DAARU SALAAM UNIVERSITY

FACULTY OF COMPUTER SCEINCE

DEPARTMENT OF INFORMATION TECHNOLOGY

TITLE

CAR RENTAL SYSTEM

A Project Work Submitted in Partial Fulfillment of the Requirement for the Degree of

Bachelor of Science in Information Technology

BY

1. **MOHAMED ABBAS AHMED** (User: 4490)
2. **SALAH HASSAN MOHAMED** (User: 7178)
3. **YUSUF NUUR MOHAMED** (User: 9243)
4. **ABUBAKAR ALI IBRAHIM** (User: 9168)
5. **AISHA AHMED SHIRE** (User: 8889)
6. **IQRO ABDI NUUR** (User: 10345)

SUPERVISOR

ENG. OMAR ABDI AHMED

JULY 2024

Approval

This thesis is submitted in partial fulfillment of the requirement for the degree of **Information Technology** in Daaru Salaam University.

Academic Year: 2023- 2024

For Graduate Committee

Name: _____

Sig: _____

Name: _____

Sig: _____

Name: _____

Sig: _____

Name: _____

Sig: _____

Name: _____

Sig: _____

Name: _____

Sig: _____

Dean of the faculty: Isse Mohamed Omar

Sig: _____

Declaration

We declare that this dissertation on "**car rental System**" these are our original work under the supervision **Eng. Omar Abdi Ahmed**, and has not been submitted for the award of a degree in any other university, college or other institutions. All other sources of information used have been acknowledged.

Graduators

Name:

Signature: …… **Date:** …. /……/…….

Name:

Signature: …… **Date:** …. /……/…….

Name:

Signature: …… **Date:** …. /……/…….

Name:

Signature: …… **Date:** …. /……/…….

Name:

Signature: …… **Date:** …. /……/…….

Name:

Signature: …… **Date:** …. /……/…….

Supervisor

Name: ENG. OMAR ABDI AHMED

Signature: ……. **Date:** …. /……../…….

DEDICATION

We would like to dedicate this thesis to our family, especially to our dear lovely fathers and mothers who was always support us to acquire more knowledge and encourage us to achieve our goals in the life their love and sacrifice have no comparable, they become glad to see our development in academic and everything else. And our beloved Sisters who encouraged us to complete this task, and all our brothers and sisters for their kind of support during the time of study. And also, unforgettable friends for their best supports May Allah rewards them abundantly with love and deepest appreciations.

ACKNOWLEDGEMENT

We thank to Allah the Creator of this world who gave us the opportunity to complete this project successfully. You won't find a successful person made his way to the top, without a support. Each one of us is debt to known or unknown people. Those who gave us hands when darkness was everywhere around. Show us the way, surrounded us, and smiled to us… gave us hope. We would like to thank our family and parents for supporting us emotionally and financially.
We would like to thank the administration of Daaru Salaam University, especially Dean of Faculty of Computer Science and Technology, Mr. **Isse Mohamed Omar** for his guidance, training, supervision and encouragement during our study at the university especially Information Technology (IT) We would like to extend our warmest gratitude to our supervisor, Eng. **OMAR ABDI AHMED** for his immense amount of support, advice, and guidance throughout the process. We couldn't have done any of this without their support. And we are also appreciating friends:
Finally, we wish to thank all those people who through their time and generous support made this research possible to be completed successfully.

ABSTRACT

Before the internet growth and web creation, public and private companies use physical paper resumes as an initial screening tool. At the beginning of internet growth in the late Nineteen Nineties and early 2000s, some scholars predicted that the internet held great potential for rising the channels of communication between job seekers and employers (Suvankulov et al., 2012). Online resumes provide new means and directions to show and express applicant's personalities, characteristics, Opinions and learning processes (Liu, 2014)

TABLE OF CONTENTS

CHAPTER FOUR

CHAPTER FIVE

CHAPTER SIX

Chapter One

Introduction

1.0 Introduction

In today's fast-paced world, the demand for convenient, flexible transportation solutions is at an all-time high. Car rental services have emerged as a vital component of the urban mobility landscape, offering both residents and travelers a range of options that cater to diverse needs, from short-term rentals for quick trips to longer leases for extended travel. the Car Rental System (CRS) is designed to streamline the process of renting vehicles, making it more accessible, efficient, and user-friendly. By integrating advanced technology and user-centric design, the CRS offers a seamless experience from booking to driving. This system not only facilitates easier access to vehicles but also enhances operational efficiency for rental agencies through automation and real-time data management. as environmental concerns and economic factors prompt more individuals to opt for rental services over vehicle ownership, the CRS stands out as a forward-thinking solution. It supports a variety of rental options including economy, luxury, and electric vehicles, ensuring that it meets the evolving demands of modern consumers and contributes to a sustainable future. this document (or presentation) will explore the components, benefits, and operational mechanisms of the Car Rental System, highlighting how it adapts to the challenges of modern urban mobility and exemplifies the future of transportation.

1.1 Background of the Project

The concept of renting cars has evolved significantly since its inception in the early 20th century, transforming from a niche service into a global industry. As urbanization has increased and the dynamics of travel have changed, the demand for flexible and cost-effective transportation options has surged, paving the way for the rise of the car rental industry.

Historically, car rental services were primarily located at airports and were used by business travelers and tourists. However, the industry has diversified over the years. Urban centers now see a blend of short-term and long-term rental services designed to cater to a variety of needs, including those of local residents seeking temporary transportation solutions.

The emergence of digital technology has further revolutionized the car rental landscape. Traditional processes, which often involved lengthy paperwork and inefficient management of

vehicle fleets, are increasingly being replaced by automated systems. These systems offer online bookings, digital contracts, and integrated vehicle management technologies, greatly enhancing the efficiency of operations and the convenience for users.

The Car Rental System project is conceptualized against this backdrop. It aims to develop a comprehensive platform that not only simplifies the rental process through technology but also addresses common pain points such as vehicle availability, cost management, and customer service. The project seeks to leverage the latest in technology—such as mobile applications, IoT for real-time vehicle tracking, and AI for personalized user experiences—to set a new standard in the car rental industry. This project is not just about maintaining competitiveness in a changing market; it is also about shaping the future of mobility. By making car rentals more accessible, efficient, and sustainable, the Car Rental System will play a crucial role in reducing private car ownership and, consequently, the environmental footprint of urban transportation.

In Somalia, as in many other developing countries, the demand for rental cars has been increasing due to growing tourism, business travel, and local usage by residents who prefer not to own a car but need one occasionally. Urban areas like Mogadishu, Hargeisa, and Bosaso, where economic activities are concentrated, likely present the highest demand for car rental services.

1.2 Statement of the Problem for a Car Rental System

In the current marketplace, many consumers face challenges when trying to rent cars efficiently and economically. The primary issues include:

Limited Accessibility: Potential customers often encounter difficulties in accessing car rental services due to geographical limitations and a lack of readily available information online about vehicle availability.

Inefficient Booking Processes: Many existing car rental platforms are plagued by cumbersome booking processes that require excessive paperwork or in-person visits, resulting in significant delays and a poor user experience.

High Cost: The cost of renting a car is frequently elevated by hidden fees and lack of transparent pricing, which can deter budget-conscious customers.

Vehicle Availability and Variety: Customers often find a limited selection of vehicles, which may not always meet their specific needs such as size, type, or features like child seats or GPS navigation systems.
Customer Service and Support: Inadequate customer support during the rental period can lead to unresolved issues and dissatisfaction, impacting customer loyalty and repeat business.
The proposed car rental system aims to address these problems by providing an intuitive online platform that offers easy access, transparent pricing, a wide variety of vehicle options, streamlined booking processes, and robust customer support to enhance user satisfaction and operational efficiency.

This problem statement sets the stage for detailing how the system will be developed to overcome these challenges, focusing on user needs and business goals.

1.3 Research Questions

1. How do different pricing strategies affect customer satisfaction and profitability in the car rental industry?

2. What are the most significant factors that influence consumer choice in selecting a car rental service?

3. What role does sustainability play in the consumer selection process of car rental services?

4. How can car rental companies optimize fleet management to enhance profitability and customer satisfaction?
5. What is the impact of international tourism trends on the car rental industry?

1.4 Purpose of the Project

- To develop a web-based system that will help manage the business transactions of car renting.
- to automate vehicle rental and reservation so that clients don't have to waste time calling and waiting for a vehicle.
- restricts the number of customers and the admin decides on the accessibility to the process.
- ensure efficiency and cost-effectiveness for you and your customers.

1.5 Project Objectives

1. **Streamline Booking Process**: Create a user-friendly online platform that allows customers to easily browse, book, and pay for rental cars. This could include features like a calendar for selecting rental dates and a system for choosing car types.
2. **Enhance Customer Experience**: Develop features that improve customer satisfaction, such as a mobile app for managing bookings, GPS navigation integration, and options for additional services like child seats or additional insurance.
3. **Automate Management Tasks**: Implement backend solutions for car rental management to automate tasks such as vehicle allocation, maintenance scheduling, and customer verification, reducing manual effort and increasing efficiency.
4. **Improve Fleet Utilization**: Use data analytics to better understand usage patterns and optimize fleet size and allocation, thus reducing downtime and increasing revenue.
5. **Enhance Security Measures**: Integrate advanced security features to protect customer information and prevent fraud. This could include secure payment gateways, data encryption, and identity verification systems.
6. **Expand Market Reach**: Develop marketing tools within the system to reach new customers and markets, such as promotional discounts, loyalty programs, and partnerships with travel agencies or airlines.
7. **Sustainability Initiatives**: Incorporate options for renting eco-friendly vehicles and promote sustainable practices within the operational processes of the car rental service.

1.6 Scope of the System

The scope of a car rental system can be extensive, covering various aspects of rental operations. Here is a detailed scope for such a system: the car rental system in Somalia aims to provide a seamless and efficient platform for renting vehicles. This system is designed to cater to both individual and corporate clients, offering a wide range of vehicles to meet diverse needs. The primary goal is to enhance customer convenience, ensure vehicle availability, and streamline the rental process.

1.7 significance of the project

The significance of a car rental system project can be outlined in various dimensions, highlighting its benefits and impacts on different stakeholders: Operational Efficiency and Automation:

Streamlined Processes: Automating booking, inventory management, and billing processes reduces manual errors and increases efficiency.

Resource Management: Efficient management of vehicle fleet, maintenance schedules, and availability ensures optimal use of resources.

Time Savings: Reduces the time spent on administrative tasks, allowing staff to focus on customer service and other critical operations. Enhanced Customer Experience:

Ease of Booking: Provides customers with a user-friendly platform for booking vehicles online, improving convenience and accessibility. Real-time Information: Customers can get real-time updates on vehicle availability, pricing, and reservation status. Personalization: Tailors services based on customer preferences and history, enhancing satisfaction and loyalty. Data-Driven Decision Making: Analytics: Collects and analyzes data on customer behavior, rental trends, and vehicle usage, aiding in strategic decision-making. Demand Forecasting: Helps predict demand patterns, enabling better inventory and pricing strategies. Performance Monitoring: Tracks key performance indicators (KPIs) such as vehicle utilization rates, customer satisfaction, and financial metrics. Cost Reduction: Reduced Operational Costs: Automating processes minimizes labor costs and reduces operational expenses. Maintenance Management: Proactive maintenance

scheduling reduces vehicle downtime and repair costs. Efficient Resource Utilization: Optimizes the use of the vehicle fleet, minimizing idle time and maximizing revenue. Market Competitiveness: Improved Services: Offers competitive services such as quick booking, flexible rental options, and loyalty programs. Brand Image: Enhances the company's reputation by providing reliable and high-quality services. Scalability: Allows the business to scale operations easily, adding new locations or expanding the fleet without major overhauls. Regulatory Compliance: Automated Documentation: Ensures all necessary documentation and compliance requirements are met efficiently. Record Keeping: Maintains accurate records for audits, legal purposes, and reporting requirements. Sustainability: Eco-friendly Options: Can integrate options for renting eco-friendly or electric vehicles, promoting sustainable practices.

A car rental system project significantly improves operational efficiency, customer satisfaction, and overall business performance. By leveraging automation, data analytics, and modern technologies, it ensures better resource management, cost reduction, and competitive advantage in the market. Such a system not only enhances the customer experience but also enables the business to adapt and grow in a dynamic industry environment.

1.8 Project Organization

1. Introduction: Start by defining the purpose of the car rental management system and explain why it's important. This introduction should set the tone for the rest of the project organization document.

2. Key Features: List the key features of the system that will be developed. This might include things like job search functionality, resume creation and management tools, and communication tools for car rental and recruiters.

3. User Stories: Develop user stories that will guide the design and development of the system. These user stories should describe the goals and needs of the users, such as car rental and recruiting managers.

4. Project Scope: Define the scope of the project, including which features will be included and which will be left out. This will help keep the project focused and make sure that it can be completed on time and within budget.

5. Timeline: Develop a timeline for the project that includes key milestones and deadlines. This will help ensure that the project stays on track and that all team members are aware of what needs to be done and when.

6. Team Members: Identify the team members who will be working on the project, including their roles and responsibilities. This might include developers, designers, project managers, and other stakeholders.

7. Communication Plan: Develop a communication plan that outlines how team members will communicate with each other and with external stakeholders, such as recruiters and car rental.

8. Budget: Develop a budget for the project that includes the cost of software development tools, hardware, and other resources.

9. Technology Stack: Choose the technology stack that will be used to develop the system. This might include programming languages, web frameworks, and database management systems.

10. Testing Plan: Develop a testing plan that outlines how the system will be tested to ensure that it's working properly and meets user needs.

11. Deployment Plan: Develop a deployment plan that outlines how the system will be deployed and made available to users.

12. Maintenance Plan: Develop a maintenance plan that outlines how the system will be maintained over time, including things like bug fixes, update releases, and security patches.

13. Training Materials: Develop training materials for the system that will be used by both job seekers and recruiting managers.

14. Documentation: Develop documentation for the system that will be used to guide users and developers.

15. Conclusion: Wrap up the project organization document by summarizing the scope of the project, the key features and goals, and the timeline and budget. This conclusion should provide a clear and concise overview of the project and its objectives.

Overall, this project organization provides a framework for the development of a car rental management system that is user-friendly, efficient, and effective in helping job seekers find the right job opportunities and recruiters find the right candidates for their openings. By following this project organization, the development team can focus on delivering a high-quality system that meets the needs of all stakeholders and is built to last

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Car rental services provide a convenient and flexible option for individuals who need temporary access to a vehicle. Whether for business trips, vacations, or everyday needs, renting a car offers numerous benefits. Here's an overview of what car rental entails and why it might be the right choice for you.

Car rental is a service where customers can rent vehicles for short periods, typically ranging from a few hours to several weeks. Rental cars are available from various companies, often located at airports, downtown areas, and other strategic locations

2.2 Concept of car rental management system

A car rental management system is a software application designed to manage and automate the operations of a car rental business. The main goal of such a system is to streamline the rental process, improve customer service, and enhance operational efficiency. Here is an overview of the key concepts and components of a car rental management system:

web based system for a company that rents out cars.

Car rental management system is a fully cloud-based, device-independent car rental software that can handle tasks scalable from small to large car rental businesses

A Vehicle Management System is a digital tool that helps businesses monitor, control, and manage their vehicles more effectively.

Convenience

You can travel conveniently if you book a car rental service instead of relying on public transportation or taxis. You can pick up and drop off the car at a location that is convenient for you, and you don't have to worry about schedules or timetables while exploring India and it's various marvels.

The system of car control is a safe, systematic way of driving and approaching hazards.

2.3 Existing Systems

The literature on car rental management systems encompasses a wide range of studies and developments, focusing on various aspects such as technology, optimization, customer service, and business models. Here's an overview of the key themes and findings in the existing literature:

1. Technological Advancements

a. Software Solutions: Many studies emphasize the importance of integrated software solutions in managing car rental operations efficiently. These systems typically include features such as online booking, fleet management, customer relationship management (CRM), billing, and reporting.

b. Automation and AI: The incorporation of automation and artificial intelligence (AI) in car rental management systems has been a significant focus. AI-driven algorithms are used for optimizing fleet utilization, pricing strategies, and predictive maintenance.

c. Mobile Applications: The rise of mobile technology has led to the development of car rental mobile apps, which enhance customer experience by providing easy booking, real-time updates, and seamless communication.

2. Optimization Models

a. Fleet Management: Numerous studies explore optimization models for fleet management, aiming to maximize the utilization of the car fleet while minimizing operational costs. Techniques such as linear programming, simulation, and heuristic algorithms are commonly used.

b. Demand Forecasting: Accurate demand forecasting models help car rental companies predict customer demand and adjust their fleet size and distribution accordingly. Machine learning models are increasingly being employed for this purpose.

3. Customer Service and Experience

a. Customer Preferences: Research often highlights the importance of understanding customer preferences and behavior to improve service quality. Surveys and data analytics are used to gather insights into customer needs and satisfaction levels.

b. Self-Service Kiosks: The implementation of self-service kiosks in rental locations has been studied for its impact on reducing wait times and improving customer satisfaction.

4. Business Models and Strategies

a. Pricing Strategies: Dynamic pricing models that adjust rental rates based on demand, seasonality, and competition are a common topic of research. These models help in maximizing revenue and market share.

b. New Mobility Solutions: The literature also covers the emergence of new mobility solutions such as car-sharing and peer-to-peer (P2P) car rental services. These models are analyzed for their potential to disrupt traditional car rental markets.

5. Sustainability and Green Initiatives

a. Electric Vehicles (EVs): The integration of electric vehicles into rental fleets is discussed in the context of sustainability and environmental impact. Studies investigate the challenges and benefits of transitioning to EVs.

b. Carbon Footprint: Efforts to reduce the carbon footprint of car rental operations, including the adoption of greener practices and technologies, are a growing area of interest.

Key Publications and Resources

Books and Monographs:

"Handbook of Research on Emerging Innovations in Rail Transportation Engineering" includes chapters on transport systems, including car rental management.

"Fleet Management: A Practitioner's Guide" offers practical insights into managing vehicle fleets.

Journal Articles:

Articles in journals like the "International Journal of Production Economics" and "European Journal of Operational Research" cover optimization and operational research in car rentals.

"Journal of Business Research" and "Transportation Research Part A: Policy and Practice" provide studies on customer behavior and business strategies.

Conference Proceedings:

Conferences such as the IEEE International Conference on Industrial Engineering and Engineering Management (IEEM) feature papers on technological innovations and system improvements in car rental management.

2.4 Chapter summery

Introduction

The literature review chapter explores the development, functionalities, and impact of car rental management systems (CRMS) in the car rental industry. This chapter synthesizes existing research to provide a comprehensive understanding of the technological advancements and their applications within car rental operations.

Evolution of Car Rental Management Systems

Early Systems: Initially, car rental operations were managed manually, relying on paper records and face-to-face customer interactions. Early digital systems emerged in the late 20th century, focusing on basic record-keeping and rental processing.

Modern Systems: Contemporary CRMS are sophisticated, integrating various technologies such as cloud computing, mobile applications, GPS, and data analytics. These systems offer features like real-time vehicle tracking, automated billing, and customer relationship management (CRM)

Key Features and Functionalities

Reservation and Booking:

Online booking platforms allow customers to reserve vehicles via websites or mobile apps.

Integration with global distribution systems (GDS) for broader reach.

Fleet Management:

Real-time tracking and monitoring of vehicles using GPS.

Maintenance scheduling and monitoring to ensure vehicle safety and availability.

Fleet utilization analytics to optimize vehicle usage and reduce downtime.

Customer Management:

CRM systems to manage customer data, preferences, and history.

Automated communication for confirmations, reminders, and promotions.

Billing and Payments:

Integration with multiple payment gateways for seamless transactions.

Automated invoicing and payment tracking.

Support for various payment methods, including credit cards, digital wallets, and contactless payments.

Reporting and Analytics:

Data analytics tools for generating insights into business performance.

Customizable reports on revenue, customer demographics, vehicle usage, and more.

Predictive analytics to forecast demand and inform decision-making.

Benefits of Car Rental Management Systems

Efficiency**:** Automates repetitive tasks, reducing manual errors and improving operational efficiency.

Customer Experience: Enhances the customer journey through streamlined booking processes and personalized services.

Cost Management: Optimizes resource allocation and reduces operational costs through effective fleet management and maintenance.

Scalability: Supports business growth by accommodating increasing transaction volumes and expanding fleet sizes without significant additional investment.

Data-Driven Decisions: Empowers businesses with actionable insights derived from comprehensive data analytics.

Challenges and Limitations

Implementation Costs: High initial investment for small to mid-sized rental companies.

Data Security: Ensuring the security of sensitive customer and business data.

System Integration: Integrating CRMS with existing systems and ensuring compatibility.

Technological Dependence: Over-reliance on technology can lead to operational disruptions in case of system failures.

Future Trends

Artificial Intelligence (AI): AI-driven chatbots for customer service, predictive maintenance, and demand forecasting.

Blockchain Technology**:** Enhancing transaction security and transparency.

Internet of Things (IoT**):** Advanced vehicle monitoring and maintenance through IoT devices.

Sustainable Practices: Incorporation of electric vehicles and eco-friendly operations in fleet management.

Conclusion

Car rental management systems have transformed the car rental industry by enhancing efficiency, customer satisfaction, and operational control. Despite challenges, the continuous

evolution of technology promises further advancements, paving the way for more innovative and sustainable car rental solutions. Future research should focus on emerging technologies and their potential to address current limitations and improve system capabilities

Chapter three

Requirement analysis

3.1 INTRODUCTION

In this chapter, Requirement analysis we will present the requirement analysis used in this project, and will define how the project problem has been solved. It starts with the project approaches and followed by a presentation of the project design, the data collection tools and furthermore a description of how the data is analyze. So, it also presents the user requirement analysis process of the study. It outlines user requirement specification; data gathering techniques and procedures which were used feasibility study and etc.

3.2 USER REQUIREMENT ANALYSIS

This project uses as analysis tool the UML to describe the proposed system's analysis phase activities and the end product of the system analysis phases.

3.2.1 UML

UML stands for Unified Modeling Language; The UML is the standard language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. It can be used with all processes, throughout the development life cycle, and across different implementation technologies.

User Requirements Capture is the process by which user desires, needs and expectations are gathered in order to establish what the users will actually use the software for and recorded in a way that will be meaningful both to users and developments.

User Requirements Capture may be a difficult process mostly because:

• The developers do not have a clear idea of the users' domain and needs

• The users do not have a clear idea of what the new technology may offer them

• More than one user groups may have to be taken into account for the same application

Once identified, the user requirements effectively lay the foundation for developers, testers, and Implementers to begin determining the functionality, responsiveness, and interoperability required of the system.

The Car Rental was developed to operate within the following environment: -

A: Operating system Windows.

B: PHP

C: Database MYSQL to develop the system.

3.3 PRELIMINARY INVESTIGATION

Primary data would be gathered, through use of depth observation, particularly interview to get the relevance information, the interview design will be open questions and will distribute to intend parties, and it will design in simplicity way to facilitate getting reliable information from the respondents, because it is easy and time saving for collecting data.

Preliminary Investigation basically refers to the collection of information that guides the management of an organization to evaluate the merits and demerits of the project request and make an informed judgment about the feasibility of the proposed system. This sort of investigation provides us with a through picture of the kind of software and hardware requirements which are most feasible for the system, plus the environment in which the entire project has to be installed and made operational.

A preliminary investigation is an inquiry conducted to launch fact gathering from the case's stated problem will base project's investigation this two reasons.

- Improved service
- Better performance

Improved service

For Car Rental Companies, simplicity and convenience for completing transactions of the kind of Enhanced Candidate Experience Provide an easy-to-use interface that candidates can use to apply, view and edit their job applications, resumes, and other documents quickly. Make it possible for candidates to remain updated on the status of their application.

Better performance

1. Well-Organized Database

Ensure the database is well-organized, with efficient storage and retrieval capabilities. This helps avoid any delay in the hiring process due to a slow or non-responsive system.

2. Upgraded Security Measures

Ensure that security is a top priority, with an emphasis on data privacy and confidentiality. Implement multi-level authentications, data encryption, and regular system audits to safeguard against any potential vulnerabilities or data breaches.

3.3.1 MAIN REASONS FOR SYSTEMS PROJECTS PRELIMINARY INVESTIGATION

The project will simplify the collection and analysis of basic information about Car Rental Companies in Somalia and the routine operation on the following data collection procedures were implemented:

A: Project Level

This under developing system of Online Job Seeker System supports existing general record Services currently used by the Service Companies in Mogadishu-Somalia.

B: Thesis Level

The researcher will request the respondents the following:

- To sign the informed consent
- To answer all questions hence should not leave any item unanswered.
- To avoid biases and to be objective in answering the interview.

3.3.2 CURRENT SYSTEM

Service Companies was Car rental center especially jobs. The Car rental was using a manual system and later on they decided to convert their manual system into computerized system (Applications like MS word and PowerPoint) to use in the future effectively. After deeply

studying the manual system, we identified a lot of problems and weakness occurred during its daily operations.

3.4 Limitations of the current system

In a car rental system, there are several common limitations that can affect the efficiency and customer experience. Here are some of the typical issues:

1. **Inventory Management Challenges**: Car rental systems may struggle with efficiently managing their inventory, leading to situations where vehicles are either overbooked or underutilized. This can result in customer dissatisfaction when bookings are canceled last minute or when a wide variety of vehicles is not available.
2. **Customer Service Issues**: Due to the high volume of transactions and interactions, customer service can be overwhelmed, especially during peak times. This may lead to delayed responses to customer inquiries and issues, impacting customer satisfaction.
3. **Maintenance and Upkeep**: Effective tracking and scheduling of vehicle maintenance can be a significant challenge. Failure to properly maintain vehicles can lead to increased operational costs and decreased customer satisfaction due to vehicle breakdowns or poor vehicle condition.
4. **Technology Integration:** Many car rental systems may not be fully integrated with modern technology solutions like mobile apps, GPS tracking, or digital documentation. This can limit customer experience enhancements and operational efficiencies.
5. **Operational Efficiency**: Many rental systems still rely on manual processes for part of their operations, leading to inefficiencies and errors. Automation could help, but transitioning can be complex and resource-intensive.

3.5: DATA GATHERING

There are several techniques to make data gathering such as Interviews, Observations, I will use the techniques which are described below:

Interviews An interview is "a formal face-to-face meeting, especially, one arranged for the assessment of the qualifications of an applicant, as for employment or admission. In the context of teaching System, the interview is the primary techniques for information gathering during the systems analysis phases of project development phases. Interviewing, observation and research

are the primary tools in the data gathering of the project When we collecting the data, I met the Owner and some cloth store Companies in Somalia.

Observations Observation is a data collection method used to gather detailed information about a situation or event. Observation data is used to describe the setting, activities, participants, and the meaning of the observations from the observer's perspective. The best observational data allows the reader to fully understand the situation

3.6: DATA FLOW DIAGRAMS (DFD)

A data flow diagram is a graphic representation of a system or part of system. It consists of entities, data flows, processes, sources, destinations, and stores that can facilitate the readability of the system. The entire system can be described from the viewpoint of how data it processes through the system.

We can divide Data Flow Diagram into the flowing types:

- Physical Data flow diagram
- Logical data flow diagrams

3.6.1: Physical data flow diagrams: show detail implementation, they show the actual things, department, people, offices, etc., which involved in the current system, they also state the details of the flowing areas.

1. How things are happening?
2. Who does it?
3. Where is it happening?

3.6.2: Logical data flow diagrams: in contrast, describe how the system is actually implemented; that is, they show what takes place, rather than how the activity is accomplished, or concerns what is happening in the system, such as the data flow between processes, Symbols:

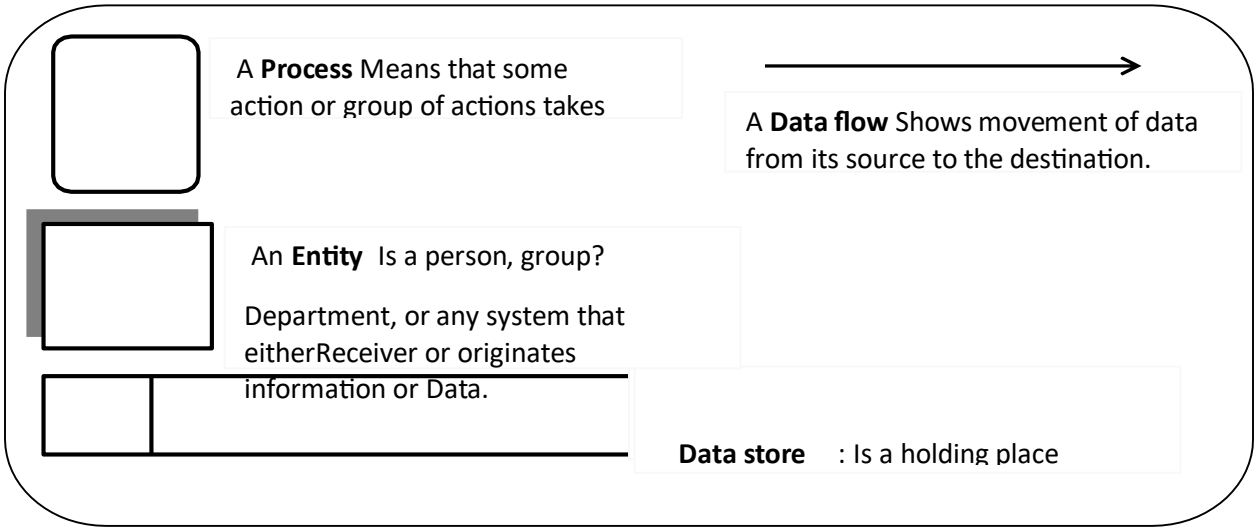


Figure 3.6.2.1 Data Flow Diagrams Basic Symbols (DFD)

Event 3.6.2.2: Register User Submits request to registration. **"ContextDiagram"**

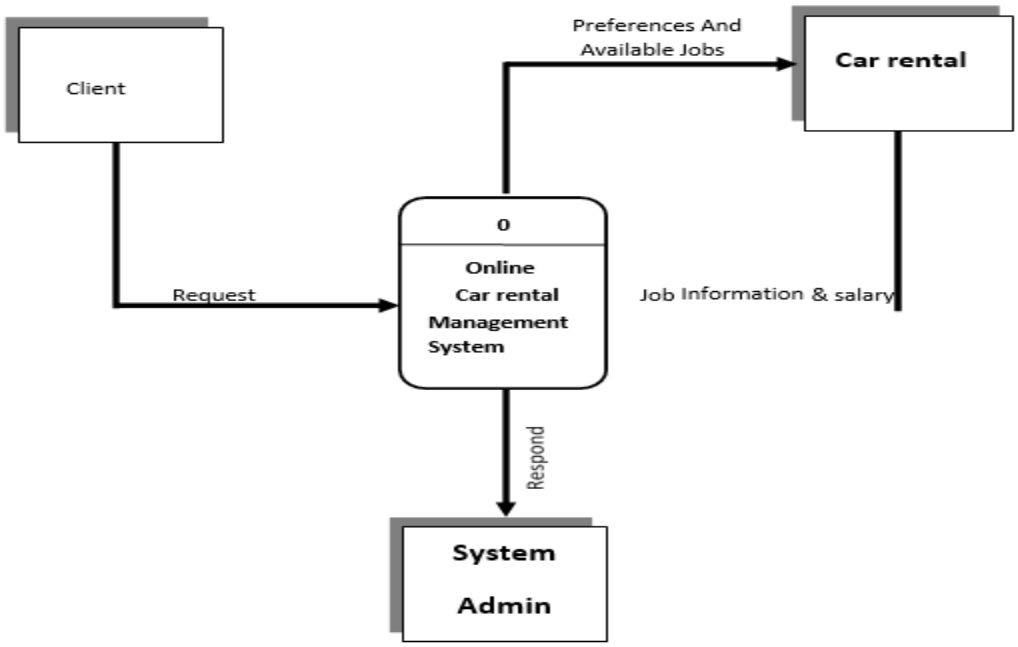
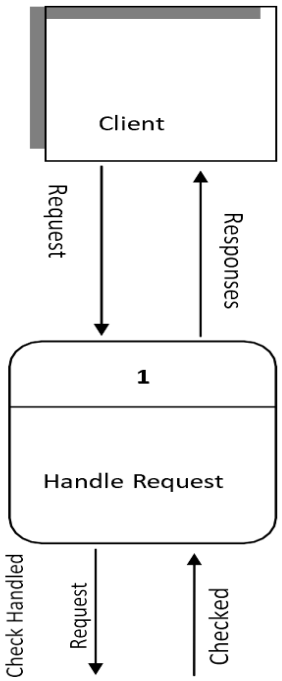


Figure 3.6.2.2 client Submits request to Car Service "**Context Diagram" Event 3.6.2.3:**

Proposed Diagram

Figure 3.6.2.3: Proposed Diagram



3.8 PROBLEM STATEMENT:

In preliminary study researchers have found that a system Online Job System which functions well does not exist so that the system developers tried to cope with the current gap. The way of manual System is hard work when registering customers, because what you are working is manual way and you are human. The manual registering system is book registering system. The entire information sharing is low so it can take some more time an announced time, also papers sharing.

Let's mention the problem of the car rent system as we have mentioned above. The current system has many problems including the following factors:

	Checking request

Current system it is difficult to control it, because of the hugeness of the number of vacant positions and employees.

B. Slow Processing Data

To process certain information about paying tickets and employees require more time and effort.

C. Un-Organized Data

The information kept in the system are distributed not centralized.

3.6 FEASIBILITY STUDY

Depending on the results of the initial investigation the survey is now expanded to a more detailed feasibility study. "Feasibility study" is a test of system proposal according to its workability, impact of the organization, ability to meet needs and effective use of the resources. Feasibility study is more important and it's the high-level study of a system that clarifies the objectives of the proposed system it provides a better understanding of organization problems it access and recommend what courses of action should be taken for its solution. Feasibility study is divided into four main areas:

- Technical feasibly study
- Operational feasibility study
- Schedule feasibility

3.6.1 Technical Feasibility

The new proposed system will be developed with expert personnel, software technology and the current equipment. According to feasibility analysis procedure; the technical feasibility of the system is analyzed and the technical requirements such as software, hardware facilities, procedures, and inputs are identified. It is also one of the important phases of the system development activities. What kind of hardware and software will be required? We have just mentioned above that technical requirements we will be needed to develop the new system. But before that, it's a good scheme to propose or designed what to do (this means what category of software and hardware we need and their minimum and maximum quantity). So the table below illustrates the hardware requirements with its maximum and minimum quantity.

No	Name	Description	QTY	Unit price	Total
1	Tesla Luxury	Electric Vehicles 2003-Present.	5	10000	10000
2	BMW	Luxury Vehicles 1916-Present.	3	12000	12000
3	Honda	Mass-Market Cars 1948-Present.	1	1290	1290
		TOTAL			45290

Table 3.1 Technical feasibility

3.6.2: Operational Feasibility

Operational feasibility is a crucial aspect to consider when developing a car rental system. It examines whether the proposed system will function in the existing operational workflow and if the organization can utilize it effectively. Here are some key considerations for assessing the operational feasibility of a car rental system:

Integration with Existing Systems: It's important to determine if the new car rental system can integrate seamlessly with existing operational and management systems, such as accounting software, vehicle tracking systems, and customer relationship management tools.

User Acceptance: The system should be user-friendly and meet the needs of all users, including staff and customers. Training might be required to ensure that employees can operate the system effectively. Feedback from initial user testing can be instrumental in gauging potential acceptance issues.

Operational Impact: Assess the impact of the new system on current operations. This includes understanding how it will affect car booking, return processes, customer service, and overall workflow. The goal is to improve efficiency without disrupting existing processes too much.

Resource Availability: Ensure that the necessary resources, including personnel, technology, and budget, are available to support the system's implementation and ongoing operation. This also includes regular maintenance and updates.

Compliance and Security: The system must comply with relevant regulations, such as data protection laws and industry standards. Security features must be robust to protect sensitive customer information and prevent unauthorized access.

Scalability: Consider whether the system can handle future growth in terms of more users, increased transaction volumes, and potential expansions into new markets or services.

Evaluating these factors will help determine if implementing a new car rental system is operationally feasible and beneficial to the organization.

3.6.3 Economical feasibility

Economically feasibility is the most important part of the feasibility study of this project. This involves questions such as whether safari apartment rental center can afford to build the system, whether its benefits should substantially exceed its costs, and whether the project has higher priority than other projects that might use the same resources. New budget requirement of the new system is shown in the following table:

Name	Cost
Technical	**100$**
Operational	**1500$**
Development cost	**1200$**
Total	**22600$**

3.6.4: Schedule Feasibility

Time evaluation is the most important consideration in the development of project. The time schedule required for the developed of this project is very important since more development time effect machine time, cost and cause delay in the development of other systems. Since this project is intended for academic purpose especially undergraduate degree, it is developed for six months or one semester.

3.6.5 Feasibility Study Report

After we find the needs to build this new system according to the Technological, economical, and operational modal, we illustrated that if we get all these needs we will develop this new System accurately, we will install it to your computers and it will able to fulfill all requirements specifications needed by the proposed system which intends to be developed.

In this investigation phase we use feasibility report to explain overall the new system; especially feasibility study is to evaluate the conclusion products of the investigation phase. It is, in addition, estimated the objectives of completing the whole project to prove it with possible time into a report that will be feasible to the control of the employee management system.

3.7 NEW PROPOSED SYSTEM

To design a new proposed system for a car rental business, we should consider integrating various features and technologies to enhance user experience, streamline operations, and ensure scalability. Here's an outline for a robust car rental system:

1. User Interface (UI)

Web and Mobile Access: Responsive design to ensure usability across devices.

Easy Navigation: Intuitive menus and dashboard with real-time updates.

Multilingual Support: To cater to diverse customer bases.

2. User Authentication and Management

Secure Login: Integration of OAuth for social media logins alongside traditional email/password.

Profile Management: Allow users to manage their details, payment options, and booking history.

Admin Panel: For managing users, fleet, bookings, and payments.

3. Fleet Management

Vehicle Tracking: GPS tracking to monitor vehicle locations.

Maintenance Schedule: Automated reminders for maintenance checks.

Vehicle Details: Detailed listings with photos, features, and availability status.

4. Booking Engine

Advanced Search Filter: Search by type, price, availability, or custom preferences.

Booking Flexibility: Options for hourly, daily, or long-term rentals.

Real-Time Availability: Immediate update on vehicle availability.

5. Pricing and Payments

Dynamic Pricing: Depending on demand, duration, or special promotions.

Secure Payment Gateway: Integration with multiple payment methods including credit cards, PayPal, and mobile wallets.

Invoices and Receipts: Automatic generation and emailing to users.

6. Notifications and Alerts

Email and SMS Notifications: For booking confirmations, changes, and promotions.

Push Notifications: Real-time alerts on mobile apps.

3.7.1 Goals of proposed system

1. **Planned approach towards working: -** The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.
2. **Reliability:** - The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.
3. **No Redundancy: -** In the proposed system would be that no information is repeated anywhere, in storage or otherwise. This would assure economic use of storage space and consistency in the data stored.
4. **Immediate retrieval of information: -** The main objective of proposed system is to provide for a quick and efficient retrieval of information. Any type of information would be available whenever the user requires.

3.8 SOLUTION STRATEGY

Creating a successful car rental system involves several components that address technology, customer experience, business operations, and strategic planning. Here's a breakdown of a comprehensive solution strategy for a car rental system:

Option1	**PHP&MYSQL**	First option
Option2	**PHP and CSS and ZAMPP for server**	Second option

Table 3.3: Solution strategy and option

3.8.1 Front-end and Back-end selection

An important issue for the development of a project is the selection of suitable front-end and back-end. When we decided to develop the project we went through an extensive study to determine the most suitable platform that suits the needs of the organization as well as helps in development of the project.

Front end section is PHP with HTML which has the following advantages:

- Security
- User Friendly
- Flexibility

Back-end section is SQL server and the following advantage:

- Multiple users
- Operating System compatibility
- High performance and processing

3.9 CHAPTER SUMMARY

In this Chapter, we have discussed important points on the User Requirement Analysis of the system starting form introduction of the chapter then the User Requirements after that we discussed the Preliminary Investigation, Organizational Profile, Data Gathering, UML Diagrams, Feasibility Study and User Requirements Specifications. Finally, we have covered all that now we are going the step Design of the project.

CHAPTER FOUR
SYSTEM DESIGN

4.1 INTRODUCTION

Design and architecture are the activities involved in specifying how the project will actually work. This phase frequently described as being divided into two main phases, which might be described as Conceptual design and Physical design. Conceptual design generally specifies the "why" of the system, indicating how data will be used and how it will flow. Physical design generally specifies the "how" of the system, or how its components will be arranged, what their features will be, and what kind of hardware the system will require.

4.2 DESIGN GOALS

There are many aspects to consider in the design of a every project. The importance of each should reflect the goals the system is trying to achieve. Some of these aspects are:

• Efficiency – It is generally considered to be the most important. Given a piece of hardware on which the system will run and a piece of software to run it, the design should make full and efficient use of the facilities provided. The users should interact with the system without any delay. • Integrity - this means that the system should be accurate as possible. The problem of preserving the integrity of data can be viewed at a number of levels.

• Extensibility - New capabilities can be added to the system without major changes to the underlying architecture. • Fault-tolerance - The system is resistant to and able to recover from component failure.

• Reliability - The system is able to perform a required function under stated conditions for a specified period of time.

• Security – The system, once loaded, should be safe from physical corruption whether from hardware or software failure or from unauthorized access.

4.3 DATABASE DESIGN

This section discusses about the database created for this project. The database is created using MySQL. The following diagram shows the database tables. The most relationship among the table is one to many relationships. The rental, and apartment tables are the center bridge among the other tables. To deploy this system, it will be used three tier architecture. Figures below shows system architecture and database design respectively:

	Table	Action	Rows	Type	Collation	Size	Overhead
☐	admin	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblbooking	Browse Structure Search Insert Empty Drop	2	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblbrands	Browse Structure Search Insert Empty Drop	7	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblcontactusinfo	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblcontactusquery	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblpages	Browse Structure Search Insert Empty Drop	4	MyISAM	latin1_swedish_ci	8.8 KiB	-
☐	tblsubscribers	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tbltestimonial	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16.0 KiB	-
☐	tblusers	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	32.0 KiB	-
☐	tblvehicles	Browse Structure Search Insert Empty Drop	9	InnoDB	latin1_swedish_ci	16.0 KiB	-
	10 tables	Sum	27	InnoDB	utf8mb4_general_ci	168.8 KiB	0 B

Figure 4.1: Database

4.4 ENTITY RELATIONSHIP DIAGRAM (ERD)

ERD is a detailed, logical representation of the entities, associations and data elements for an organization or business. **ERD** is a graphical modeling tool to standardize ER modeling; the modeling can be carried out with the help of pictorial representation of entities, attributes and relationships.

The basic building blocks of ERD are Entity, Attributes, Relationship and lines entity is an object that exists and is distinguishable from other object in other words.

ERD SYMBOLS
ER diagram is used to represent database schema.

- A rectangle represents an entity set.
- A Diamond represents Relationship.
- Lines represent linking of E

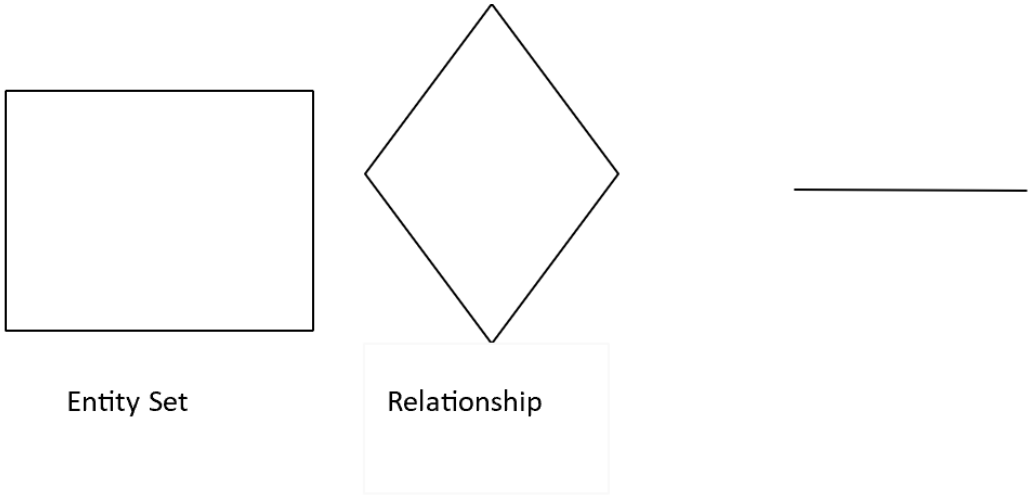


Figure 4.2 ERD Basic Symbols

4.4.1 Types of Relationships

Relationship is an association among one or more entities. This relationship can be broadly classified into one-to-one relation, one-to-many relation, many-to-many relation and recursive relation.

One to many Relationships Type: Abbreviated **1:M,** the relationship that associate one entity to more than one entity is called one to many relationships: - Example is country having states for one country there can be more than one states hence is an example one to many relationships.

- One to one Relationship Type: Abbreviated 1:1, one to one relationship is a special case of one-to-many relationships. True one to one relationship is rare. The relationship between the president and Country is an example is one to one relationship.
- Many to Many Relationships Type: Abbreviated M: M, the relationship between
- EMPLOYEE entity and PROJECT entity is an example of many to many relationships.

Many employees will be working in many projects hence the relationship between employee and project is many to many relationships.

- Many to One Relationship Type: Abbreviated M: 1, the relationship between STUDENTS and DEPARTMENT is an example of many to one relationship, there may be TEACHERS
- working in one DEPARTMENT. Hence relationship between STUDENTS and DEPARTMENT is many to one relationship. (Sumathi, 2007)

4.4.2.1 Relation and Representation Table

Relation Type	Representation
One-to-one	
One-to-many	
Many-to-many	
Many-to-one	

Table 3.0 Relationship types

Entity Relationship Diagram (ERD)

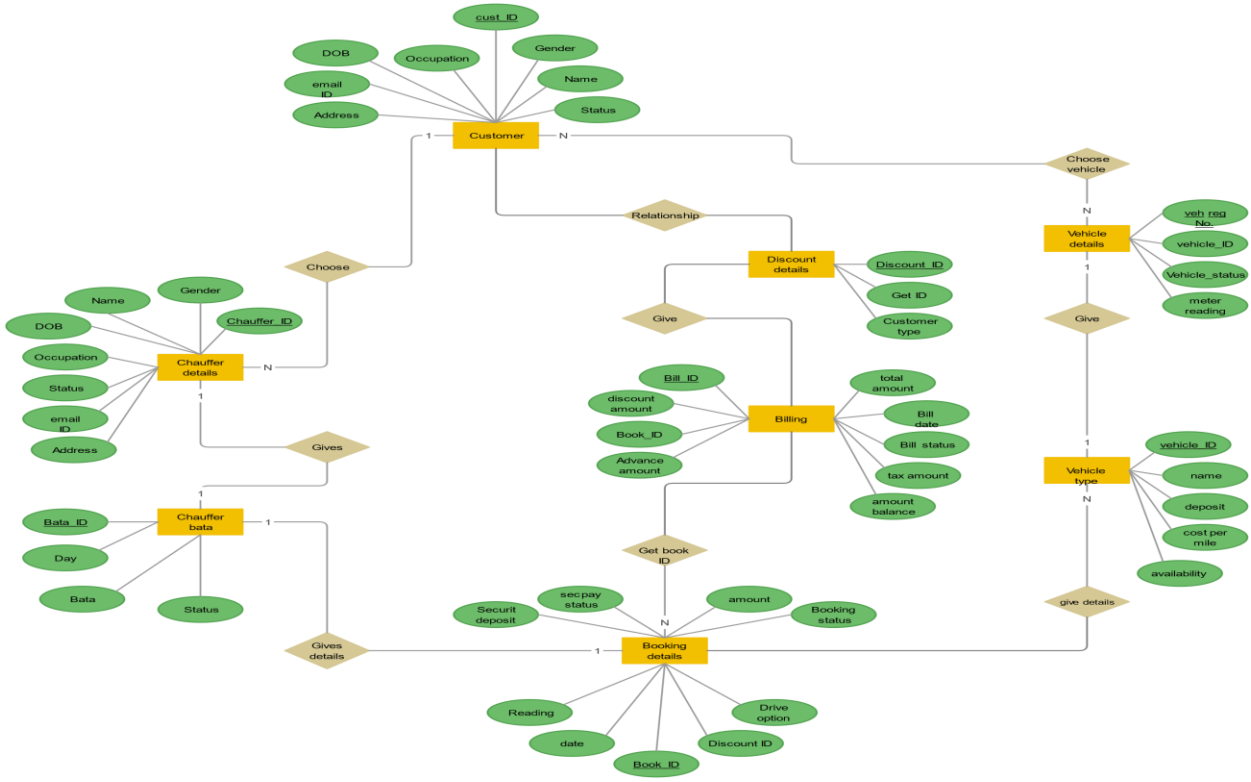


Figure 4.4.2.2 Entity Relationship Diagram

4.4.3: De-normalization

The word „de-normalization“ is used to describe changes to the table design that cause the physical tables to differ from the normalized entity relationship diagram. „De-normalization“ does not mean that anything goes. The development of properly de-normalized data structures follows software engineering principles that insure that information will not be lost

4.4.4: Normalization

Normalization is the process of putting one fact in one appropriate place. This optimizes updates at the expense of retrievals. Database normalization is the process of organizing the fields and tables of a relational database to minimize redundancy and dependency. Normalization usually involves dividing large tables into smaller (and less redundant) tables and defining relationships between them.

4.4.4.1: Function of normalization

Normalization allows us to minimize insert, update, and delete irregularities and help maintain data consistency in the database.

To avoid redundancy by sorting each fact within the database only once

To facilitate the enforcement of data constraint

To avoid unnecessary coding.

4.5 FORM DESIGN

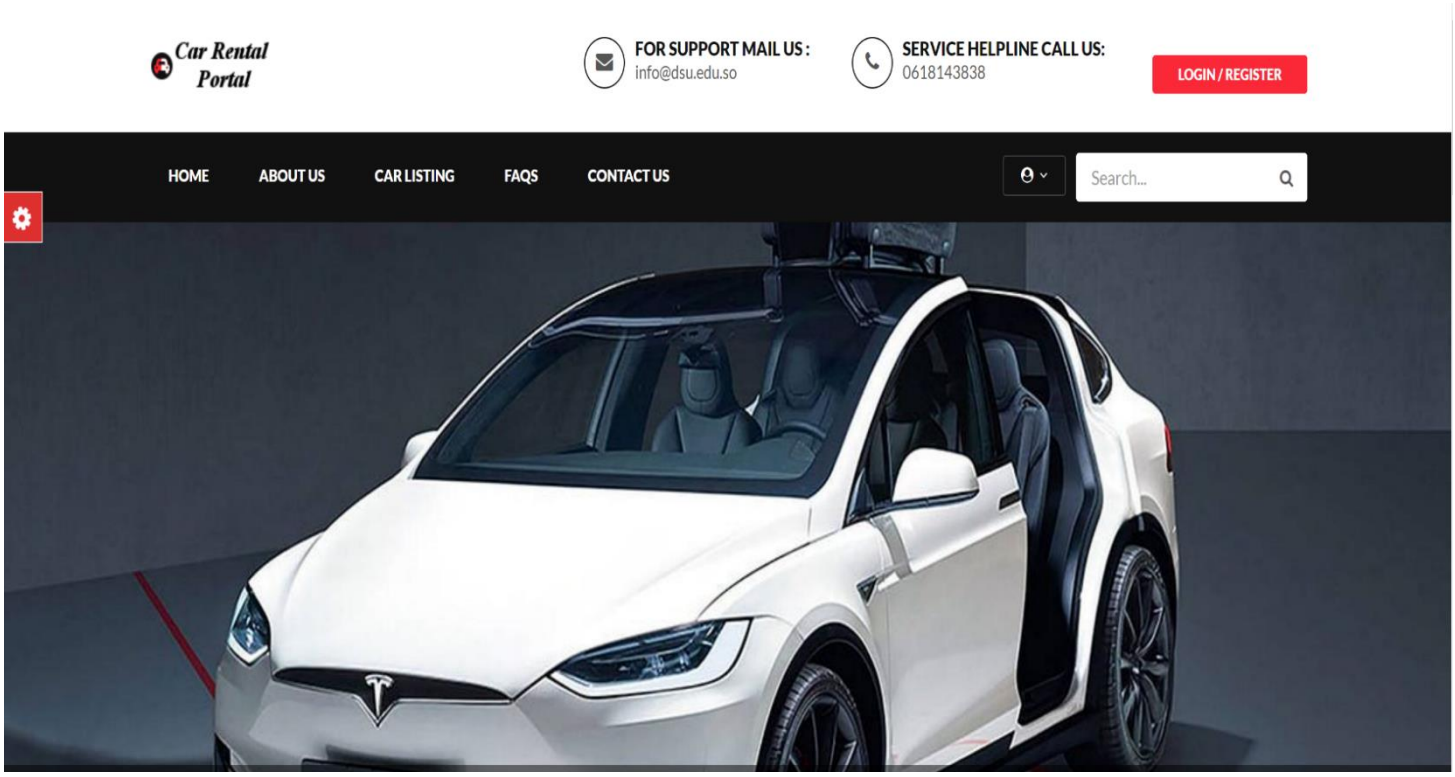
The most effective method of online data entry is a form filling, in which a blank form that duplicates or resembles the source document is completed on the screen. The user enters the data and then moves to the next field. The form can have many control features such as menu bars, toolbars, dialog boxes, text boxes, command buttons, list boxes, scrollbars, drop-down, group boxes, check boxes, and more others.

The design of data entry screens shall consist of the following forms:

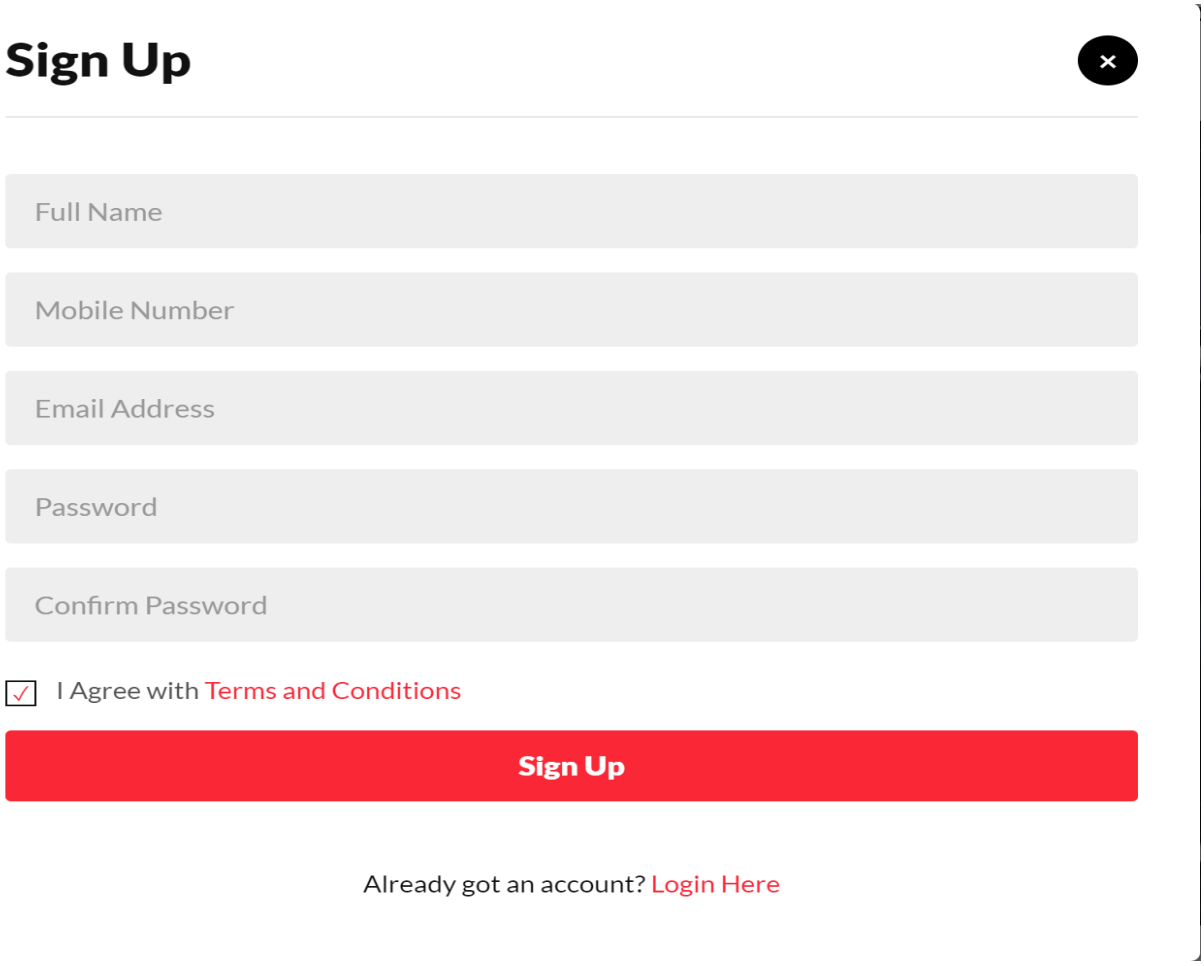
- Main Home Form
- Apply job
- Sign In form
- Add Pending
- Feedback

SIGN IN

Figure 4.6: sign in HOME PAGE



NEW USER REGISTRATION



4.7: CHAPTER SUMMARY

This chapter discusses about the design and the implementation of the project. Software and database design were the following steps of this chapter which was the conversion of the requirement analysis, to show the interior design of the system. After that we discussed the database Design, ERD, Data Dictionary, Form design and etc., although we have covered majority of the project still, we are going to the coding step of the project.

CHAPTER FIVE

SYSTEM DEVELOPMENT

5.1: INTRODUCTION

This chapter discusses the functions' implementations of the online Car Rental System, beginning with the coding phase then testing and finally documentations. The system has three users; who are the admin and the admin has the highest ability of the systems and controls the rest of the users. To implement Car Rental project of live time access, we use PHP as front end and MySQL server as back end.

5.2: CODING PHASE

Once the design is complete, most of the major decisions about the system have been made. What is next is to translate the design of the system into code in a given programming language; this phase is called Coding Phase. The aim of this phase is to implement the design in the best possible manner. The coding phase affects both testing and maintenance strongly. A well written code reduces the testing and maintenance effort. The goal of coding should be to reduce the testing and maintenance effort, during coding the focus should be on developing programs that are easy to write. Simplicity and clarity should be strived for, during the coding phase.

5.2.1 apply Car Rental code

```php
<?php
session_start();
include('includes/config.php');
error_reporting(0);

?>

<!DOCTYPE HTML>
<html lang="en">
<head>

<title>Car Rental Management System</title>
<!--Bootstrap -->
<link rel="stylesheet" href="assets/css/bootstrap.min.css" type="text/css">
<link rel="stylesheet" href="assets/css/style.css" type="text/css">
<link rel="stylesheet" href="assets/css/owl.carousel.css" type="text/css">
<link rel="stylesheet" href="assets/css/owl.transitions.css" type="text/css">
<link href="assets/css/slick.css" rel="stylesheet">
<link href="assets/css/bootstrap-slider.min.css" rel="stylesheet">
<link href="assets/css/font-awesome.min.css" rel="stylesheet">
    <link rel="stylesheet" id="switcher-css" type="text/css" href="assets/switcher/css/switcher.css" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/red.css" title="red" media="all" data-default-color="true" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/orange.css" title="orange" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/blue.css" title="blue" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/pink.css" title="pink" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/green.css" title="green" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/purple.css" title="purple" media="all" />
<link rel="apple-touch-icon-precomposed" sizes="144x144" href="assets/images/favicon-icon/apple-touch-icon-144-precomposed.png">
<link rel="apple-touch-icon-precomposed" sizes="114x114" href="assets/images/favicon-icon/apple-touch-icon-114-precomposed.html">
<link rel="apple-touch-icon-precomposed" sizes="72x72" href="assets/images/favicon-icon/apple-touch-icon-72-precomposed.png">
<link rel="apple-touch-icon-precomposed" href="assets/images/favicon-icon/apple-touch-icon-57-precomposed.png">
<link rel="shortcut icon" href="assets/images/favicon-icon/favicon.png">
<link href="https://fonts.googleapis.com/css?family=Lato:300,400,700,900" rel="stylesheet">
</head>
<body>
```

```
<!-- Start Switcher -->
<?php include('includes/colorswitcher.php');?>
<!-- /Switcher -->

<!--Header-->
<?php include('includes/header.php');?>
<!-- /Header -->

<!-- Banners -->
<section id="banner" class="banner-section">
  <div class="container">
    <div class="div_zindex">
      <div class="row">
        <div class="col-md-5 col-md-push-7">
          <div class="banner_content">
            <h1> </h1>
            <p>  </p>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>
</section>
<!-- /Banners -->


<!-- Resent Cat-->
<section class="section-padding gray-bg">
  <div class="container">
    <div class="section-header text-center">
      <h2>Find the Best <span>CarForYou</span></h2>
      <p>There are many variations of passages of Lorem Ipsum available, but the majority have suffered alteration in some form, by injected humour, or ra
    </div>
    <div class="row">


<?php $sql = "SELECT tblvehicles.VehiclesTitle,tblbrands.BrandName,tblvehicles.PricePerDay,tblvehicles.FuelType,tblvehicles.ModelYear,tblvehicles.id,tblve
$query = $dbh -> prepare($sql);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$cnt=1;
if($query->rowCount() > 0)
{
foreach($results as $result)
{
?>

<div class="col-list-3">
<div class="recent-car-list">
<div class="car-info-box"> <a href="vehical-details.php?vhid=<?php echo htmlentities($result->id);?>"><img src="admin/img/vehicleimages/<?php echo htmlent
<ul>
<li><i class="fa fa-car" aria-hidden="true"></i><?php echo htmlentities($result->FuelType);?></li>
<li><i class="fa fa-calendar" aria-hidden="true"></i><?php echo htmlentities($result->ModelYear);?> Model</li>
<li><i class="fa fa-user" aria-hidden="true"></i><?php echo htmlentities($result->SeatingCapacity);?> seats</li>
</ul>
</div>
<div class="car-title-m">
<h6><a href="vehical-details.php?vhid=<?php echo htmlentities($result->id);?>"> <?php echo htmlentities($result->VehiclesTitle);?></a></h6>
<span class="price">$<?php echo htmlentities($result->PricePerDay);?> /Day</span>
</div>
<div class="inventory_info_m">
<p><?php echo substr($result->VehiclesOverview,0,70);?></p>
</div>
</div>
</div>
<?php }}?>

    </div>
  </div>
</div>
```

```
<!--Testimonial -->
<section class="section-padding testimonial-section parallex-bg">
  <div class="container div_zindex">
    <div class="section-header white-text text-center">
      <h2>Our Satisfied <span>Customers</span></h2>
    </div>
    <div class="row">
      <div id="testimonial-slider">
<?php
$tid=1;
$sql = "SELECT tbltestimonial.Testimonial,tblusers.FullName from tbltestimonial join tblusers on tbltestimonial.UserEmail=tblusers.EmailId where tbltestim
$query = $dbh -> prepare($sql);
$query->bindParam(':tid',$tid, PDO::PARAM_STR);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$cnt=1;
if($query->rowCount() > 0)
{
foreach($results as $result)
{  ?>


        <div class="testimonial-m">

          <div class="testimonial-content">
            <div class="testimonial-heading">
              <h5><?php echo htmlentities($result->FullName);?></h5>
            <p><?php echo htmlentities($result->Testimonial);?></p>
          </div>
        </div>
        </div>
        <?php }} ?>



      </div>
    </div>
```

```
<!--Footer -->
<?php include('includes/footer.php');?>
<!-- /Footer-->

<!--Back to top-->
<div id="back-top" class="back-top"> <a href="#top"><i class="fa fa-angle-up" aria-hidden="true"></i> </a> </div>
<!--/Back to top-->

<!--Login-Form -->
<?php include('includes/login.php');?>
<!--/Login-Form -->

<!--Register-Form -->
<?php include('includes/registration.php');?>

<!--/Register-Form -->

<!--Forgot-password-Form -->
<?php include('includes/forgotpassword.php');?>
<!--/Forgot-password-Form -->

<!-- Scripts -->
<script src="assets/js/jquery.min.js"></script>
<script src="assets/js/bootstrap.min.js"></script>
<script src="assets/js/interface.js"></script>
<!--Switcher-->
<script src="assets/switcher/js/switcher.js"></script>
<!--bootstrap-slider-JS-->
<script src="assets/js/bootstrap-slider.min.js"></script>
<!--Slider-JS-->
<script src="assets/js/slick.min.js"></script>
<script src="assets/js/owl.carousel.min.js"></script>

</body>
‘
```

```
<!--Footer -->
<?php include('includes/footer.php');?>
<!-- /Footer-->

<!--Back to top-->
<div id="back-top" class="back-top"> <a href="#top"><i class="fa fa-angle-up" aria-hidden="true"></i> </a> </div>
<!--/Back to top-->

<!--Login-Form -->
<?php include('includes/login.php');?>
<!--/Login-Form -->

<!--Register-Form -->
<?php include('includes/registration.php');?>

<!--/Register-Form -->

<!--Forgot-password-Form -->
<?php include('includes/forgotpassword.php');?>
<!--/Forgot-password-Form -->

<!-- Scripts -->
<script src="assets/js/jquery.min.js"></script>
<script src="assets/js/bootstrap.min.js"></script>
<script src="assets/js/interface.js"></script>
<!--Switcher-->
<script src="assets/switcher/js/switcher.js"></script>
<!--bootstrap-slider-JS-->
<script src="assets/js/bootstrap-slider.min.js"></script>
<!--Slider-JS-->
<script src="assets/js/slick.min.js"></script>
<script src="assets/js/owl.carousel.min.js"></script>

</body>
```

```
<?php
session_start();
error_reporting(0);
include('includes/config.php');
if(strlen($_SESSION['login'])==0)
  {
header('location:index.php');
}
else{
if(isset($_POST['updateprofile']))
  {
$name=$_POST['fullname'];
$mobileno=$_POST['mobilenumber'];
$dob=$_POST['dob'];
$adress=$_POST['address'];
$city=$_POST['city'];
$country=$_POST['country'];
$email=$_SESSION['login'];
$sql="update tblusers set FullName=:name,ContactNo=:mobileno,dob=:dob,Address=:adress,City=:city,Country=:country where EmailId=:email";
$query = $dbh->prepare($sql);
$query->bindParam(':name',$name,PDO::PARAM_STR);
$query->bindParam(':mobileno',$mobileno,PDO::PARAM_STR);
$query->bindParam(':dob',$dob,PDO::PARAM_STR);
$query->bindParam(':adress',$adress,PDO::PARAM_STR);
$query->bindParam(':city',$city,PDO::PARAM_STR);
$query->bindParam(':country',$country,PDO::PARAM_STR);
$query->bindParam(':email',$email,PDO::PARAM_STR);
$query->execute();
$msg="Profile Updated Successfully";
}

?>
```

```
<title>Car Rental Management System | My Profile</title>
<!--Bootstrap -->
<link rel="stylesheet" href="assets/css/bootstrap.min.css" type="text/css">
<!--Custome Style -->
<link rel="stylesheet" href="assets/css/style.css" type="text/css">
<!--OWL Carousel slider-->
<link rel="stylesheet" href="assets/css/owl.carousel.css" type="text/css">
<link rel="stylesheet" href="assets/css/owl.transitions.css" type="text/css">
<!--slick-slider -->
<link href="assets/css/slick.css" rel="stylesheet">
<!--bootstrap-slider -->
<link href="assets/css/bootstrap-slider.min.css" rel="stylesheet">
<!--FontAwesome Font Style -->
<link href="assets/css/font-awesome.min.css" rel="stylesheet">

<!-- SWITCHER -->
    <link rel="stylesheet" id="switcher-css" type="text/css" href="assets/switcher/css/switcher.css" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/red.css" title="red" media="all" data-default-color="true" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/orange.css" title="orange" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/blue.css" title="blue" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/pink.css" title="pink" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/green.css" title="green" media="all" />
    <link rel="alternate stylesheet" type="text/css" href="assets/switcher/css/purple.css" title="purple" media="all" />
<link rel="apple-touch-icon-precomposed" sizes="144x144" href="assets/images/favicon-icon/apple-touch-icon-144-precomposed.png">
<link rel="apple-touch-icon-precomposed" sizes="114x114" href="assets/images/favicon-icon/apple-touch-icon-114-precomposed.html">
<link rel="apple-touch-icon-precomposed" sizes="72x72" href="assets/images/favicon-icon/apple-touch-icon-72-precomposed.png">
<link rel="apple-touch-icon-precomposed" href="assets/images/favicon-icon/apple-touch-icon-57-precomposed.png">
<link rel="shortcut icon" href="assets/images/favicon-icon/favicon.png">
<link href="https://fonts.googleapis.com/css?family=Lato:300,400,700,900" rel="stylesheet">
 <style>
```

```
<?php
$useremail=$_SESSION['login'];
$sql = "SELECT * from tblusers where EmailId=:useremail";
$query = $dbh -> prepare($sql);
$query -> bindParam(':useremail',$useremail, PDO::PARAM_STR);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$cnt=1;
if($query->rowCount() > 0)
{
foreach($results as $result)
{ ?>
<section class="user_profile inner_pages">
  <div class="container">
    <div class="user_profile_info gray-bg padding_4x4_40">
      <div class="upload_user_logo"> <img src="assets/images/dealer-logo.jpg" alt="image">
      </div>

      <div class="dealer_info">
        <h5><?php echo htmlentities($result->FullName);?></h5>
        <p><?php echo htmlentities($result->Address);?><br>
          <?php echo htmlentities($result->City);?> <?php echo htmlentities($result->Country);?></p>
      </div>
    </div>

    <div class="row">
      <div class="col-md-3 col-sm-3">
        <?php include('includes/sidebar.php');?>
      <div class="col-md-6 col-sm-8">
        <div class="profile_wrap">
          <h5 class="uppercase underline">Genral Settings</h5>
          <?php
         if($msg){?><div class="succWrap"><strong>SUCCESS</strong>:<?php echo htmlentities($msg); ?> </div><?php }?>
          <form  method="post">
           <div class="form-group">
              <label class="control-label">Reg Date -</label>
             <?php echo htmlentities($result->RegDate);?>
            </div>
```

```
<!--Login-Form -->
<?php include('includes/login.php');?>
<!--/Login-Form -->

<!--Register-Form -->
<?php include('includes/registration.php');?>

<!--/Register-Form -->

<!--Forgot-password-Form -->
<?php include('includes/forgotpassword.php');?>
<!--/Forgot-password-Form -->

<!-- Scripts -->
<script src="assets/js/jquery.min.js"></script>
<script src="assets/js/bootstrap.min.js"></script>
<script src="assets/js/interface.js"></script>
<!--Switcher-->
<script src="assets/switcher/js/switcher.js"></script>
<!--bootstrap-slider-JS-->
<script src="assets/js/bootstrap-slider.min.js"></script>
<!--Slider-JS-->
<script src="assets/js/slick.min.js"></script>
<script src="assets/js/owl.carousel.min.js"></script>

</body>
</html>
<?php } ?>
```

5.3: TYPES OF TESTING

A. Unit testing

The testing of individual program or module is called **Unit testing.** The objective is to identify and eliminate execution errors that could cause the program to terminate abnormally, and errors that could have been missed during the checking**.**

B. Integration testing

Integration testing is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before testing.

C. System testing

After completing integration testing, System testing will perform, which involves the entire information. Acceptance test includes all typical processing situations and is intended to assure users, developers.

5.4.1: Program Documentation

Program documentation describes the inputs, and processing logic for all program modules, the program documentation process starts in the system analysis phase and continues during systems implementation.

5.4.2: System Documentation

System documentation describes the system's functions and how they are implemented.

5.5 IMPLEMETATION

Once you access this system, the home page is displayed. As we have already mentioned only two types of users can gain access of their differently specified roles by giving their correct user names and passwords to the login pages.

5.6 CHAPTER SUMMARY

After the completion of the system, all function will be tested as a complete system to make sure that it meets its requirements and objectives. The project implementation part was discussed the details process of system component and tests. The testing of individual program or module is called **Unit testing.**

The phase in software testing in which individual software modules are combined and tested as a group Integration is called **integration testing.** After completing integration testing, **System testing** will perform.

CHAPTER SIX

RECOMMENDATION & CONCLUSION

6.1: INTRODUCTION

After more tire and great effort, we successfully ended all phases although we recognize that there can't be any complete thing done by human being but also, we did our best and our project is completed successfully. According to our effort we really think that we did our best and this project is completed ninety-five per cent (90%) with good user interface design. Such knowledge may help public authorities and other interested parties plan for the faster transmission of similar technologies in the future, in Somalia and in another place. Finally, we would like to identify the strengths and weak points of our project, because everything has weakness as well as strengths except the creator of all so we will talk about them as follows.

6.2: CONCLUSION

This is the last step of developing this project, I successfully completed other required steps, and normally every system has strength and weakness, so I want to mention them in the following lines:

6.2.1: Achievements

Every project has some strengths and weaknesses so we would like to identify some of the strengths and good features that project of online appointment immigration system will provide to the users. Validations of all inputs are carefully managed and verifications of different user privileges are done accurately. This system is very friendly system and it has a good interface that can be usable by every person who has computer knowledge.

6.2.2: Limitations

On the other hand, every project has its own Limitations, so, In this project, the only problems that you might face is messages that appear whenever you misuse to the system, and if you are not familiar with this system you might find it difficult to manage it, please don't confuse, just

read carefully what the message is carrying out and then click on the appropriate button. This system may only get problem towards the restriction format when using admin and user.

6.3: REFERENCES

1 M. Karen, and Ernest Johnson. "Revenue management saves national car rental." *Interfaces* 27.1 (1997): 107-127.

2 Chaudhary, Vikash, Sugandhi Midha, and Rajesh Bahuguna. "Web Based Online Car Rental System." *2024 IEEE 1st Karachi Section Humanitarian Technology Conference (KHI-HTC)*. IEEE, 2024.

3 Demba, R., V. Ogal, and J. Muli. "Effect of differentiation strategy on performance by selected car rental business, a case of Nairobi City County, Kenya." *The Strategic Journal of Business & Change Management* 5.4 (2018): 1880-1895.

4 Thakur, Amey. "Car rental system." *Int. J. Res. Appl. Sci. Eng. Technol* 9.7 (2021): 402-412.

5 Li, Dong, and Zhan Pang. "Dynamic booking control for car rental revenue management: A decomposition approach." *European Journal of Operational Research* 256.3 (2017): 850-867.

6 Li, Zhang. "Design and realization of car rental management system based on AJAX+ SSH." *Information Technology Journal* 12.14 (2013): 2756.

7 Abayon, Charmie Lou A., et al. "APC CAR RENTAL MANAGEMENT SYSTEM WITH GPS VEHICLE TRACKING." (2023).

8 Zhang, Min, et al. "Service quality evaluation of car rental industry in China." *International Journal of Quality & Reliability Management* 31.1 (2013): 82-102.

9 Zhang, Min, et al. "Service quality evaluation of car rental industry in China." *International Journal of Quality & Reliability Management* 31.1 (2013): 82-102.

10 Yadav, Suraj, et al. "Car Rental Systems." *International Research Journal of Engineering and Technology* (2021).

6.4 APPENDEX

6.4.1: Appendix A

ABBREVIATIONS	DESCRIPTIONS
GUI	Graphical User Interface
PHP	hypertext preprocessor
SQL	Structured Query Language
OARS	Online apartment rental system
WWW	World Wide Web
ADMIN	Administrator
UML	Unified Modeling Language
ERD	Entity Relationship Diagram
URL	Resource Locater
PHP	Hypertext preprocessor

6.5.3 Appendix B

THE TIME FRAME WORK OF PROJECT

NO	ACTIVITIES	MARCH	APRIL	MAY	JUNE	JULY	AUGUST
1	Proposal writing	g					
2	Reading and correction by Supervisor						
3	Proposal submission						
4	Data collection						
5	Analyzing project						
6	Designing project and conclusion						
7	Thesis submission						

6.5.4 Appendix C

BUDGET OF THE PROJECT

NO	DESCRIPTION	AMOUNTS
1	Communication Cost	$35
2	Internet Cost	$50
3	Rent House Cost	$250
4	Transportation Cost	$120
5	Stationery and Materials	$65
6	Printing and Photocopy	$125
7	Electric charge	$10
Total Cost		$655