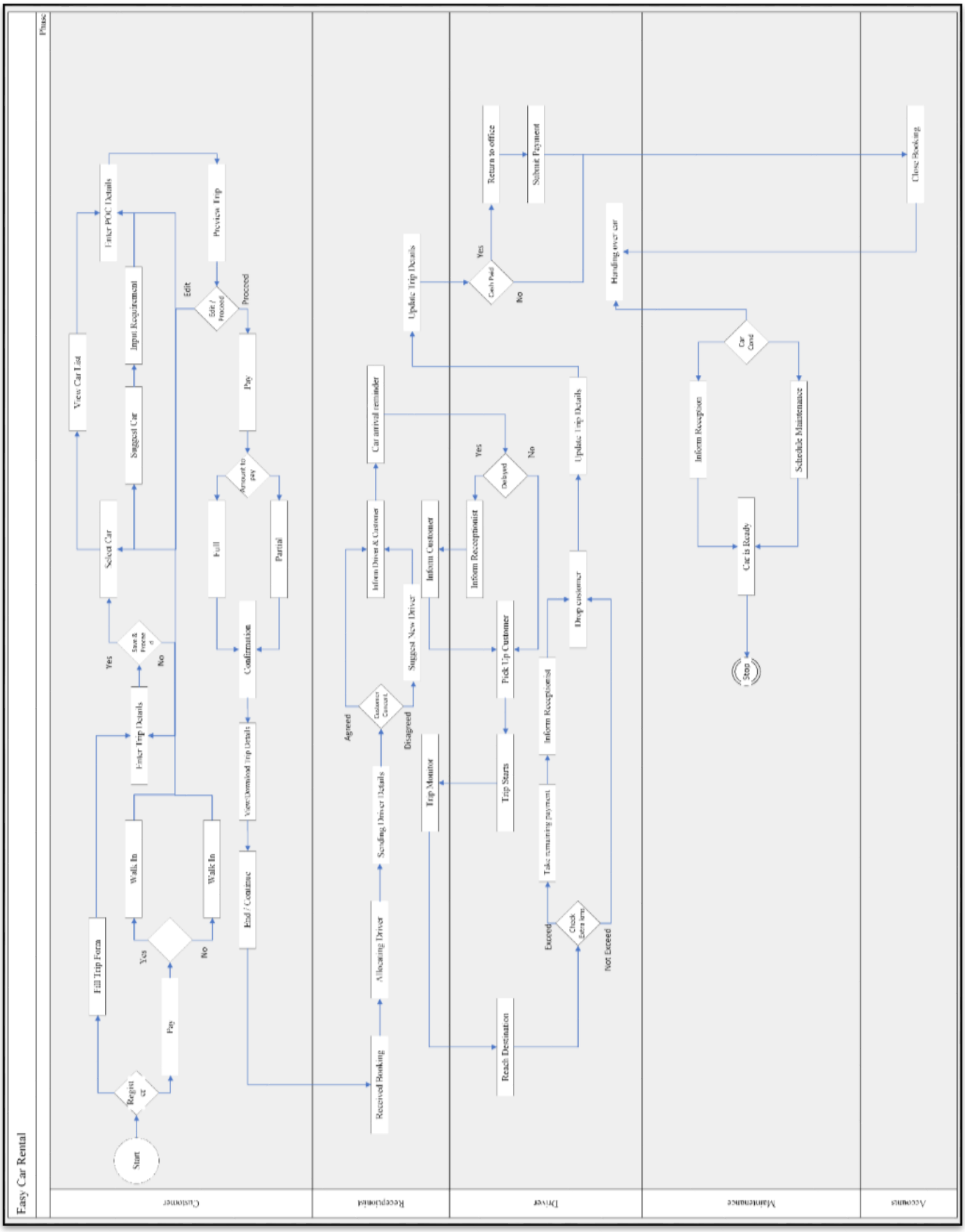
4. TO-BE Business Process

4.1 UML Diagram on Low Level (Flow Chart)





4.1 UML Diagram (Activity Diagram)



4.2 Description

New Customer will register himself to our portal and then customer will login then further he will enter all the trip details. After proceeding he can select the best suitable car, he can view list of cars of he can select a feature where he can get a suggestion as per his requirement. Then onwards he will enter Point of contact details.

After this he can preview his selection and can choose whether he wants to edit the selection or proceed. Then payment window will open, and then he can pay the amount. Booking then will be confirmed.

The booking will then receive at ECR reception, receptionist will then allocate the driver for the trip if customer has any problem with the driver, then he can ask to change the driver. At the day of trip, receptionist will inform driver and customer about the trip. Receptionist will send message to customer about the car arrival. If the car is delaying by any chance, then driver will inform receptionist immediately and receptionist will take required measures.

Later Driver will pick up the customer, here customer must pay the remaining amount if any, driver will right away issue a receipt to customer. From then trip will starts, Driver will drive the car and take customer to his destination, then he is supposed to check whether the car travel any extra kms, if yes customer has to pay for the extra kms.

Driver will then return to ECR's office, he will submit the payment and receipt. Accountant will then close booking. Driver will then ride the car to maintenance office where car inspection will be taken place. If car needs any maintenance, maintenance officer will inform receptionist and then will schedule maintenance, else the car will be idle for 72 hours and then car will be again ready for its next ride.

5. Functional Specification

5.1 Use Case 1 Specification

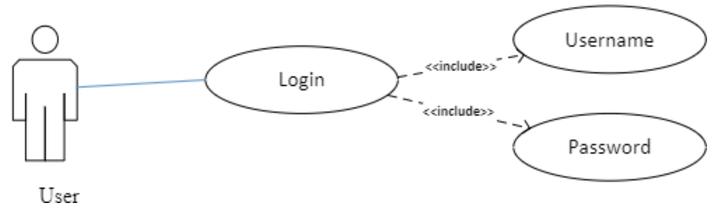
Use Case ID	Ucid001	Prepared By	Gunesh
		Prepared Date	22th Feb 2024
Use Case Name: New User can Register			
Use Case Diagram:			

Actors: New User	
Pre-Condition	
1. User must be 18+	
Successful Post Condition	Unsuccessful Post Condition
1. Show Pop-up window with message “User Registration Successful” 2. Click on “Ok” button and navigate to login page.	1. Stay on Registration Page 2. Show validation message below field name in colour “Red” fort “Arial” size 10. 3. Please refer validation message in field validation table.
Basic Flow	Alternate Flow
1. Click on “Register” link on Top right corner of Home page. 2. Fill mandatory fields. 3. Click on “Submit” button.	1. Click on “Register” link on footer and pre-payment page. 2. Fill Mandatory field. 3.Click on “Submit” button.

Field Validation Table

Sr. No	Field Name	Control Type	Data Type	Length	Default Value	Other Value	Functional Requirement	Business Rule	Validation Rule	Validation Message
1	First Name	Text Box	Character	150	Please enter name	NA	Please Enter Name	NA	Mandatory	“Please Fill required field”
2	Last Name	Text Box	Character	150	Please enter name	NA	Please Enter Name	NA	No Space before / After/in between	“Please enter first name without space”
3	Email Address	Text Box	Character	150	Please enter email	NA	Please enter email	NA	Character only	“Please Enter character only”
4	Gender	Radio Button	NA	NA	Male	Female	NA	NA	Select at least one	“Please Select at least one value”
5	Date of Birth	Calendar	NA	NA	NA	NA	NA	Date must be 18+	18+	“You should be 18+”

5.2 Use case 2 Specification

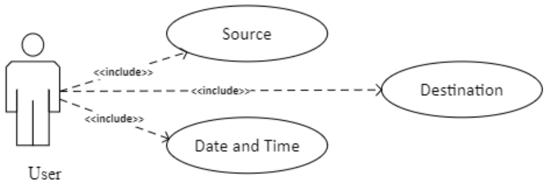
<table>
<tr><td>Use Case ID</td><td>Ucid002</td><td>Prepared By</td><td>Gunesh</td></tr>
<tr><td></td><td></td><td>Prepared Date</td><td>22th Feb 2024</td></tr>
<tr><td colspan="4">Use Case Name: Registered User can Login</td></tr>
<tr><td colspan="4">Use Case Diagram:

</td></tr>
<tr><td colspan="4">Actors: Registered User</td></tr>
<tr><td colspan="4">Pre-Condition</td></tr>
<tr><td colspan="4">1. User must be registered</td></tr>
<tr><td colspan="2">Successful Post Condition</td><td colspan="2">Unsuccessful Post Condition</td></tr>
<tr><td colspan="2">1. Show Pop-up window with message “Login Successful”
2. Click on “Ok” button and navigate to home page.</td><td colspan="2">1. Stay on Login Page
2. Show validation message below field name in colour “Red” fort “Arial” size 10.
3. Please refer validation message in field validation table.</td></tr>
<tr><td colspan="2">Basic Flow</td><td colspan="2">Alternate Flow</td></tr>
<tr><td colspan="2">1. Click on “Login” link on Top right corner of Home page.
2. Fill mandatory fields.
3. Click on “Submit” button.</td><td colspan="2">1. Click on “Login” link on footer and pre-payment page.
2. Fill Mandatory field.
3.Click on “Submit” button.</td></tr>
</table>

Field Validation Table

Sr. No	Field Name	Control Type	Data Type	Length	Default Value	Other Value	Functional Requirement	Business Rule	Validation Rule	Validation Message
1	Username	Text Box	Character	150	Please enter username	NA	Please Enter username	NA	Mandatory	“Please Enter username”
2	Password	Text Box	Character	20	Enter your Passwor d	NA	Enter your Password	NA	“Correct Input”	“Invalid Password, Please check your input.”

5.3 Use Case 3 Specification

Use Case ID	Ucid003	Prepared By	Gunesh
		Prepared Date	22th Feb 2024
Use Case Name: User can Select Source Destination Date and Time of Trip			
Use Case Diagram:			



Actors: Registered User	
Pre-Condition	
1. User must be 18+	
Successful Post Condition	Unsuccessful Post Condition
1. Click on “Ok” button and navigate to “Select Car” page.	1. Stay on same Page 2. Show validation message below field name in colour “Red” fort “Arial” size 10. 3. Please refer validation message in field validation table.
Basic Flow	Alternate Flow
1. Click on “Schedule Trip” link on Top right corner of Home page. 2. Fill mandatory fields. 3. Click on “Submit” button.	NA

Field Validation Table

Sr. No	Field Name	Control Type	Data Type	Length	Default Value	Other Value	Functional Requirement	Business Rule	Validation Rule	Validation Message
1	Select Source	Drop down	NA	NA	Please select source city	Select City	Please select source city	NA	Mandatory	“Please Select Source / Destinati-on”
2	Select Destination	Drop down	NA	NA	Please select destination city	Select City	Please select destination city	NA	“Select in specific time”	“Please select a travel date within next 30 days.”
3	Select Date and Time	Date and Time	NA	NA	Please select Date and Time	dd/mm/yyyy	Please select date and time	NA		

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(Weekday, 20th Nov 2023)