

Auto parts Service System

BY

Name: MD.Shahriar Shahadat

ID:201-16-529

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of
Science in Computing and Information System

Supervised By

Mr.MD.Nasimul Kader

Assistant professor of

Department of CIS

Daffodil International University



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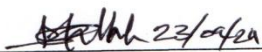
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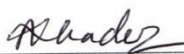
APPROVAL

This project titled “ **Auto Parts Service System**”, Submitted by **Md. Shahriar Shahadat**, ID No: **201-16-529**, to the Department of Computing & Information System, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information System and approved as to its style and contents. The presentation has been held on 23-09-2024.

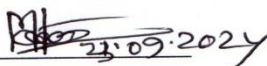
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Faculty of Science & Information Technology
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Assistant Professor
Department of Computing & Information System
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner


Md. Mehedi Hassan
Lecturer
Department of Computing & Information System
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner


Dr. Saifuddin Md. Tareeq
Professor
Department of Computer Science and Engineering
University of Dhaka, Dhaka

External Examiner

DECLARATION

I, Md. Shahriar Shahadat , hereby declare that my work titled "**Auto Parts Service System**" has been conducted under the supervision of, **Md. Nasimul Kader, Assistant Professor** Department of Computing & Information System (CIS) of Daffodil International University. This thesis work or any part of this work has not been submitted anywhere for the award of any educational degree like B.Sc., M.Sc., Diploma, or other qualifications.

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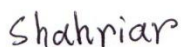


Md. Nasimul Kader

Assistant Professor

Department of Computing & Information System
Daffodil International University, Bangladesh

SUBMITTED BY



Md. Shahriar Shahadat

ID: 201-16-529

Department of Computing & Information System
Daffodil International University, Bangladesh

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DEDICATION

I would express full gratitude to my parents, who helped me complete my BSC program. I should give special thanks to Allah for his support and protection. But, My special teacher Sohel sir and Sorwar Hossain Mollah sir and special friends of my department dedicate me to complete the project.

ABSTRACT

I develop a web named “Autoparts Services System” is an online application designed for car drivers and car mechanics who solve all the problems for cars. This website is a dynamic website. The aims of this platform is users can order any kinds of parts for car, can replace any parts for cars if needed. From this platform users can booking services for cars. This platform provides common services, these are car wash and polish, car repair and Services, car painting and decoration and paperwork etc.

My project is full stack web. In these projects I keep a user, staff, services database for storing the information. I make a strong database in my website so that I keep staff and services information in detail. From auto parts website car drivers buy any parts at any time when they need. If any driver face car paper problem, I also keep car paperwork option so that driver can easily find their solution. I also keep experienced staffs information in details who can solve car related all problems.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

It is an online web application designed to meet different types of car related parts, services and can also meet experienced staff who have huge knowledge about car problems. The crucial role for this system for ensuring car repair and maintenance etc. This system encloses different types of parts, services and payment methods etc. In this system admin panel are required who check and maintain all over the system. Admin panel can add and remove any parts and services from the database at any time. User login the system, then user show different types of car related parts, different types of services which is necessary for car. If any parts or service are needed for vehicles, user can order any parts or booking any services in advanced. In my project I also use time bound so that when user booking any products or services they can get all these in time. Besides every auto parts shop some car related parts are not available. But I try my best to keep all types of auto parts so that users do not face any hassle when their need to solutions. Almost all auto parts shop emergency car problem solution are not keep. But from my website users can take emergency car services.

Chapter-2: Initial Study

2.1 Project Proposal

Objective

Develop a web based application for car users for get important services at any time and if any parts are spoils in car users can replace autoparts at any time and improved response in any time. The aims of this system to provide mass solutions through introduced technology and services, huge efficient facilitating auto parts environment

Features:

- # Provide almost all kinds of car related parts in the auto parts services system so that users can order any parts at any time. I also add an inventory management system for stocking a huge number of auto parts.
- # provide all kinds of car services in the autoparts service system so that users can book any services at any time to solve user problems.

#For enhanced security, I also use SSL command in autoparts services to secure auto parts payment transactions.Improve payment gateway to allow transactions, guaranteeing to users a secure financial environment.

#I also provide a staff profile so that users can meet experienced staff.User can also see and read staff information that are provided in the auto parts service system.

#Admin panel can check all information who order parts, bookings services and when meeting with staff.Only admin can remove and add any staff,parts,services if need.Admin also see the user record,purchase record and which staff are leaving or which staff are add .

#Modify payment options in auto parts beyond SSL,organizing famous methods like Bkash,Nogod,Rocket,Upaie,Wallet, providing users flexibility in choosing their payment mode.

#It is to remain ahead of possible danger, make sure that auto parts have strong security of data, and save the privacy of users, parts,staff through evaluation and upgrades.

Benefits of the website:

#Emergency solutions for car's issues.

#Users easily find and purchase car related parts without having to visit physical stores.

users no need extra expense to buy car related parts

#Auto parts service system are accessible anytime, as long as there is an internet connection.The meaning of accessibility is users can shop any parts for car at their convenience

#Users can do secure and safe financial transactions.

#Users can book any car related services in any time.This benefits can not get in physical stores because users' time is wasted.

Conclusion:Auto parts is one kind of website that has the possibility to clearly transform the auto parts shop.The main aims of this project are emergency solutions,meetings with expert staff to solve the problem, user-centric approach,secure payment and features that reflect users.

2.2 Background of the auto parts services system

A powerful framework made to develop continuous contact between users or car driver, car solutions specialist, order processing, car related service booking etc are the main foundation of the auto parts services system project.Day by day the demand of web applications is increasing.so, by using of web application users can meet the different types of needs that's are very simple.The principle component of this system are

admin,users,car related parts or auto parts, Services booking and staff.A mass car solution is given by the main functional characteristics within these mass framework. These comprise the power to add users and staff, as well as meeting with expertise staff to solve car problems.For every system the admin module is the most powerful module.The responsibility of the admin module are handling serious function included adding new staff, new autoparts,updated car related services, check order processing, transaction.In this system, users can access only auto parts, car related services and can see experience staff profile etc.The proposal imagine an auto parts environment that is connected via the unique technology.

2.2 Problem Area

a)Accuracy and integrity of data:This is too hard to keep auto parts data.It means that users reports, staff data,order processing data, service booking data etc.

b)Adoption and Engagement of user: This is barrier to utilizing this web application's features.If we want to increase user adoption it must be improved to running awareness campaigns,to force the advantage of the web or apps platform and motivate user or consumer's education

c)Security and privacy:Security and privacy are important for every system.Without security and privacy in system sensitive data can be hacked.So powerful security are are pardon are wanted when handling serious auto parts data, such as order processing,user's personal information,admin panel information.If I want to protect all data of this system I can use encryption, authentication and use privacy laws

d)UI and UX: making a simple to use interface that is beautiful to the user is difficult to their satisfaction.During the development phase of the auto parts service system there are some usability issues found and that must be fixed after collecting feedback and testing.

e)Regulatory Compliance: This is difficult to follow the local system rules and regulation.This will be necessary to continue lawful requirements and create auto parts with appropriate rules apropos to save legal complexity and ensure project success.

2.3 Possible solution

a)Accuracy and integrity of data:Not only auto parts systems but also every system must establish verification and also establish methodical procedure for updating all data. For grace with faithful auto parts sources to confirm accurate on staff information, booking services and order processing.Every system must include user feedback so that users can report any wrong information.

b)Adoption and Engagement of users:Not only auto parts systems but also every system focused on marketing techniques to enhance the auto parts community's knowledge of auto parts and its benefits.In my system I can offer minimum discounts on auto parts equipment or give attractive gifts for involvement in the system.If it want to increase awareness of auto parts

services system must work together provincial auto parts associations.

c)Security and privacy: To save serious auto parts data inside autoparts service system,use encryption technique.By using authentication,it must be enforced Strict context permissions managed correctly.Increase security protocols and provide audits to search probability weakness.

d)UI and UX : Before developing any system,it is necessary to search for any issues of usability.Test the system with users or consumers and collect input for the auto parts project for the process of development.Make a design model to confirm a simple and UX for users.Provide proper guidelines to help users to navigate and use auto parts effective.

e))RegulatoryCompliance:It must ensure that auto parts allow all applicable auto parts service system rules to keep with them.It should be work at one place with legal advice to confirm continuous serving and at fast update autoparts platform to accept any change to law.By doing these fix, auto parts will be remove any barrier and give users a necessary tool for the user requirement.

Chapter-3: LITERATURE REVIEW

3.1 Discussion on problem domain based on published articles

In the present day, this auto parts web application often condenses on one topic, ability users to finding across varied platforms in finding all surrounding answers.The chaotic nature of this web apps outcomes in a rambling UX.By comparing diverse auto parts perspective into a individuals, good-arranged platforms.Auto parts solve the problem and offers customers extensive user friendly solution.

3.2 Discussion on problem solutions based on published articles

#Customer-Centric Design:Make auto parts from the scene of the customer,keeping the UX's original user-freely interface and plane navigation.

#Features of Classify:For normal access, group auto parts features into separated areas like Staff update,Car related Service,increases auto parts products and stock management.

#Auto parts related resource accessibility:Take help from staff ,admins gives customers to visualize the auto parts products list,give discounts on products and car related services.

Auto parts hopes to develop customers' experiences in online auto parts shop overall by streaming its features and force the value of resource allocation by using these points.

3.3 Comparison of three/four leading solutions

AutoParts Services

[Home](#)[AutoParts](#)[Services](#)[Stafs](#)

Shahriar S

Unleash Your Car's Potential with Premium Auto Parts

Explore a world of possibilities for your vehicle with our premium selection of auto parts. From performance-enhancing upgrades to reliable replacements, our products are engineered to meet the highest standards of quality and durability, empowering you to unleash your car's true potential on the road.



Car Wash

Car Wash & Polish

We have professional service partners with verified resources. Our resources are experienced because we try to provide punctual service. We are making

12 months warranty

Complete box

SKU-1693126022914

₹ 450



Service

Car Repair & Services

We have professional automobile care service partners with Skilled mechanics. We are making a one-stop car care service solution because your flexibil

12 months warranty

Complete box

SKU-1693126157570

₹ 7000



Painting

Car Painting & Decoration

We have professional car painting and decoration service partners with verified skilled resources. We are making a one-stop auto service solution beca

12 months warranty

Complete box

SKU-1693126431024

₹ 9999



Battery

VRLA AGM

Stock:20

4 days ago

It is a type of rechargeable battery. In this battery the electrolyte is absorbed in a glass mat separator, which is placed between the battery plates.

12 months warranty

Complete box

SKU-1693117899624

₳ 1200



Battery

GREENLIFE GL30 ...

Stock:34

4 days ago

This battery model is used for cars. This battery model is a perfect replacement from a group of U1 AGM and lead acid batteries. In this battery model h

12 months warranty

Complete box

SKU-1693117948275

₳ 1450



Battery

50Ah Amaron Car...

Stock:21

4 days ago

The 50Ah Amaron Car series with form amount 550-114-042 is a maintenance-free automotive sequence deliberate to present unfailing initial might for ve

12 months warranty

Complete box

SKU-1693117993172

₳ 1800

Best Features:

- #Inventory Management System
- #Order processing
- #Online service booking system
- #Online payment method
- #staffs profile
- #User or consumer support
- #Recommendation of personalized
- #Interface of user-friendly
- #auto parts list
- #car related service list

Limitation

- # The data of auto parts display graphically
- #Message option are not keep
- #Staff information are not shown in details
- #Users supports

3.4 Recommended approach

User or Consumer panel

- #Login and Logout
- #payment and booking service system
- #show auto parts and service in serial
- #Order auto parts when need
- #booking service in advanced
- #visibility of inventory

Admin panel

- #Login and Logout
- #Verification of users and staff
- #check inventory of auto parts
- #Also verification of car related services
- #Measurement of security
- #can add or remove auto parts,staff and services if need
- #can check and analysis users and staff's dashboard

Staff Panel

- #Login and Logout
- #meet with user
- #solve car related problem
- #Share working experience with users and admin panel

Chapter-4: METHODOLOGY

4.1 What to use

In this chapter I will describe the way used to earn the goal of a project in the Auto parts program. We know SDLC life cycle model, an extensive framework for design, development etc are the approved methodology. I know different kinds of SDLC model. These are Waterfall model, Iterative model, Agile model, Big Bang model, Spiral model, Dynamic System Development Model etc are the part of the software development process. Every model gives an arrange and amenable to direct the formation, execution, of the auto parts platform. For the purpose give an effective process of development that are the aims of the auto parts project, the special requirement of SDLC model will customize of auto parts domain.

4.2 Why to use

For every software project agile methodology is essential. I know some agile methodology names, these are Kanban, Scrum, Crystal, Dynamic System Development Method, Feature Driven Development etc. But in my project I used the DSDM method. There are many reasons to use the DSDM method. Dynamic System Development Method develop iterative development, giving for flexibility to switching requirement. This method is benefit where quickly delivery is required. Dynamic System Development Method force delivery working project of software frequently. This agility method help to minimize time to market, accepting business to utilizing useful sooner and report to market switches more effectively. This agility method organizes risk management techniques into its actions and help team member to search probability risks quickly in the project lifecycle. After getting risks actively, the project failure is reduced. For these reasons, I used DSDM agile method in my project.

4.3 Section of methodology

Pre-Project Phase:

Feasibility Study: Not only software but also every project needs feasibility study. Because feasibility study helps to gain the best understanding of market analysis, technical feasibility, financial feasibility, Operational feasibility etc. Besides, feasibility study helps to get new and updated opportunities.

Collecting Conditions: Without collecting conditions it is impossible to develop system. When develop new system, the team of developer must think users need and expectation. Though I develop auto parts service project. I should collect information about car related all auto parts and car related service. Acknowledge restriction and fix the full auto parts service platform touch.

Planning Phase : Make an entire project plan for auto parts that covers delivery, essential resources, goals and objectives etc. Make a strong communication and risk management and list out stakeholders for auto parts project.

Project Lifecycle Phase:

Design: Usage information gained about auto parts needs, make a auto parts design. High level design tasks are needed to develop auto parts platform. The main design platforms are UI design, UX design and database design etc.

Development: Realize guidelines of design for the auto parts project code. Complete manual testing, automation testing and unit testing to make a working product of software for auto parts and servicing.

#Testing:After the complete development process,this is important to testing done.Because developers make some errors that can badly impact a software project.The common software testing are automation testing,unit testing testing etc.

#Deployment:According to large testing , deploy auto parts to the creation environment.External the auto parts platform's install,setup in the determined setting.

Post-Project Phase:

#Maintenance:Auto parts go into the phase of maintenance ensuing deployment, correction of project bugs,runningsupport.Create assured it endless to work and can order to switching necessity in auto parts

#Evaluation:Explore the auto parts project's efficiency by contradicting its original result with its noticeable goals.Describe what necessity to be raised upon and lessons that are compiled and earned to guide future auto parts efforts.

#The release:Finished the figure closing step of auto parts project.Finish auto parts project documentation, review and store this project for use and perception.

4.4 Implementation plan

At the final point in the auto parts project development, a complete auto parts platform is created attainable for all the users.The usability of this project gives top level priority, besides any mistakes searched are fixed early to give a compact experience.The technique for implementation comprise the like of environment,methodsetc to meet special necessity of the auto parts shop.The force issues are coming when the testing of the recent project is still fast to set any problem searched,making an environment that permits the auto parts platform to be raised over for the fine of its auto parts users.

CHAPTER 5: PLANNING

5.1 Project Plan

Before developing every project it is necessary to identify opportunity ,expense,timeline,management of risk and the techniques of communication server for project's execution.Before start developing project, planning is very important to minimize the risk that can be threats for developer to deliver the project.The planning for project can be included formation of goals and objective, minimizing of risk and adherence of deadline etc.The common project planning tools are ganttcharts,time boxing also included for software project plan.Theses tools are very important for arranging activities in the auto parts intuitional in the manner of systematic.

5.1.1 Management Plan

As a project management methodology must be explained to team members. It is to ensure fruitful cooperation, routes of communication. Setting resolution the issue process making decision steps.

No	Task Name	Duration	Start Date	End Date
1	Introduction	4 days	25 july 2023	28 july 2023
2	Initial Study	7 days	29 july 2023	4 august 2023
3	Literature Review	3 days	5 august 2023	7 august 2023
4	Methodology	5 days	8 august 2023	12 august 2023
5	Planning	13 days	13 august 2023	25 august 2023
6	Feasibility	18 days	26 august 2023	12 september 2023
7	Foundation	8 days	13 september 2023	20 september 2023
8	Exploration	20 days	21 september 2023	10 october 2023
9	Engineering	40 days	11 october 2023	19 november 2023
10	Deployment	27 days	20 november 2023	18 december 2023
11	Testing	13 days	1 february 2024	13 february 2024
12	Implementation	25 days	14 february 2024	11 march 2024
13	Critical Appraisal and Evaluation	6 days	13 march 2024	20 march 2024
14	Lessons Learning	4 days	23 march 2024	28 march 2024
15	Conclusion	2 days	1 april 2024	3 april 2024
	Total:	195 days		

Table 1: Management Planning**5.1.2 Resource Allocation**

For every project it is necessary to determine important resources such as famous technology, tools etc. Accommodate resource allocation the workflow and the project schedule. Give the permission to the member of team responsibilities and create sure they occupy the required knowledge.

No	Task Name	Duration	Resource
1	Introduction	4 days	Users of End
2	Initial Study	7 days	Analyst
3	Literature Review	3 days	Analyst
4	Methodology	5 days	Analyst
5	Planning	5 days	Analyst, Designer, Developer
6	Feasibility	18 days	Analyst
7	Foundation	8 days	Designer
8	Exploration	20 days	Designer, Developer
9	Engineering	40 days	Developer
10	Deployment	27 days	Analyst, Developer
11	Testing	13 days	Analyst, Developer, Tester, Users
12	Implementation	25 days	Analyst, Developer
13	Critical Appraisal and Evaluation	6 days	Analyst, Tester and Developer
14	Lessons Learning	4 days	Analyst, Users
15	Conclusion	2 days	Analyst
		Total:195 days	

Table 2: Resource allocation

5.1.3 Time Boxing

The meaning of time boxing are specific periods of box are allocated to various task for software, agile project management technique. Time Boxing is use to get help of improvement focuses, time efficiency is managed and enhancing

For easier development and testing, separate the auto parts project in separate time frames. The length of every time box are fixed as well as the auto parts project and outputs that should be vanished in every iteration. For each resource time box, assign resources.

Time-Box	Task Name	Duration	Resource
TB1	Introduction	4 days	End Users
TB1	Initial Study	7 days	Analyst
TB1	Literature Review	3 days	Analyst
TB2	Methodology	5 days	Analyst
TB2	Planning	5 days	Analyst, Designer, Developer
TB2	Feasibility	18 days	Analyst
TB3	Foundation	8 days	Designer
TB4	Exploration	20 days	Designer, Developer
TB5	Deployment	27 days	Analyst, Developer
TB5	Testing	13 days	Analyst, Developer, Tester, Users
TB6	Implementation	25 days	Analyst, Developer
TB7	Critical Appraisal and Evaluation	6 days	Analyst, Tester and Developer
TB7	Lesson Learning	4 days	Analyst, Users
TB8	Conclusion	2 days	Analyst
		Total:195 days	

5.1.4 Gantt Chart

Gantt Chart is one kind of bar chart that explains project schedules. In a project Gantt Chart is used to represent tasks that are shown on the vertical axis, while time inside are delimited on the horizontal axis. So, Gantt Charts play a brutal role for project management system.

CHAPTER 6: FEASIBILITY

6.1 All Possible Types of Feasibility

6.1.1 Operational feasibility

Operational feasibility is one kind of degree that how to good a promised system evolves and receive advantages of the scope defined during opportunities definition and how it pleased the requirements defined in the requirement analysis phase of project or system development. Building using of auto parts project is normal process that can be work down from one place to another place with strong internet connection. Auto parts project fully web based application. This application work for car users, car mechanics and auto parts buyers by ensuring expenses and simple to use. This concept builds the auto parts project easy to adapts with tiny equipment and must keep powerful internet connection. Auto parts service system is workable project that offer auto parts shops an effective, internet that increases auto parts shop's operation feasibility.

Technical Feasibility

Hardware	Software
DESKTOP-QVPOJIS, Mobile data,Wi-Fi,router	Repleit, Eclipse,VS-Code,Operamini,google firebox

6.1.2 Technology

Client Side	Server Side	Database
React js	Node js and Express js	MongoDB(noSql)

6.2 Cost Benefit Analysis

CBA(Cost Benefit Analysis) is a brutal tool that systematically way to appreciation the advantages and disadvantages of the auto parts project by comparing the cost incurred with profits expected to be earned. On only auto parts projects but also every project business issues, investment, activity are required. There are huge number of probabilities within auto parts project and CBA(Cost Benefit Analysis) gives a framework for ordaining a good course of action for attaining auto parts project objective when reducing costs. This method assurance that auto parts program safely distributes benefits are optimizing when minimizing costs. Auto parts Service System's cost-benefits analysis turns into brutal instrument for making-decision, marking auto parts project for it's direction of practical approaches to profits of auto parts stakeholder.

Project Name:Auto parts Service System

Serial	Equipment	First Year	Second Year	Third Year	Fourth Year	Total
1	Web application cost	110000	—	—	—	110000
2	Mobile based web application	108000	—	—	—	108000
3	Desktop based web application	100000	—	—	—	100000
4	Expenses for staff	150000	150000	170000	180000	650000
5	The cost of API and hosting	60000	60000	60000	60000	240000
6	Total Cost	528000	210000	230000	240000	1208000

Table 4:Cost Benefit

DSDM Dynamic System Development Method (DSDM)

Auto parts totally switch the necessity of users or car drivers.DSDM is one kind technique that helps team members to assure timely project budget and delivery of project.DSDM is a correct technique for Auto parts web technology developmentforasmuch as agile base

Chapter 7 - Foundation

7.1 Some Potential approaches

7.1.1 Interview

For Every project it is important to arrange an interview.By taking the interviews I can understand users' requirements,collect auto parts information and meet with experienced staff so that users can take car solutions from the auto parts service system.By taking interviews I can collect huge information for services.By taking interview I can learn all types of requirement, obstacle of communication with distributions of resource.

7.1.2 Observation

To see auto parts operations, visit different auto parts shops and gather relevant knowledge about car related services.Examine how to provide service for car, how to repair auto parts etc.Note down solid data information and common inventory management.

7.1.3 Questionnaires

Run out questionnaires to probability auto parts web application users,staff and admin panel.Acheive input based on their opinions of the present system,notice their satisfaction and probability areas to development.Inquire them about the system they provide standard and also inquire them for feedback on how to create it normal to gain information, receive advices on auto parts and promote auto parts methods.

7.2 Specific problem area identification and description

Ineffective communication between staff,adminpanel,wrong communication and ineffective in the services provided.This harms the accurate care for save auto parts for probability uses.

7.3 Possible Solution

Develop an integrated auto parts and auto parts services app that will act as the main point for the auto parts community efficiency communication and exchange of information.Actual-time channels of communication,middlized the profile for repair auto parts, inventory management tools and staff etc all are comprehended in the website.This solutions has objectives,these are to promote inventory management and increase the simple effectively of auto parts operations.

7.4 Overall Requirement List

1. Functional Requirements
2. Non-Functional Requirements

Functional Requirement

- #Admin do Login and Logout.
- #Admin must verify who the user and staff are.
- #Admin can add new staff.
- #admin can add new auto parts.
- #Admin can add car related service.
- #admin can add a discount if needed.
- #admin can remove if any staff want to leave.
- #admin can see who ordered auto parts.
- #admin can also see who takes car related services.
- #admin can see transactions.
- #Users can Login and Lodout.
- #Users can see auto parts,car related services.
- #Users can order auto parts when they need to.
- #User can meet with experience staff
- #Users can take service when they need to.
- #Staff must be Login and Logout.
- #Staff show their biodata in the system.
- #Staff must meet with users and solve their problem.

Non Functional Requirement

#Strong security in sensitive data and save from others so that no one can edit other's data.

#This system is totally user friendly.

#It ensures the privacy of personal information like users,staff,admin.

#In this platform, it only shows all kinds of information that users necessary to see.

#The protocol of security must be strong to save users and staff data.

7.5 What technology to be implemented

My project is a totally web based application.I develop my project by using full stack technology.I know some popular full stack technology, these are MERN,MEAN,PERN etc.But I have good knowledge about MERN full stack.So I solve my auto parts project by using MERN full stack.There are many reason to choice MERN full stack for my project.

#MERN stack allows me to use both server side and client side development.For these issues, there is no need to switch other programming language.This reduces pain for me to learn a hard programming language.

#At present Javascript language are famous in the world.Most popular javascript framework is React.This language is front-end development to use User-Interface to a declarative methodology.This creates the project code that is simple to understand.

#In Every project backend support is need.When We develop a project It must be http request server efficiency and create a simple API(Application Interface).

#MERN full stack web development, which qualifies me to simple alteration between backend and frontend framework.Thisconstancy diminishes the learning curve.

#In my project server-side I used node js for best performance.All time node js first response,which is needed for UI that must be responsive.

#By quality the make of web application, It is assure that a frame UX on the limit of this platform

Overall, I think the final decision of using technology totally depends on the team member or admin panel.But I think MERM technology are totally developer-friendliness to make strong performance applications for the Auto parts service system.

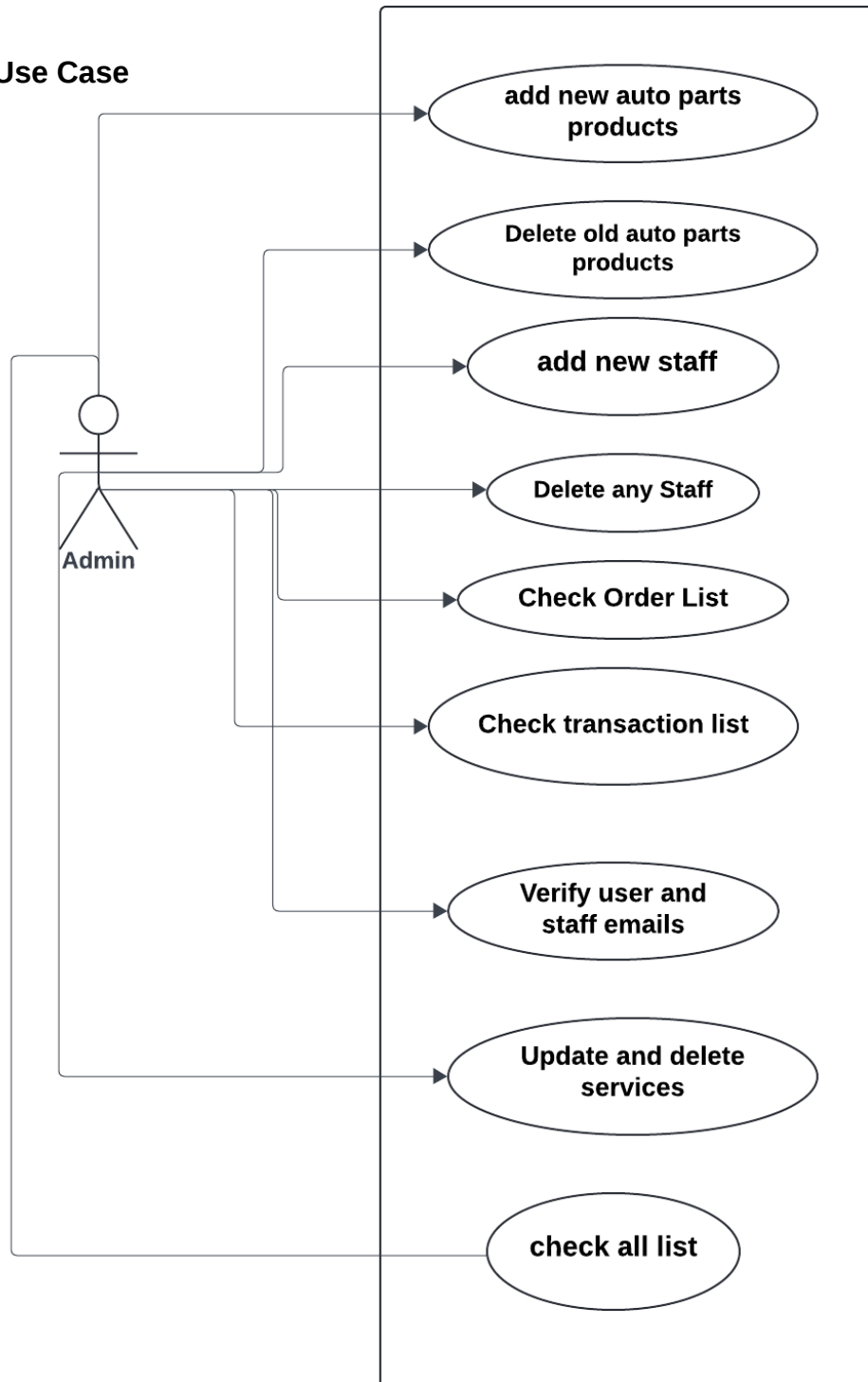
7.1 Recommendations and Justifications

A unique web application is designed using an effective MERN stack technology. This technology helps to clear current needs. I use Express.js that is a backend framework. This backend framework gives an enable programming of server side. For all data store I should use database. But I used NoSql database. This is MongoDB.js. This database used to efficiency and control data, giving auto parts data controlling malleability.

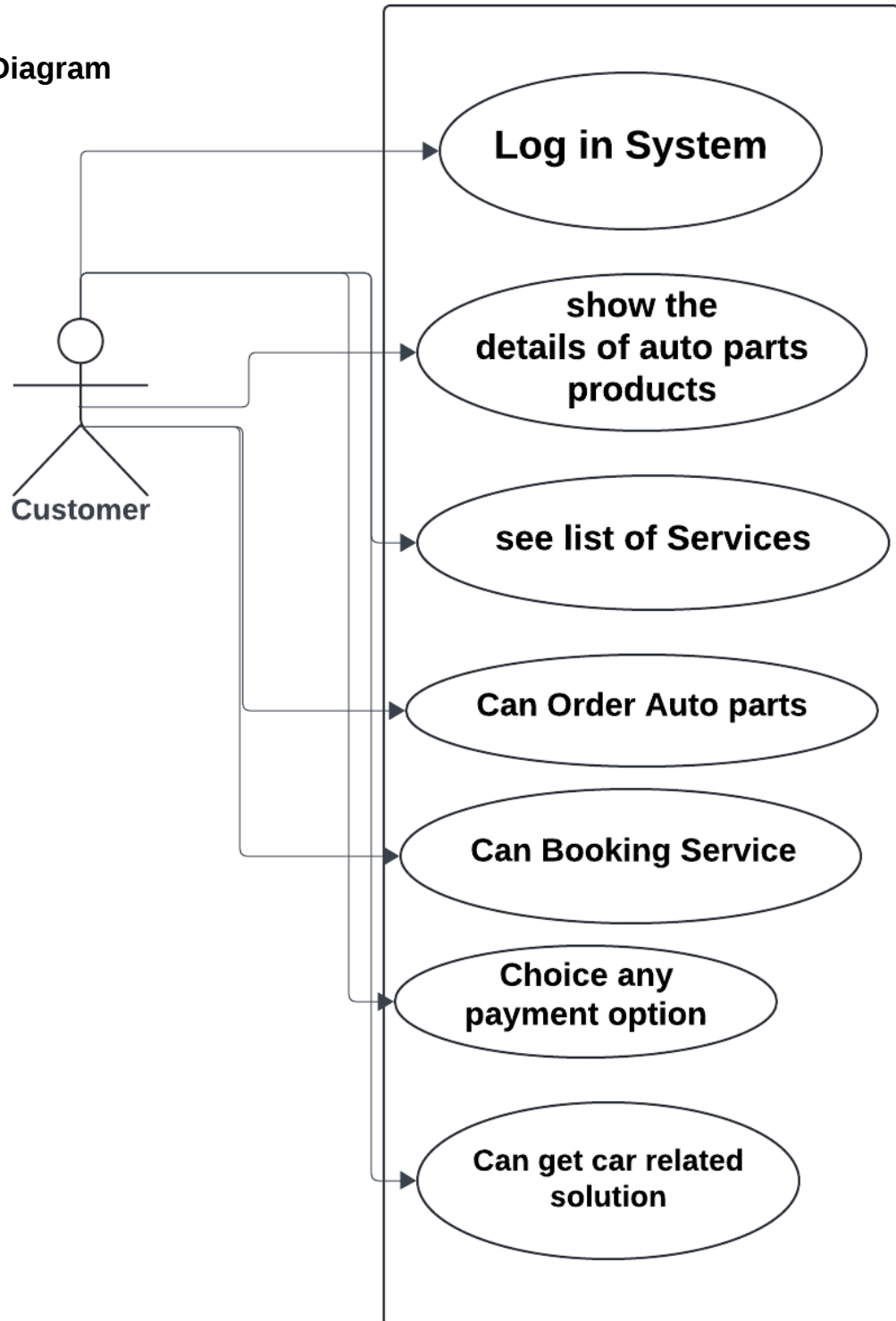
In my project I also use React.js. This is a front-end framework for design user interface and user experience. By using React.js I show auto parts list, car related service and staff profile picture etc. Node.js is used to create backend environment and also used to express.js to make http server and MongoDB is used to store all data. This full stack technology assurance a wide range of and efficiency solution for auto parts services system by defense administration of database, User interaction of frontend and functionality of backend in a manner of integrated.

CHAPTER 8: EXPLORATION

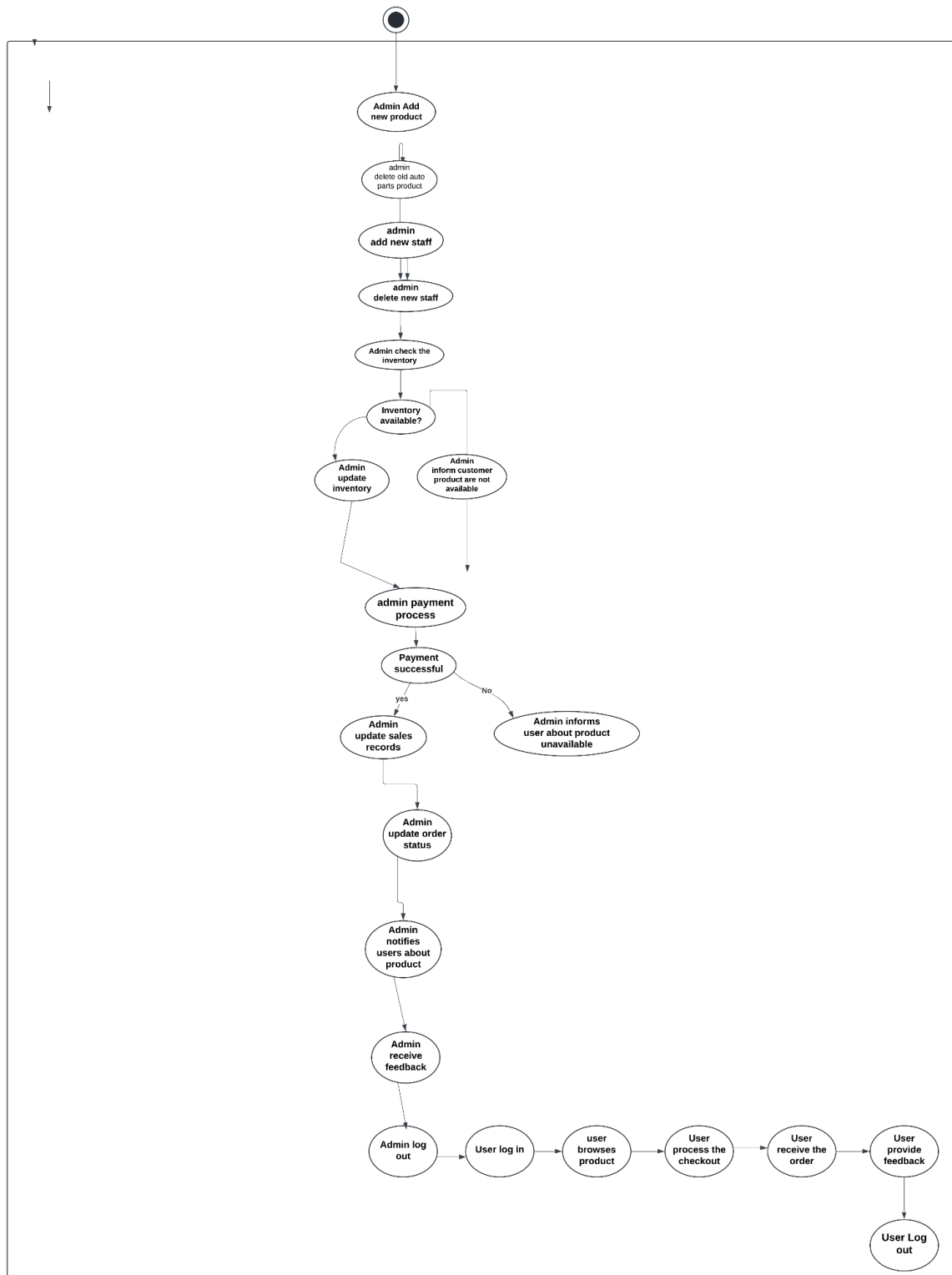
8.1 Old System Use Case



Use Case Diagram



8.2 Activity Diagram



8.3 Requirement Catalog

Functional Requirements:

#FR1:User login the features for consumer, staff, admin.

#FR2:Ability to customer to check auto parts product list and also check provided car related services.

#FR3:Customers also see the staff profile and check the staff's details.

#FR4:Communication tools that help to interact between customers and admin,customer and staff,admin and staff.

#FR5:Able to give analytics and report on auto parts product,staff's working performance,rate of car problem solution.

#FR6:An auto parts case management system that tracks auto parts products,service booking etc.

Non-Functional Requirements:

#NFR1:Performance to attune a emergencing number of auto parts situations and customers.

#NFR2:Security tools are used in Auto parts Service System to protect all private data such as customers,admin and staff etc.

#NFR3:To give maintainability and reliability with strong platforms and devices(web).

#NFR4: A normal to use interface to use , even for customers and experienced staff with several levels of technical skills.

Requirement of Performance

PR1:Check quick loading speeds for auto parts products data, Service booking data,staff data and other important information.

PR2:Feasible data momentary updates for customers and mobile also computer devices

PR3:Efficiency search and features of filtering for quick invention of particular.

Requirement of privacy and Security

SR1:If I want to keep all data safe,I must keep a safe authentication system.

SR2:Serious data encryption, including auto parts products data.

SR3:The access control must be permission based to ensure that only customer may show all information

8.3 Prioritized Requirement List (PRL)

RequirementID	Requirement Description	Priority	Dependencies	Validation Criteria
Auto Parts-RQ1	Functionality of Customers login and registration	Top-Level		Customers must be able to register and log in
Auto Parts-RQ2	Monitor the number of auto parts product	Top-Level		Must keep the ability to monitor number of auto parts
Auto Parts-RQ3	A system that handling staff's performance rate	To-Level		It is possible to check staff's working performance
Auto Parts-RQ4	Experience and Customers communication skills	Mid-Level	Auto Parts-RQ1	The system accepts effective customer communication s.
Auto Parts-RQ5	Auto parts related products and booking service data	Low		Must be ability to give correct reports

8.4 Prototype of new system

arts Services

Home

AutoParts

Services

Stafs

Shahriar S



Battery

VRLA AGM

Stock:20

4 days ago

It is a type of rechargeable battery.In this battery the electrolyte is absorbed in a glass mat separator, which is placed between the battery plates.

12 months warranty

Complete box

SKU-1693117899624

ت 1200



Battery

GREENLIFE GL30 ...

Stock:34

4 days ago

This battery model is used for cars.This battery model is a perfect replacement from a group of U1 AGM and lead acid batteries.In this battery model h

12 months warranty

Complete box

SKU-1693117948275

ت 1450



Battery

50Ah Amaron Car...

Stock:21

4 days ago

The 50Ah Amaron Car series with form amount 550-114-042 is a maintenance-free automotive sequence deliberate to present unfailling initial might for ve

12 months warranty

Complete box

SKU-1693117993172

ت 1800

 KL-AFC Stock:17 4 days ago This is an air filter that is used in car.This air filter brand name is 'Kel'.This model filter type is Suction Filters.There is no need for this air 12 months warranty Complete box SKU-1693118037058 ₹ 2700	 AUTOSONS 18mm K... Stock:25 4 days ago The AUTOSONS 18mm KTM Duke Air Filter is an aftermarket air filter designed specifically for KTM Duke motorcycles.With a diameter of 18mm, this procla 12 months warranty Complete box SKU-1693118095192 ₹ 2620	 Ape-bs6-air-fil... Stock:33 4 days ago This air filter model is a crucial component designed for use in the BS6-compliant Ape vehicles. This model is an advanced technology for air filtrati 12 months warranty Complete box SKU-1693118144222 ₹ 3270
---	--	--

Stock: 21

SKU-1693117993172

Price: **₹ 1800/=**

The 50Ah Amaron Car series with form amount 550-114-042 is a maintenance-free automotive sequence deliberate to present unfailing initial might for vehicles. With a power of 50 ampere-hours (Ah), this set is proficient in delivering a moderate sum of electrical energy over a evident point of time. It's probable fit for an assortment of touchstone passenger cars and vehicles. Amaron is renowned for producing high-quality batteries, and their batteries frequently article far along technologies to guarantee longer soul and coherent performance. This definite model, 550-114-042, can be inflicted with exceptional skin texture such as enhanced durability, better intensity resistance, and an outline that minimizes irrigate loss, eventually foremost to on sale maintenance requirements.

[CHECKOUT THIS ITEM →→](#)

Stock: 21

SKU-1693117993172

Price: ₳ 1800/=

The 50Ah Amaron Car series with form amount 550-114-042 is a maintenance-free automotive sequence deliberate to present unfailing initial might for vehicles. With a power of 50 ampere-hours (Ah), this set is proficient in delivering a moderate sum of electrical energy over a evident point of time. It's probable fit for an assortment of touchstone passenger cars and vehicles. Amaron is renowned for producing high-quality batteries, and their batteries frequently article far along technologies to guarantee longer soul and coherent performance. This definite model, 550-114-042, can be inflicted with exceptional skin texture such as enhanced durability, better intensity resistance, and an outline that minimizes irrigate loss, eventually foremost to on sale maintenance requirements.

CHECKOUT THIS ITEM →

Checkout

Personal Information

User Name

Shahriar Shahadat

Email

shahriar16-529@diu.edu.bd

Item Name

50Ah Amaron Car Battery, Model Number: 550-114-042

Item Price

1800

Item Category

Battery

☒ I have read and accepted [Terms & Conditions](#)

CONFIRM AND PAY

Buying Summary :

→ 50ah amaron car battery, model number: 550-114-042

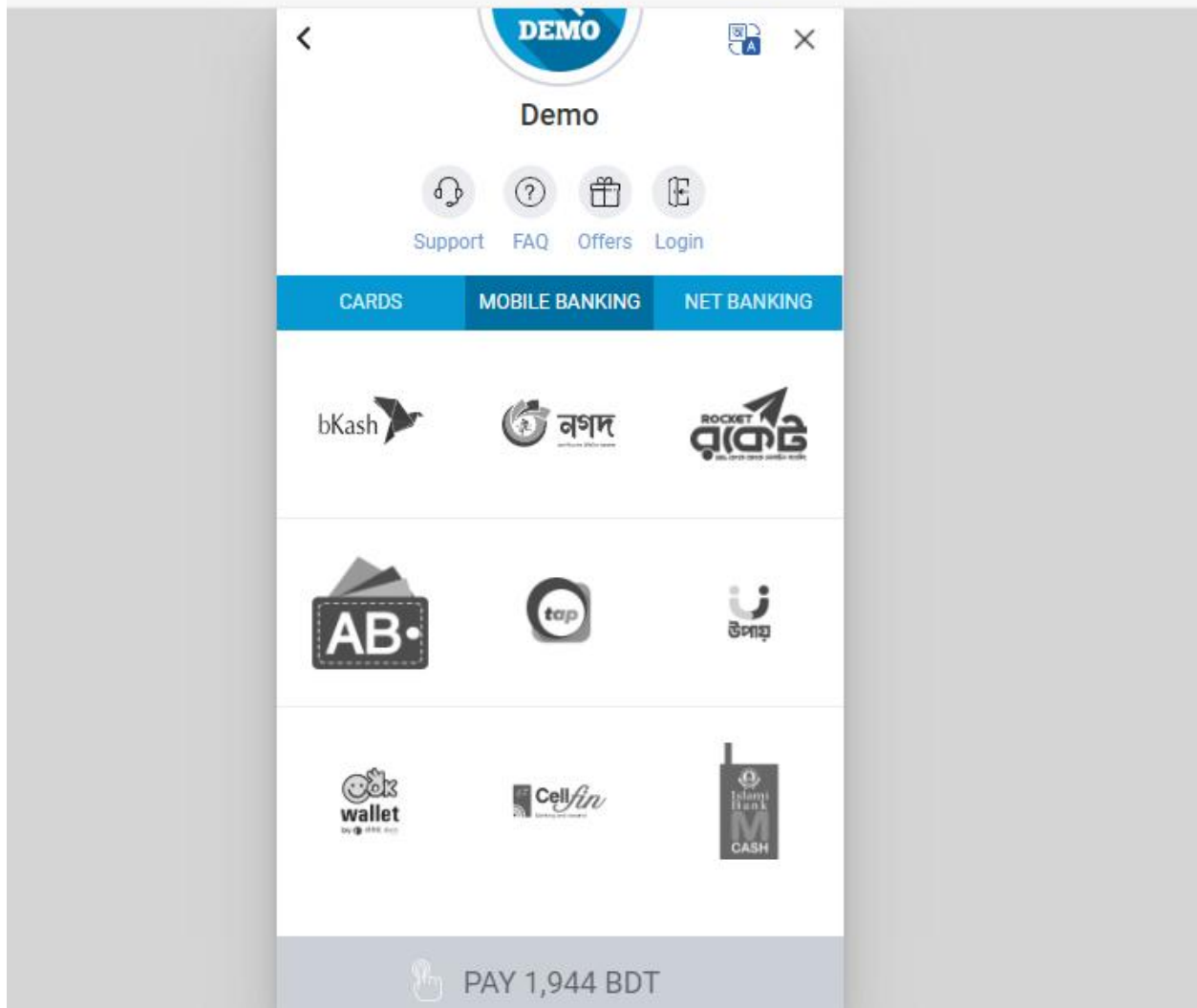


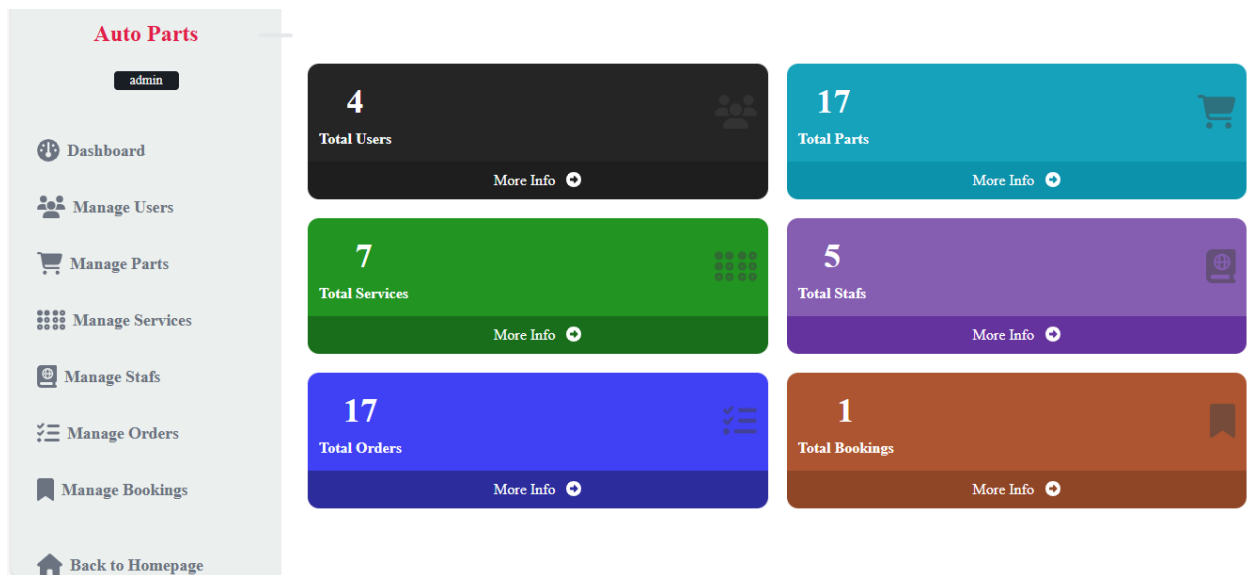
50Ah Amaron Car Battery, Model number: 550-114-042

 Dhaka Bangladesh

Date	11 June 2024
Time	11:45 AM
Item Fee	₳ 1800
Govt.Tax 5%	₳ 90.00
Service Charge 3%	₳ 54.00

DS





Auto Parts

admin

- Dashboard
- Manage Users**
- Manage Parts
- Manage Services
- Manage Stafs
- Manage Orders
- Manage Bookings

Total Users: 4

INDEX	USERS	STATUS	ACTIONS
1	moazzemhossainnahid@gmail.com	Super Admin	SuperAdmin Can't Deleted
2	nobel.ahmed333@gmail.com	Make Admin	Remove User
3	princenahidkhanraj1@gmail.com	Make Admin	Remove User
4	shahriar16-529@diu.edu.bd	Admin	Remove Admin

Auto Parts

admin

Dashboard

Manage Users

Manage Parts

Manage Services

Manage Stafs

Manage Orders

Manage Bookings

Back to Homepage

Total Bookings Data: 1

Name: md shouvik

Service: Hybrid Car Solution

Phone: 01705024955

Email: shahriar16-529@diu.edu.bd

Address: Khilgaon, Dhaka 1476/7

Message: good

Date: 4/30/24

Auto Parts

admin

Dashboard

Manage Users

Manage Parts

Manage Services

Manage Stafs

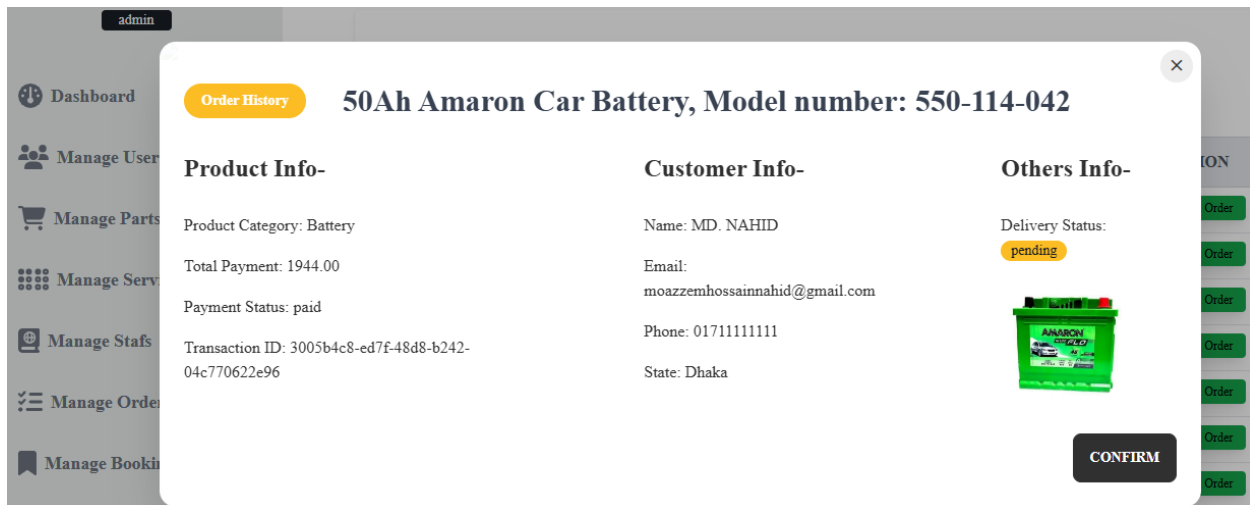
Manage Orders

Manage Bookings

Back to Homepage

Total Orders: 17

INDEX	PRODUCT	CUSTOMER ID	ORDER DATE/TIME	PAYMENT STATUS	ACTION
1	50Ah Amaron Car Batt	Shahriar Shahadat	11/06/2024, 11:45:38	paid	Confirm Order
2	50Ah Amaron Car Batt	MD. NAHID	07/05/2024, 21:47:49	paid	Confirm Order
3		Developer Nahid	07/05/2024, 21:46:35	paid	Confirm Order
4	GREENLIFE GL30 – 12V	Shahriar Shahadat	05/05/2024, 12:59:33	paid	Confirm Order
5	50Ah Amaron Car Batt	Shahriar Shahadat	07/04/2024, 00:03:25	paid	Confirm Order
6	50Ah Amaron Car Batt	Shahriar Shahadat	02/04/2024, 17:09:51	paid	Confirm Order
7	Tubeless-tyre	Shahriar Shahadat	20/03/2024, 21:56:52	paid	Confirm Order



CHAPTER 9: ENGINEERING

The Auto parts Service System is a web application that has an excess of extramodules. The outcome from various modules to demonstrate. I'll go over a few of the needs. Here are some modules,

Customer's profile and registration: Every customer has the minimum ability to register on a website and control their profile, which include address, email, phone number etc.

Inventory Management: Customers may enter in the website and check the auto parts products information and available the product in these modules, such as car related products, Service booking and any applicable techniques.

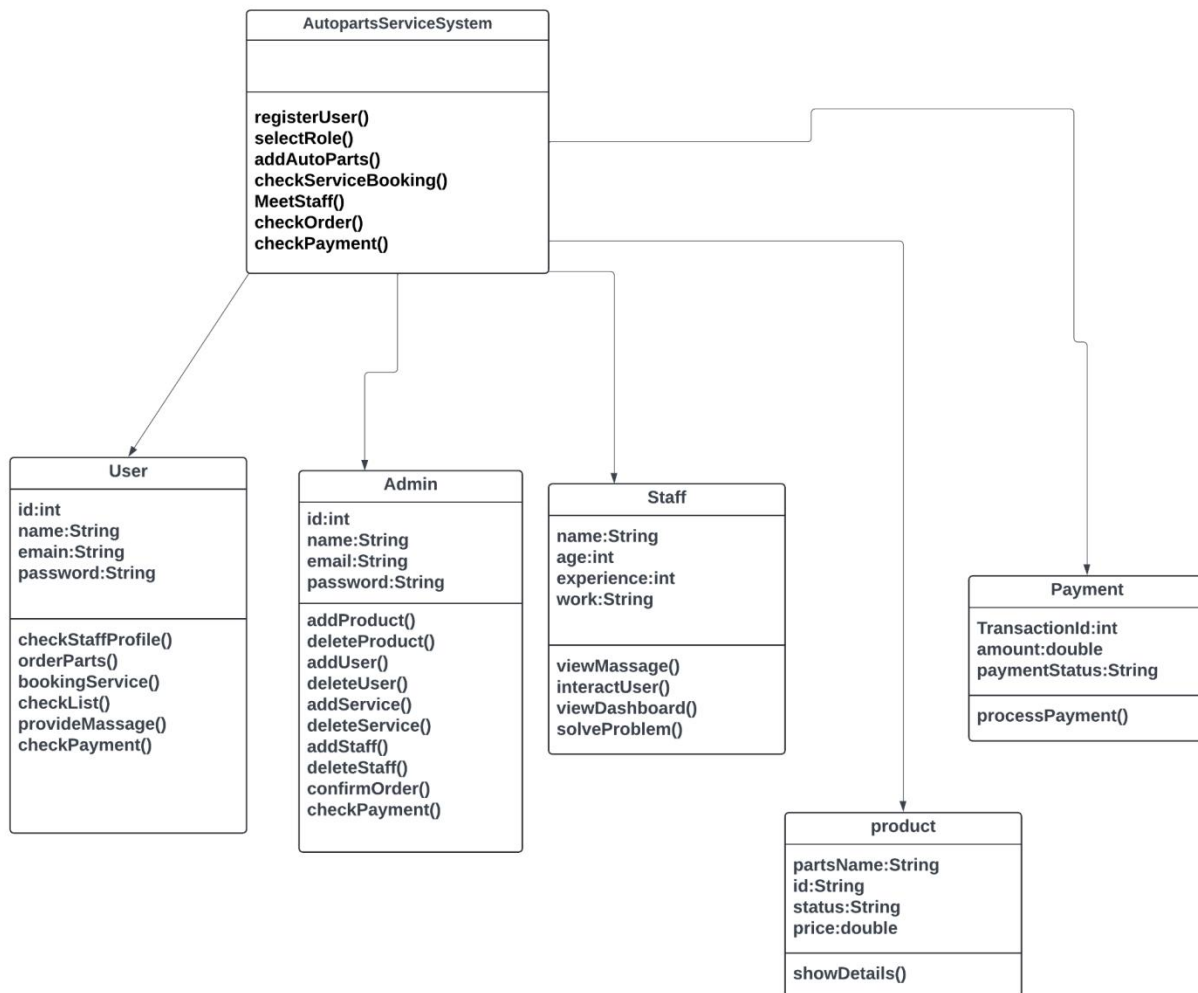
Educational Resource: This module gives detailed information about products, service booking and other external resources on cutting-edge auto parts advancements, suitable auto parts methods and modern auto parts techniques.

Specialist Consultation: Customers can consult with experienced staff using this module. On inventory management of car related auto parts, Service which is provided introduced about this, ask any question about parts and services, customers may create appointments for consultants.

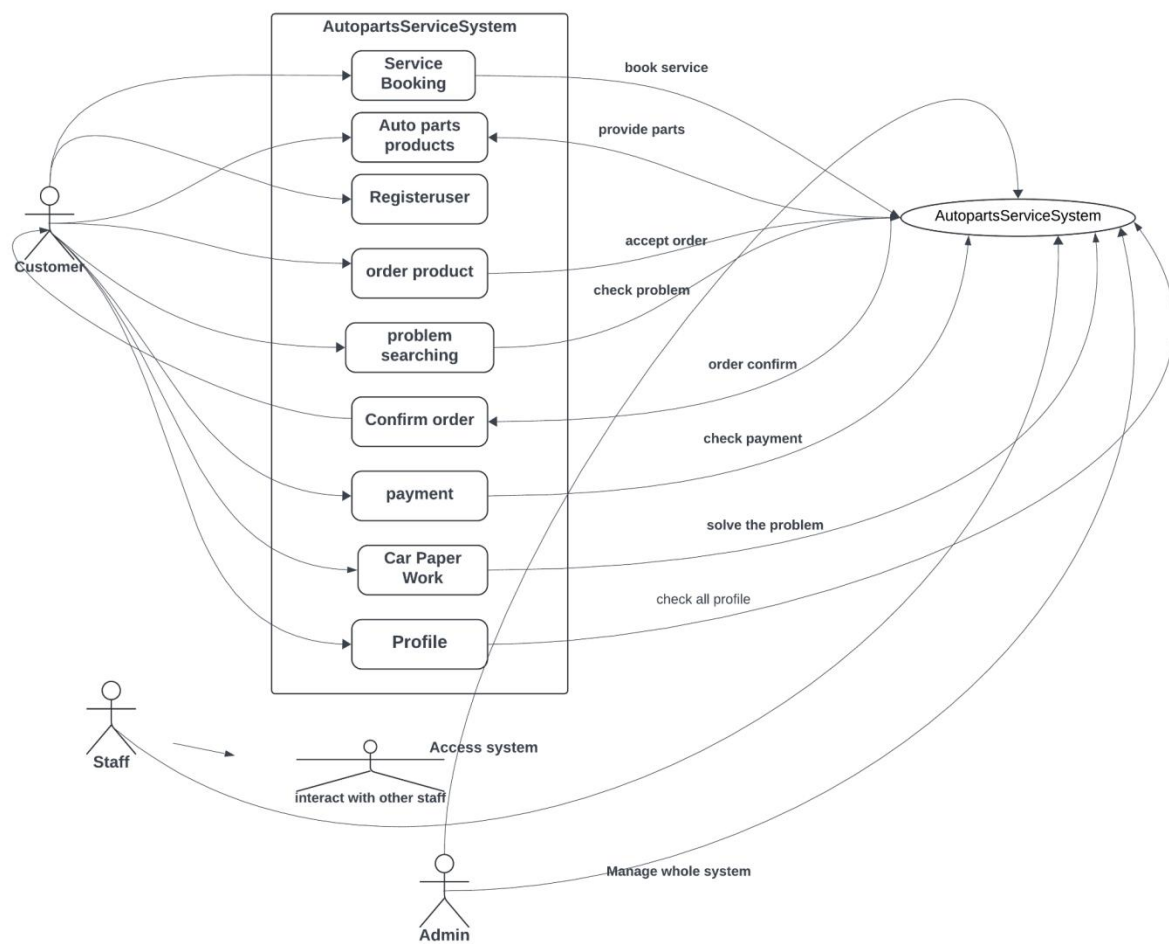
#Request for service: Customer requests for getting help with inventory management, car checking, car problem solutions etc.

#Marketplace : Customers who have the ability to post their problem, only the admin can show this. Customer can also contact with staff and also can buy new products.

9.1 Class Diagram



9.2 UseCase Diagram



CHAPTER 10: DEVELOPMENT

10.1 Core Module Coding Samples

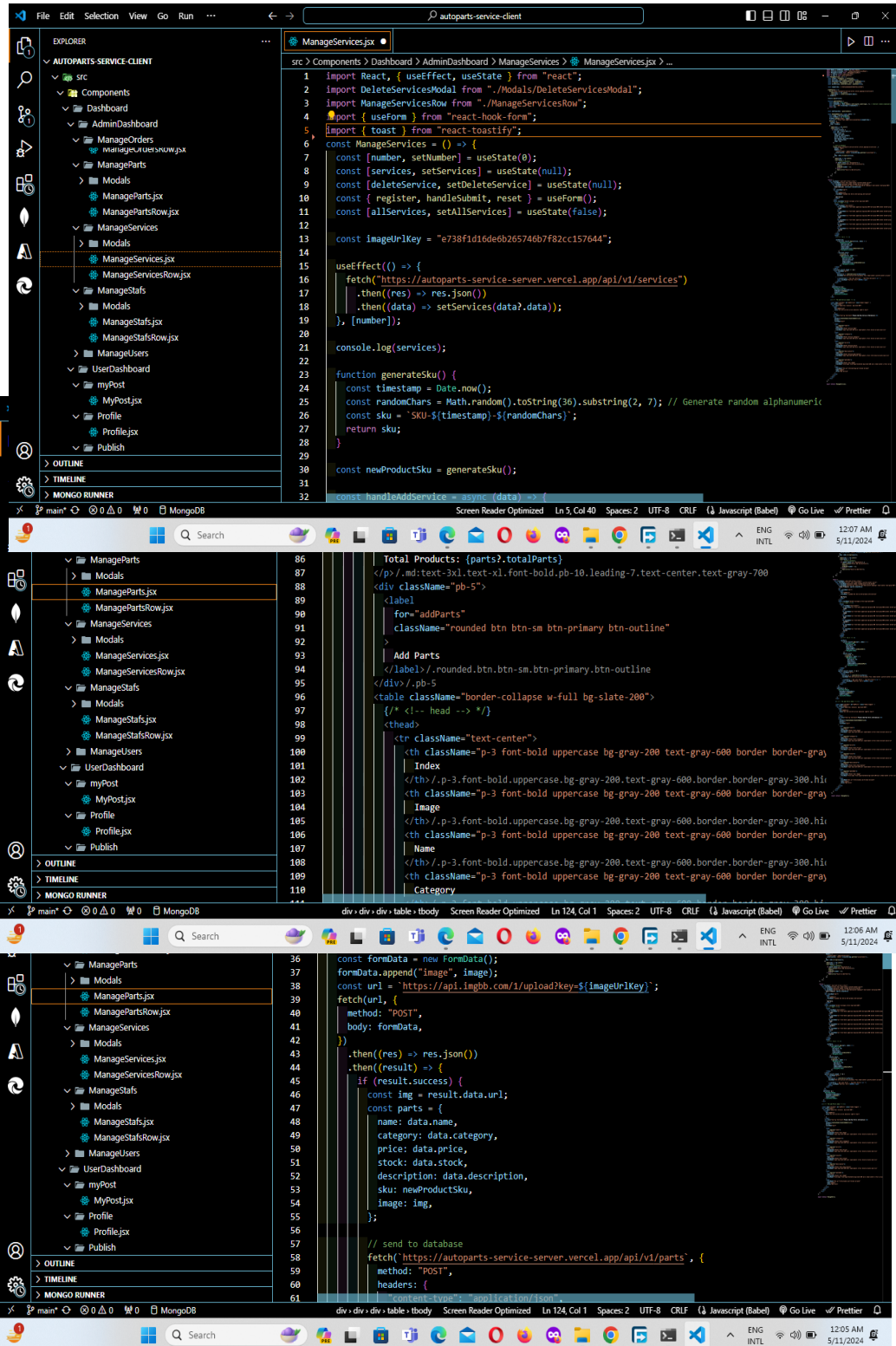
The image displays two screenshots of a VS Code editor window, showing the development of the `ManageParts.jsx` component in the `autoparts-service-client` project.

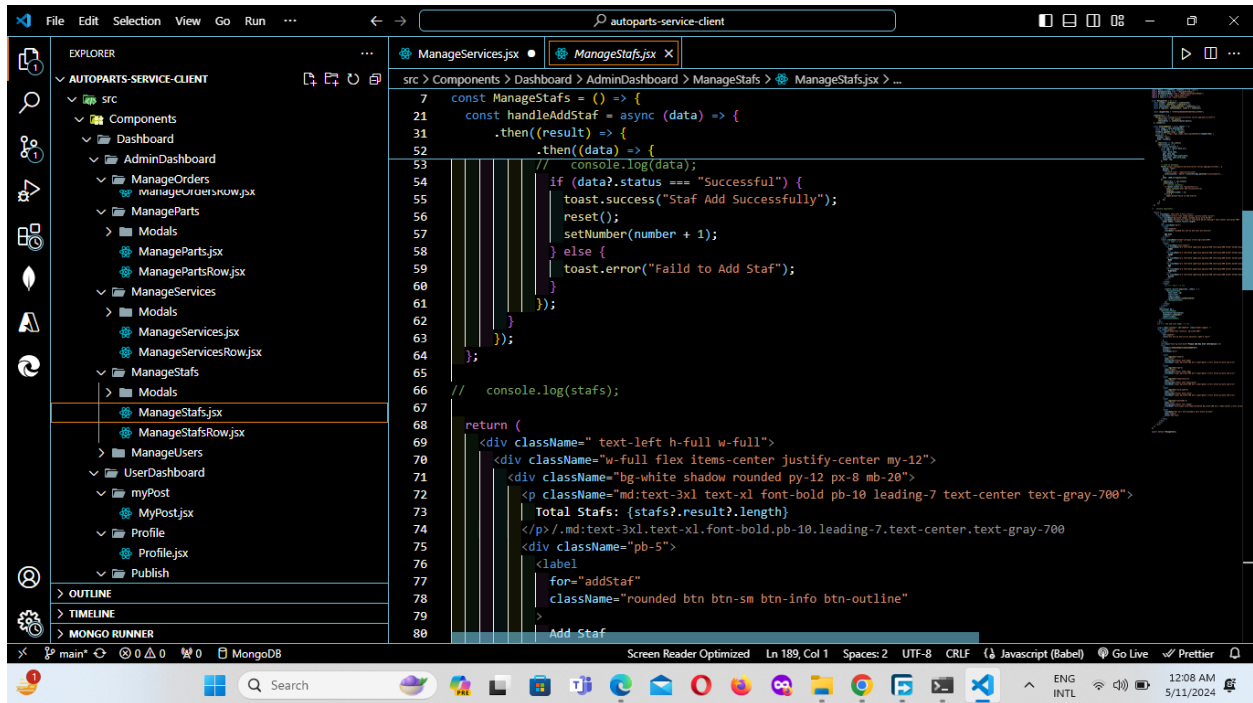
Top Screenshot: The `ManageParts.jsx` file is open, showing the initial setup and state management. The code includes imports for `React`, `useEffect`, `useState`, `ManagePartsRow`, `DeletePartsModal`, `useForm`, and `toast`. It defines the `ManageParts` component with state variables for `number`, `parts`, `deletePart`, and `allParts`. A `useEffect` hook fetches data from the `https://autoparts-service-server.vercel.app/api/v1/parts` endpoint. A `generateSku` function is also defined.

```
1 import React, { useEffect, useState } from "react";
2
3 import ManagePartsRow from "../ManagePartsRow";
4 import DeletePartsModal from "../Models/DeletePartsModal";
5 import { useForm } from "react-hook-form";
6 import { toast } from "react-toastify";
7
8 const ManageParts = () => {
9   const [number, setNumber] = useState(0);
10  const [parts, setParts] = useState(null);
11  const [deletePart, setDeletePart] = useState(null);
12  const { register, handleSubmit, reset } = useForm();
13  const [allParts, setAllParts] = useState(false);
14
15  const imageUrlKey = "e738f1d16de6b265746b7f82cc157644";
16
17  useEffect(() => {
18    fetch("https://autoparts-service-server.vercel.app/api/v1/parts")
19      .then((res) => res.json())
20      .then((data) => setParts(data?.data));
21  }, [number]);
22
23  console.log(parts);
24
25  function generateSku() {
26    const timestamp = Date.now();
27    const randomChars = Math.random().toString(36).substring(2, 7); // Generate random alphanumeric
28    const sku = `SKU-${timestamp}-${randomChars}`;
29    return sku;
30  }
31
32  const newProductsSku = generateSku();
```

Bottom Screenshot: The `ManageParts.jsx` file is open, showing the rendering logic for the component. The code includes a `render` function that returns a JSX element. It displays a table with columns for `key`, `part`, `index`, and `setDeletePart`. A `button` is also rendered, with an `onClick` handler that calls `setAllParts`.

```
121 { /* <!-- row 1 --> */ }
122
123 {allParts
124   ? parts?.result?.map((part, index) => (
125     <ManagePartsRow
126       key={part?.id}
127       part={part}
128       index={index}
129       setDeletePart={setDeletePart}
130     ></ManagePartsRow>
131   ))
132   : parts?.result
133     ?.slice(0, 7)
134     ?.map((part, index) => (
135       <ManagePartsRow
136         key={part?.id}
137         part={part}
138         index={index}
139         setDeletePart={setDeletePart}
140       ></ManagePartsRow>
141     ))
142 }
143 </tbody>
144 </table> /.border-collapse.w-full.bg-slate-200
145 {parts?.result?.length > 7 && (
146   <div className="pt-7">
147     <button
148       onClick={() => setAllParts(allParts)}
149       className="btn btn-outline btn-secondary flex items-center justify-center mx-auto"
150     >
151     {`${allParts ? "See Less Parts" : "See More Parts"}${" "}
```





```
7  const ManageStaffs = () => {
21  const handleAddStaff = async (data) => {
64  };
65
66  // console.log(staffs);
67
68  return (
69    <div className="text-left h-full w-full">
70      <div className="w-full flex items-center justify-center my-12">
71        <div className="bg-white shadow rounded py-12 px-8 mb-20">
72          <p className="md:text-3xl text-xl font-bold pb-10 leading-7 text-center text-gray-700">
73            Total Staffs: {staffs?.result?.length}
74          </p>
75          <div className="pb-5">
76            <label
77              for="addStaff"
78              className="rounded btn btn-sm btn-info btn-outline"
79            >
80              Add Staff
81            </label>
82          </div>
83          <table className="border-collapse w-full bg-slate-200">
84            <thead>
85              <tr>
86                <th>
87                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
88                    Index
89                  </div>
90                <th>
91                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
92                    Image
93                  </div>
94                <th>
95                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
96                    Name
97                  </div>
98                <th>
99                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
100                     Age
101                  </div>
102                <th>
103                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
104                     Experience
105                  </div>
106                <th>
107                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
108                     Action
109                  </div>
110              </tr>
111            </thead>
112            <tbody>
113              <tr>
114                <td>
115                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
116                    Index
117                  </div>
118                <td>
119                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
120                    Image
121                  </div>
122                <td>
123                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
124                    Name
125                  </div>
126                <td>
127                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
128                     Age
129                  </div>
130                <td>
131                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
132                     Experience
133                  </div>
134                <td>
135                  <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
136                     Action
137                  </div>
138              </tr>
139            </tbody>
140          </table>
141        </div>
142      </div>
143    </div>
144  );
145}
```

```
88  </th>
89  <th>
90    <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
91      Image
92    </div>
93  </th>
94  <th>
95    <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
96      Name
97    </div>
98  </th>
99  <th>
100    <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
101      Age
102    </div>
103  </th>
104  <th>
105    <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
106      Experience
107    </div>
108  </th>
109  <th>
110    <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
111      Action
112    </div>
113  </th>
114  </tr>
115  </thead>
116  <tbody>
117    <tr>
118      <td>
119        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
120          Index
121        </div>
122      <td>
123        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
124          Image
125        </div>
126      <td>
127        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
128          Name
129        </div>
130      <td>
131        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
132            Age
133          </div>
134      <td>
135        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
136            Experience
137          </div>
138      <td>
139        <div className="p-3 font-bold uppercase bg-gray-200 text-gray-600 border border-gray-300">
140            Action
141          </div>
142      </td>
143    </tr>
144  </tbody>
145  </table>
146  </div>
147  </div>
148  );
149}
```


The screenshot shows the Visual Studio Code editor with the file `ManageStafs.jsx` open. The Explorer panel on the left shows the project structure for `AUTOPARTS-SERVICE-CLIENT`, with `ManageStafs.jsx` selected under `ManageStafs`. The main editor displays the following code:

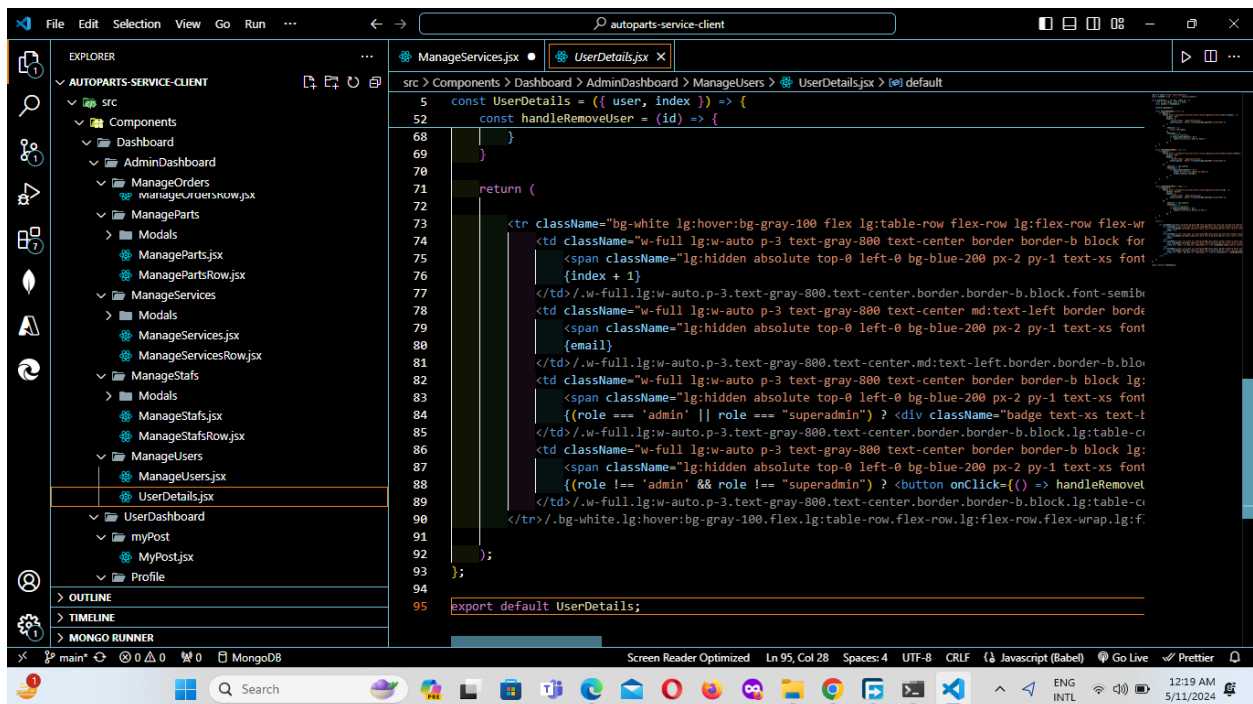
```
7  const ManageStafs = () => {  
171    {...register("photoURL")}  
172    type="file"  
173    placeholder="Enter Your Image"  
174    className="file-input file-input-bordered bg-slate-100 my-2 items-center w-full mx-at  
175  }  
176  }  
177  <input  
178    className="btn px-7 btn-secondary my-5 block mx-auto"  
179    type="submit"  
180    value="Add Staf"  
181  />  
182  </div>  
183  </div>  
184  </div>/.text-left.h-full.w-full  
185  }  
186  }  
187  }  
188  export default ManageStafs;  
189  }
```

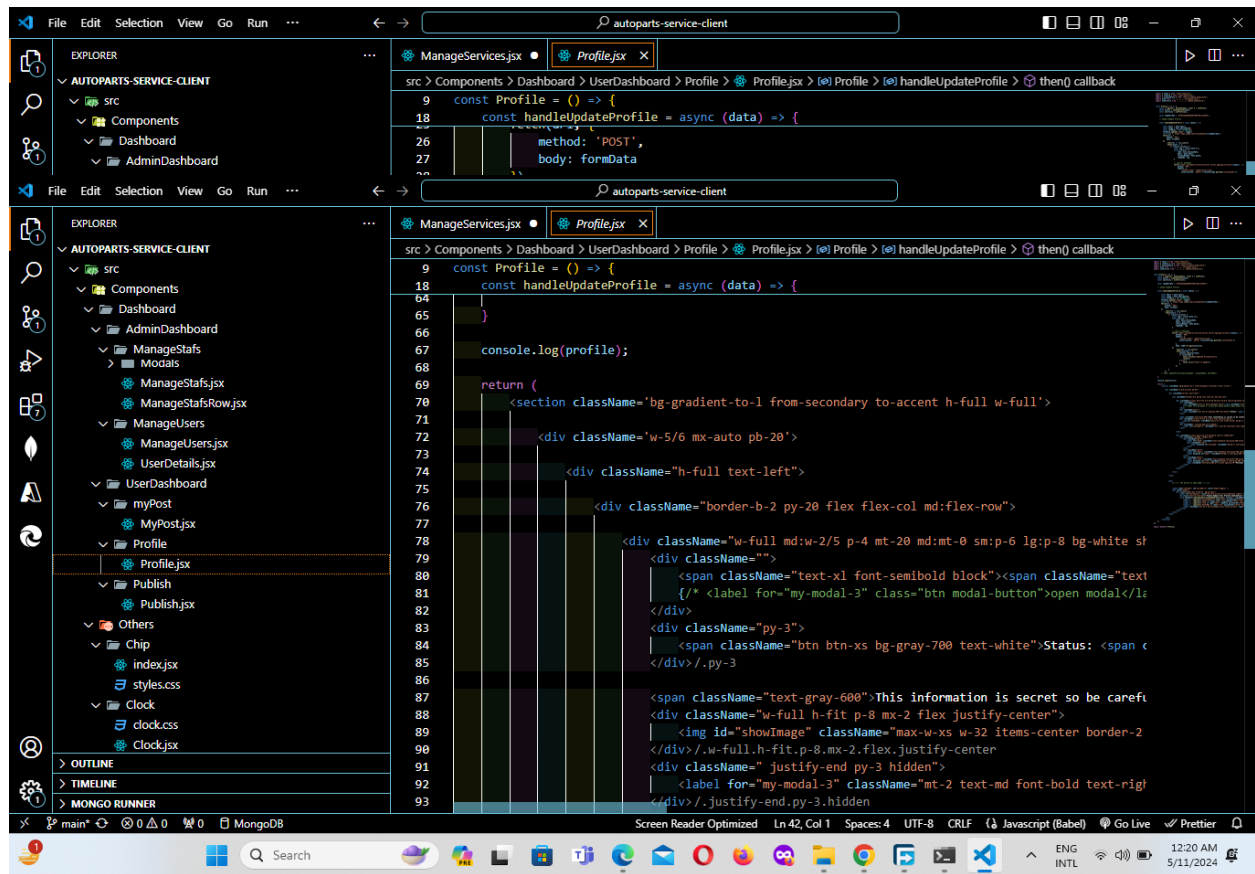
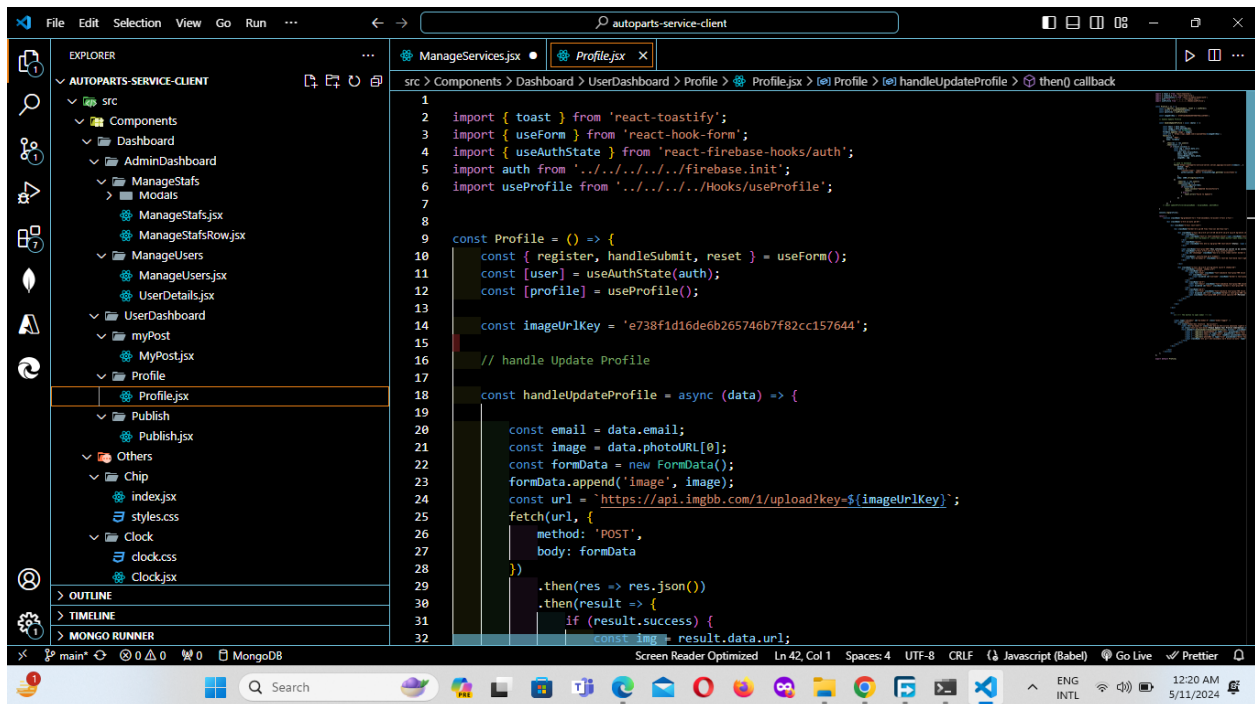
The status bar at the bottom indicates the file is at line 189, column 1, with 2 spaces, UTF-8 encoding, and CRLF line endings. The bottom of the screen shows the Windows taskbar with the date 5/11/2024 and time 12:08 AM.

The screenshot shows the Visual Studio Code editor with the file `UserDetails.jsx` open. The Explorer panel on the left shows the project structure for `AUTOPARTS-SERVICE-CLIENT`, with `UserDetails.jsx` selected under `ManageUsers`. The main editor displays the following code:

```
1    
2  import { toast } from 'react-toastify';  
3  import UseAdmin from '../Hooks/useAdmin';  
4    
5  const UserDetails = ({ user, index }) => {  
6    const { _id, email, role } = user;  
7    const [admin] = UseAdmin();  
8    
9    console.log(admin);  
10    
11  const handleMakeAdmin = () => {  
12    if (admin) {  
13      fetch('https://autoparts-service-server.vercel.app/api/v1/users/admin/${email}', {  
14        method: 'PUT',  
15        headers: {  
16          'content-type': 'application/json',  
17          authorization: `Bearer ${localStorage.getItem('accessToken')}`  
18        }  
19      })  
20      .then(res => {  
21        return res.json()  
22      })  
23      .then(data => {  
24        // console.log(data);  
25        if (data.modifiedCount > 0) {  
26          toast('Successfully Make an Admin')  
27        }  
28      })  
29    }  
30  }  
31    
32  const handleRemoveAdmin = () => {
```

The status bar at the bottom indicates the file is at line 32, column 8, with 4 spaces, UTF-8 encoding, and CRLF line endings. The bottom of the screen shows the Windows taskbar with the date 5/11/2024 and time 12:19 AM.





```
src > Components > Dashboard > UserDashboard > Profile > Profile.jsx > Profile > handleUpdateProfile > then() callback
9  const Profile = () => {
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
```

```
src > Components > Dashboard > UserDashboard > Publish > Publish.jsx > Publish
1  import { useAuthState } from "react-firebase-hooks/auth";
2  import { useForm } from "react-hook-form";
3  import { toast } from "react-toastify";
4  import auth from "../../firebase.init";
5
6  const Publish = () => {
7    const { register, handleSubmit, reset } = useForm();
8    const imageUrlKey = "e738f1d16de6b265746b7f82cc157644";
9    const [user] = useAuthState(auth);
10
11    const authorAvatar = user?.photoURL ? user?.photoURL : "https://www.shareicon.net/data/2016/05/";
12
13    function getMonthName(monthNumber) {
14      const date = new Date();
15      date.setMonth(monthNumber - 1);
16
17      return date.toLocaleString('en-US', { month: 'long' });
18    }
19
20    let today = new Date();
21    let date = (getMonthName(today.getMonth() + 1) + ' ' + today.getDate() + ' ' + today.getFullYear());
22
23    // console.log(date);
24
25    const handlePublishPost = (data) => {
26      const {
27        title,
28        category,
29        subCategory,
30        authorName,
31        authorEmail,
32        description,
```

```
6  const Publish = () => {
25  const handlePublishPost = (data) => {
27      title,
28      category,
29      subCategory,
30      authorName,
31      authorEmail,
32      description,
33      resource
34  } = data;
35
36  console.log(data);
37
38  const image = data.image[0];
39  // const resource = data.resource[0];
40  const imgData = new FormData();
41  imgData.append("image", image);
42  const url = `https://api.imgbb.com/1/upload?key=${imageUriKey}`;
43  fetch(url, {
44      method: "POST",
45      body: imgData,
46  })
47      .then((res) => res.json())
48      .then((result) => {
49          if (result.success) {
50              const img = result.data.url;
51
52              // const formData = new FormData();
53              // formData.append("title", title);
54              // formData.append("category", category);
55              // formData.append("subCategory", subCategory);
56              // formData.append("authorName", authorName);
```

```
6  const Publish = () => {
25  const handlePublishPost = (data) => {
48      .then((result) => {
64          const postData = {
65              title: title,
66              category: category,
67              subCategory: subCategory,
68              authorName: authorName,
69              authorAvatar: authorAvatar,
70              authorEmail: authorEmail,
71              description: description,
72              createdAt: date,
73              resource: resource,
74              cover: img,
75              status: "unapprove"
76          }
77
78          console.log(postData);
79
80          // Post to database
81          fetch(`https://autoparts-service-server.vercel.app/api/v1/posts`, {
82              method: "POST",
83              headers: {
84                  "content-type": "application/json",
85                  authorization: `Bearer ${localStorage.getItem("accessToken")}`,
86              },
87              body: JSON.stringify(postData),
88              // body: formData,
89          })
90          .then((res) => res.json())
91          .then((data) => {
```

```
6 const Publish = () => {  
  25   const handlePublishPost = (data) => {  
  48     .then((result) => {  
      88       // body: formData,  
      89     })  
      90     .then((res) => res.json())  
      91     .then((data) => {  
      92       console.log(data);  
      93       if (data.acknowledged === true) {  
      94         toast.success("Data Added Successfully !");  
      95         reset();  
      96       }  
      97     });  
      98   }  
      99 }  
  100 }  
  101  
  102 return (  
  103   <div className="text-left h-full w-full lg:pt-20">  
  104     <div className="w-full flex items-center justify-center my-12">  
  105       <div className="bg-white shadow rounded py-12 lg:px-28 px-8">  
  106         <p className="md:text-3xl text-xl font-bold leading-7 text-center text-gray-700">  
  107           Publish a Post  
  108         </p>  
  109         <p>/.md:text-3xl.text-xl.font-bold.leading-7.text-center.text-gray-700  
  110         <form  
  111           onSubmit={handleSubmit(handlePublishPost)}  
  112           className="mb-32"  
  113           action=""  
  114         </form>  
  115         <div className="md:flex items-center mt-12">  
  116           <div className="md:w-72 flex flex-col">  
            <label className="text-base font-semibold leading-none text-gray-800">  
              subCategory  
            </label>  
            <input  
              {...register("subCategory")}  
              required  
              tabIndex={0}  
              arial-label="Please input subCategory"  
              type="text"  
              className="text-base leading-none text-gray-900 p-3 focus:outline" placeholder="Please input category"/>  
            </input>  
          </div>  
          <div>/.md:w-72.flex.flex-col.md:ml-6.md:mt-0.mt-4  
        </div>/.md:flex.items-center.mt-12  
      </div>  
    </div>  
  </div>  
)
```

```
139   const handlePublishPost = (data) => {  
  140     .then((result) => {  
  141       // body: formData,  
  142     })  
  143     .then((res) => res.json())  
  144     .then((data) => {  
  145       console.log(data);  
  146       if (data.acknowledged === true) {  
  147         toast.success("Data Added Successfully !");  
  148         reset();  
  149       }  
  150     });  
  151   }  
  152 }  
  153  
  154 return (  
  155   <div className="text-left h-full w-full lg:pt-20">  
  156     <div className="w-full flex items-center justify-center my-12">  
  157       <div className="bg-white shadow rounded py-12 lg:px-28 px-8">  
  158         <p className="md:text-3xl text-xl font-bold leading-7 text-center text-gray-700">  
  159           Publish a Post  
  160         </p>  
  161         <p>/.md:text-3xl.text-xl.font-bold.leading-7.text-center.text-gray-700  
  162         <form  
  163           onSubmit={handleSubmit(handlePublishPost)}  
  164           className="mb-32"  
  165           action=""  
  166         </form>  
  167         <div className="md:flex items-center mt-12">  
  168           <div className="md:w-72 flex flex-col">  
            <label className="text-base font-semibold leading-none text-gray-800">  
              subCategory  
            </label>  
            <input  
              {...register("subCategory")}  
              required  
              tabIndex={0}  
              arial-label="Please input subCategory"  
              type="text"  
              className="text-base leading-none text-gray-900 p-3 focus:outline" placeholder="Please input category"/>  
            </input>  
          </div>  
          <div>/.md:w-72.flex.flex-col.md:ml-6.md:mt-0.mt-4  
        </div>/.md:flex.items-center.mt-12  
      </div>  
    </div>  
  </div>  
)
```

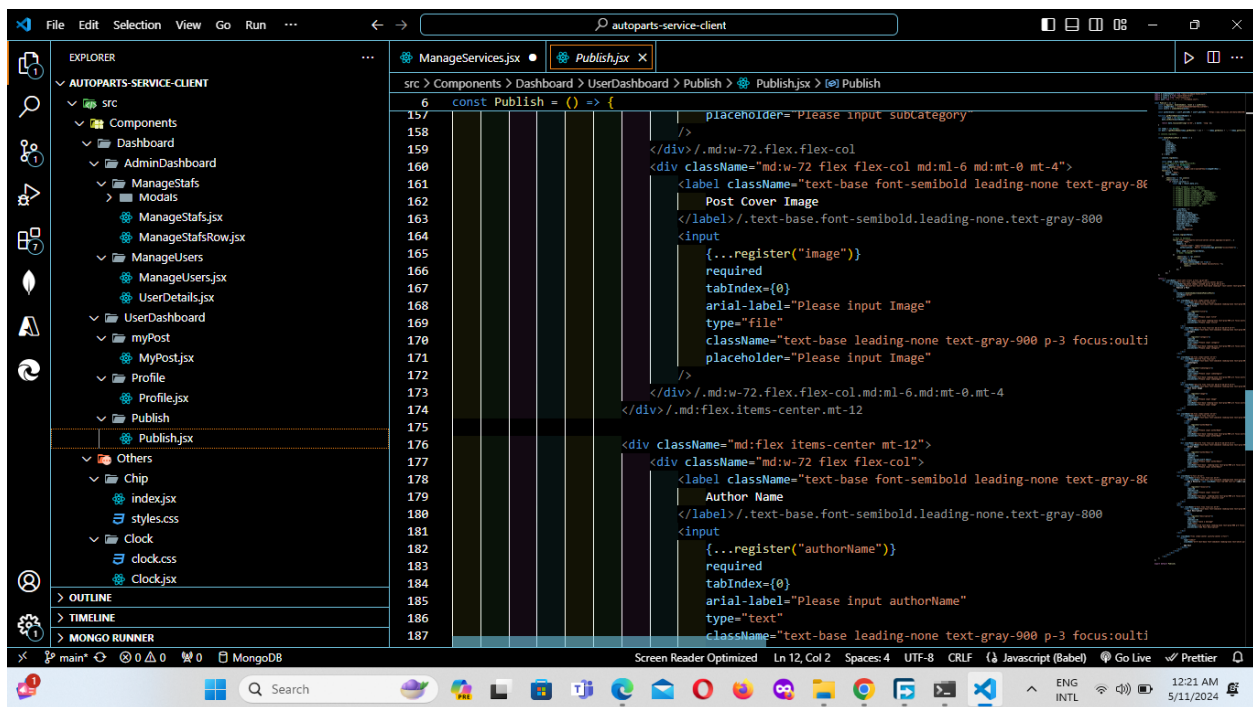


Figure 8: Code Sample

10.2 Probability problem break down

#Consistency problems: Different repetition of front end libraries of react js, backend framework Express Js and Database MongoDB may present consistency issues with special libraries. Upgrading these web technologies on a normal basis probability conflicts can be reduced by controlling consistency.

#Objection of Performance: My project is fully used JS programming language. JS individually has Database. This is MongoDB. This MongoDB is weighty operation and React just handling heavy datasets may cause objection of performance. These serious issues must be solved by keeping efficient algorithms into practice, optimization of query etc

#complication of State Management: It is very important to ensure effective state management with React. The issues of state may be solved by implementing worthy tools of state management such as API and arranging this web project architecture.

#Limited Package Support : Though the package of npm is big, few functionality do not have normally accessible packages. In current situations, traditional implementation to open source projects may be required.

#The complexity of State Management : Cautious thought is necessary to confirm effective management of state with the library name React, specially for complexity states of application. There are huge state related issues that come up in web applications by implementing eligible tools such as context API and arranging web app architecture.

#Protection and Security of Data : This is a very serious issue to receive warning to safe communication in the backend framework name Express JS and to save all data in MongoDB database. The security of data must be increased by using powerful authentication procedures of authentication, coding standards of safety.

Debugging and Testing: When develop web or mobile application, it is very important to search and fix the problem for example flaws of backend and frontend. For coding phase automation testing is used in both frontend library of React backend framework Express JS help to search and correct debug

#Finite Resources and Support Community : For few resources it is very hard to solve current project's problems. Catching the involvement in the React library, Express Framework, taking advice and contributing can help to get around these limitations.

10.C Prioritization while developing

Prioritization	Requirements and Explanation
A. Core Functionality	This is the responsibility of solving car related problems. Check the booking Car related services list who need this service. Creating contact with staff in auto parts shops. Give best priority on the customer's car related problem. Customer also meet with experienced staff to solve.
B. UX	A clear UI normal to use pure information show car related parts, Service Booking a simple and comprehend user experience. The usability must be tested and gather feedback to create good usability all time.
C. Security and Data Management	Powerful data encryption secure authentication of controls over access of users to set and sustainable Customers trust, it is create ensure that admin, staff and customers data managed safely and give highest priority to encryption of all data, authentication must be safe and access must be fully control
D. Optimization Performance	In performance optimization it just improved coding performance, network performance and increased the speed caching of use efficiently to enhance performance of this web application.
E. Integration with External Systems	Connect with auto parts and Service booking databases. Integrated with experience staff to raise functionality of the website and give the customers access to a auto parts and Service booking and also meet with staff
F. Quality Assurance and Testing	I develop a web application project. In this project I write a huge amount of code. In the code there are some errors that have occurred. To solve this error I used automation Testing. Automation Testing is used to check quality of the project. So before release project search and identity problem.
G. User Feedback and Continuous Improvement	For Every application it is very important to keep user feedback option so that developer of team can learn new things and also increase application performance. After publish feedback it is also important to correct error and also try to add update features in the application

CHAPTER 11: TESTING

Name of project	Auto parts Service System Web application	
Product name	Auto parts Service System app	
Describe about product	Auto parts Service System app	
Describe about project	MERN full stack web application	
Duration of the project	Project Type	Testing/Verification
	Start Date	End Date
	25/7/2023	3/4/2024

11.A The Test Plan Acceptance

Test Case Name	Unit Test		
Test Case	Admin panel Test		
Test Description	In Every project, the admin panel is important. Without Admin Panel it is quite impossible to run the project so it is very much important to solve the error of admin panel. Unit Test mainly used to test the functionality of Admin panel. In Unit Test it is included methods of test that mainly covers definite scenario by the users of admin.		
Source of data	Test Steps	Expected Result	Actual result
	Enter admin panel of the project Admin of the project login page. Enter accurate Name and password Just click login button	Must be successfully login all Page in the project	Admin panel of successfully
The name of Test Case	Unit Test		
Test Class	Test Admin Panel		

Test Description	The Admin Panel Test class only tests the functionality of the admin in the Auto parts Service System web application.
Source of Data	Test Steps Expected Result Actual Result
Admin	Login the admin panel Should be able to view auto The real result Navigate Auto parts list parts and Service Booking list depend test case

11.B Test Case

Make a mass collection of test cases that surround every features of Auto parts Service System project. It is ensure that the report of case of test are documented with expected outcomes

Name of Test Case	Unit Test
Test Class	
Test Description	
Source of Data	Test Steps Expected Result Actual Result

11.C Unit Testing

Test every code module individually conducting unit testing. Make the cases of tests that are suitable to every functionality of the unit. It is ensured to create each unit operating accurately.

11.D Module Testing

The interaction must be tested between huge units. It must verify the module that must be communicated with each other.

Name of Test case	Module test		
Classes of Test	Module test for Admin		
Test Description	Module Test for The admin panel is duty for testing the functionality in Auto parts Service System web app.It comprehends methods of test that cover limited scenarios performed by the user of admin.		
Source of data	Test Steps	Expected Result	Actual Result
	Admin module is Initialized call the method is login() With legal credential. It must be check returned value	The Admin of the project must be successful log in Admin panel	The original result totally on executed of the cases of test

Name of Test Case	Module Test
Test Class	Test of Admin Module
Test Description	

Source of data	Steps of Test	Expected Result	Actual Result
Admin	Admin module initialized.CallgetAutoparts() method.Retrieve list of auto parts listing from module.Balance retrieved auto parts list and service booking with the expectation list	The admin should be able to retrieve a list of Auto parts listing with accurate description.	The real result depends on the executed of the test case and may change.

Table7: Module Testing

11.E Integration Testing

Every module must be verified by using integration with others.Measurement and correction any matter with exchange of data and communication.If any plan for integrated system it must be checked to see.

Name of Test Case	Integration Test		
Test Class	Integration Test of Admin		
Test Description	The integration test of admin is responsible for testing the functionality of the admin in the Auto parts Service System web app.Integration Testing mainly focus on interaction between various component to make sure the uninterrupt functioning of the features of admin		
Source of data	Test Steps	Expected Result	Actual Result
Admin	Admin module is Initialized call the method is login() With legal credentials. It must be check returned value	The Admin of the project must be successful log in and access in admin panel	The original result totally on executed of the cases of test

Table 8: Integration Testing

11.F Acceptance Testing

Acceptance testing is a process that establishes whether an application meets the end user standards based on predetermined characteristics. In Auto parts Service System project for creating surety satisfaction this criteria, using acceptance testing. Testing every functionality of this project. It must be involved stakeholders for acquire usability of the program. Because in admin panel if any error are stay the project cannot run properly.

Name of Test Case	Acceptance Testing		
Test Class			
Description of Test	Acceptance Testing is mainly used to carry functionality of the admin panel. Acceptance Testing mainly focused on main requirements and UX		
Source of Data	Test Steps	Expected Result	Actual Result
Functionality of login the test case	Unlock login page of admin panel. Enter correct name and password. Click on Login button	The admin panel must be able to login successfully and redirected auto parts home page	The original result totally on executed of the cases of test.

Table: Acceptance Testing

11.G Usability Testing

Usability Testing mainly used to the project are user friendly. Gain opinions on web app and simple UX. Measurement what necessary to develop upon.

Name of Test case	Usability Test for Admin		
Test Class			
Test Description	The main responsibility of the usability testing class is operating the all functionality of the admin panel.It focused on estimating UI,UX and uses of the admin panel.		
Source of data	Test Steps	Expected Result	Actual Result
	Unlock login page of admin panel.Enter correct name and password.Click on Login button	The admin panel must be able to login successfully an redirected auto parts home page	The original result totally on executed of the cases of test.

Chapter 12 - Implementation

12.1 Training

Car User	Training	Time	Comment
Admin			
Staff			

12.2 Big Bang Implementation

A Big Bang implementation is the software development process that mainly refers to the deployment strategy where an entire system of it is rolled out at once rather than incrementally.It's one kind flipp a switch and launches the whole system in 1 go.In Auto parts service system Big Bang Implementation is totally rollout clear system,in this project I used Javascriptlanguage,for backend I used Express jsframework,MongoDB used for database to store data and for User Interface th React is used.Allover training program will essential for all kind of users,this users are Car driver,Staff,adminetc in Auto parts service system project.

12.3 Scaling

The Auto parts Service System claims scaling, as a result receive software prepared to handle users, huge data and huge transactions.

12.3.A Design of Scaling

It must be confirmed that the process of development and architecture are training in making an efficient and scalable auto parts service system. Idea Overtaking like optimizing the database, tactics caching and monitoring an effective performance implementation are essential for Auto parts Service System project.

12.3.B Testing Performance

Managing performance testing to measure Auto parts capabilities to conduct growing demands. It must be learned by every team to place the problems of performance and barrier while testing so that the system may be optimized and this system features are enhanced.

12.3.C Optimization and Monitoring

Pay for training staff so that they can carry an eye on Auto parts Service System's performance. It must be eye performance of the database, check the traffic of the network and must monitor other brutal metrics to build to make sure that this web application runs without any bottleneck and efficiency.

12.4 Load Balancing

Load Balancing is necessary for increasing the performance of this application. Some important points must be considered for this application.

12.4.A The configuration of Load Balancer

Create that the operations staff has accepted teaching on load balancer configuration for Auto parts Service System. As a result realizing how to establish new car related parts check and load balancing algorithm is also included.

12.4.B Scalability Event handling

Educate operation staff how to efficiently manage Auto parts Service System special scaling events. This includes handling any problems early, ensuring that service continuously, and adding or deleting car related parts, car related service from the pool of load balancer.

12.4.C Optimization and Monitoring

It must be training the operation staff on how to place an eye on load balancers effectively for the Auto parts Service System. It is confirmed to effective load balancing, as a result near observation of auto parts, car related Service and meet with experienced staff.

CHAPTER 13: Critical Appraisal and Evaluation

13.A probability of Attainable goals

#Gaining the efficiency set of car problem solutions complexity and developing the reaction time for car related cars and providing proper service crises are probability goals for the Auto parts Service System initiative.

#Offer customer auto parts and service booking with discount.

#To achieve the ability of strong communication within customers, admin and experience staff.

#Repose a widespread record of car problem cases for checking.

#Ennoble probability for solution support and suitable technology issues.

13.1.A Success rate of every Objective

The rate of success of every objective can be determined based on the figure of fruitful car problem solutions, provide accurate service, Strong communication, accuracy of database etc.

13.1.B How much better could have been done

Development can be created in terms of quick car problem solutions, quick service provided, UI, tools of communication, enlarging the capacity of all databases etc.

13.1.C Why it could not be done

When developing any application it is very difficult to implement the project for few resources, few costs, few technical support and want of carefulness with probability can be main factors.

13.1.D Reasons the goals have not meet

There are huge difficulties that are a barrier to meet goals and objectives, a want of experience, good quality of auto parts, illiterate customers and also lack of providing service.

13.1.E How those goals may have been accomplished

I think I should issue more funds to fulfill the project's goals and also give access to auto parts products and car related services so that customers can gather knowledge about car related products.

13.1.F How increase best solutions the features

This creates controversy that the characteristics of auto parts web applications are useful for enhancing the effectiveness and coordination of vocations with car related difficulties. This web application will enhance speed the communication of stakeholder and offer beneficial auto parts data, service booking data, staff data and also included car related problem-solving techniques.

13.1.G Some characteristics are motionless

There are some complex features that can not be solved in this web application for want of money. I want to add some AI tools. But I can not add AI tools. I also try to add time tracking but for lack of money my developer team can not solve this.

13.2 Unfulfilled Goals

There are some goals, touching special auto parts target improvement and increasing car related problem solve support to a big area, should not be polished for barrier like enlarge funding, not sufficient access product, service page, and also challenging to meet with staff. Unwanted behavior from staff can be big problem to obstacle to gain the objective. So it is important to solve this serious issues also creating big plans for the future for this web application.

13.2.A Reasons of Unfulfilled Goals

These unchangeable goals in the Auto parts Service System project must be the result of foul customer uptake, want of infrastructure, limited budgets etc.

13.2.B Probability of Recovery

If I want to save from this unfulfill it must be that the project team might be working with a non-profit group, fund sufficient money, this is also important for feasibility study. Running and after work testing phase must be running, debugging also important in software development process.

CHAPTER 14: LESSONS LEARNED

14.1 pre-project

I develop a web application of Auto parts Services System. The stage of pre-project is the brutal part. To goal set, parameters and opportunity are the stage of pre-project. Analysis the shop, measurement the target products, synopsis features are essential. Serious action should taken, This including are staff and software technology, well designing a fully project plan with deadlines.

14.2 Review

While starting the project, temporary reviews are the important part to evaluate the progress, find out any errors from the project plan and confirm that the Auto parts Service System project is on track. These reviews are essential for the project. These can help to

14.3 Lessons Learned

Before developing this web application I have learned many lessons. Before developing this application I learn how to system analysis and design. This is the brutal part for developing a system. Without analysis accurate software is not developed. Then I learn JS programming language. It is hard to learn. Though MERN stack are so popular but This stack is hard to learn and implementation is also difficult. When I start the learning process I find out my strengths and weaknesses, to make them eligible for future projects.

14.4 Problems Faced

While developing the project, I faced a large number of problems. I briefly describe some examples including how hard it is to gather accurate information about car related parts and it is also difficult to find experienced staff who have good knowledge about car solutions.

14.5 Problems that are solutions

This is not easy to solve software projects. Though I develop a web based application. While working in the project I faced some common problems but those problems I faced are the brutal part. But it is hard to come up with efficient solutions. This is a big challenge to gather proper information about car related parts, car solutions staff and car related services. I could cooperate with Auto parts shop and solve data validation techniques. The issues of technical might be solutions, taking advice from experience person and might visit architecture of application's. The serious problem is communication problem that must be solved by building clear communication.

CHAPTER 15: CONCLUSION

15.1 Outline of Project

The main goals and objective of the Auto parts services system project was to bargain a clear way to car solution well-being. In order to raise overall car problem solution, this web application wants to link users and staff. The use of technology, the initiative raised car solutions well-being, car services, car repair etc.

15.2 The Project's Objective

The main objective was to make a profitable program that would help auto parts shop, users and experienced staff to work together more effectively. This web application wants to increase overall auto parts well-being, inventory management, car parts repair and take car related services. The objective of this application was to solve car related all problem, car related problem solution can be tyre and glass repair, engine repair, car painting, car paper problem solve.

15.3 The Project's Success

By making this project there is huge success. The main performance are

- #Car users can easily order any car related parts at any time.
- #Car users can meet with experienced staff to get car problem solutions at any time.
- #Payment methods are so easy.
- #Positive comments from car users.
- # Car users get services from time to time.

15.4 Documentation In terms of documentation, the following stages, activities, and plans were likely covered:

- # **Pre-Project Documentation:** This could include project proposals, feasibility studies, and initial requirements gathering.
- # **Project Plan:** Documentation outlining the project's objectives, scope, timelines, resource requirements, and risk management strategies.
- # **Technical Specifications:** Detailed documentation describing the architecture, features, and functionalities of the car service and car problem solution help application.
- # **User Documentation:** Instructions and guides for stakeholders, including inventory management system organizations, tyre repair, and individuals, on how to use the application efficiently.
- # **Testing and Quality Assurance Documentation:** Documentation of test plans, test cases, and test results to ensure the application meets quality standards.
- # **Deployment and Maintenance Plans:** Documentation outlining the steps for deploying the application, as well as plans for ongoing maintenance, updates, and support.

15.5 Value of the Project

The probability of the Auto parts Service System persuading to have a big impact on Auto parts Shop well-being is what creates this project valuable. This Web application helps deliver car related parts, advance booking car related services etc performance by raising teamwork focused for car problem solutions. By promoting warning and observing a community of Auto parts stakeholder and also generating value of persuasive

15.6 My Experience

While developing this web application I gathered huge experience including Car related parts information, Car related Service information and also difficult to find experience staff. I have held a position such as a developer. For developing this web application I face experience to learn MERN. Because this is not easy to learn MERN. By doing problem solving, skills of documentation, communication skills. This capability further my career in the software development field.

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<<<https://www.youtube.com/watch?v=xpP5L1NuMQU&list=PLgH5QX0i9K3qzryglMjcyEktz4q7ySunX>>>

[2] Books I follow

<<chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/<https://cdn.bookeekey.app/files/pdf/book/en/effective-javascript.pdf>>>

[3]<<<https://tailwindui.com> >> what is tailwind css Available in online.

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<<<https://www.youtube.com/watch?v=9ldczKQNg3o&list=PLgH5QX0i9K3rGtitufynBKMy5gAFpa1y8> >> available(anisulislam)

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