# CAR RENTAL SYSTEM

Group Name : CST GROUP 12


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APRIL 2022

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# 1. INTRODUCTION

## 1.1. Project Title

Car Rental System

## 1.2. Problem in Brief

In today's world, with the advancement of information technology, there is increasing competition in the business world in various fields. Every institution prepares for this competition in their respective fields. Among them was the need for a new system to eliminate and in some cases reduce the hardships faced by an existing system for car rental institutions. Instead of keeping records of the car rental institution, they expect an efficient system. There was also a need to use a new system to overcome the problems of the existing practicing manual system. They needed a system for the particular need of the company to carry out operations in a smooth and effective manner.

It was possible to observe such problems in the existing practicing manual system. The existing system has challenges in managing the information of customers, cars, drivers, and other details. The existing system did not have search facilities based on various factors as required. Difficult to track all the information about customers, cars, drivers, and booking and returning deals. Hard to find all the fields are validated.

So, considering those aspects and according to our client’s requirements, we intend to develop an outstanding car rental system. This system will automate the existing manual system with the help of computerized equipment and full-fledged computer software, fulfilling their requirements. It will assist the user to concentrate on their other activities rather than concentrate on the record-keeping. Car rental system has different care needs, therefore we design exclusive employee management systems that are adapted to clients' managerial requirements. Thus, it will help organization in better utilization of resources.

## 1.3. Project Aims and Objectives

The aim is to automate its existing manual system with the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy access and manipulation of the same. Basically, the project describes how to manage for good performance and better services for the clients.

The objective of the Project on Car Rental System is to manage the details of car, customer, driver, booking payments. It manages all the information above described. The project is totally built at the administrative end and thus only the administrator is guaranteed access. The purpose of the project is to build an application program to reduce the manual work for managing the car, customer, driver, rental/booking and returns deal payments. It tracks all the details above described.

# 2. PROPOSED SOLUTION

## 2.1. Functional Requirements

### 2.1.1. Admin Login

- The system must provide a function to allow only the Administrator to log in.
- Admin can log in by giving their user name and password.
- The system should let the Admin log in if the required fields are correct.
- When login in, if the username or password is incorrect, the system should show the error.
- After login in, the user should redirect to the home page.

### 2.1.2. Cars Management

- The system should let the admin add, update and delete the car details.
- The system should show all available cars details.

### 2.1.3. Customers Management

- The system should allow the administrator to add, update and delete the customer details.
- The system should let the admin view customer details.

### 2.1.4. Drivers Management

- The system should allow the admin add, update and delete the driver details.
- The system should show all drivers' details.

### 2.1.5. Cars Booking/Rental Management

- The system should let the admin add, update and delete the booking or rented details.
- The system should show the amount that the customer has to pay when renting a car.
- The number of days the car should be rented should be included in the system as per wishes of the customer.
- The system should let the admin view currently available cars details.
- The system should let the admin view all rented cars' details.

### 2.1.6. Cars Returning Management

- The system should let the admin add, update and delete the details of cars being returned.
- If the rental car returned after the due date, the system should show the additional amount to be paid by customer for it.
- The system should let the admin view details of cars already rented.
- The system should let the admin view details of cars already being returned

### 2.1.7. Admin account

- The system should let the admin change the login details.

## 2.2. Non-functional Requirements

- The system should be responsive for all the accessories like desktops, and laptops.
- The system should be designed in a simple, easy-to-use, user-friendly environment. The users should be able to grasp the usage of the system.
- The system should be maintainable and expandable.
- The system services should be available 24 hours and easy updates can be done.
- The system will be available only to the authorized administrator.
- Admin user data should not be exposed and the system security should be in a good condition
- The system should be efficient.
- The system should not slow down even if the database becomes bigger.

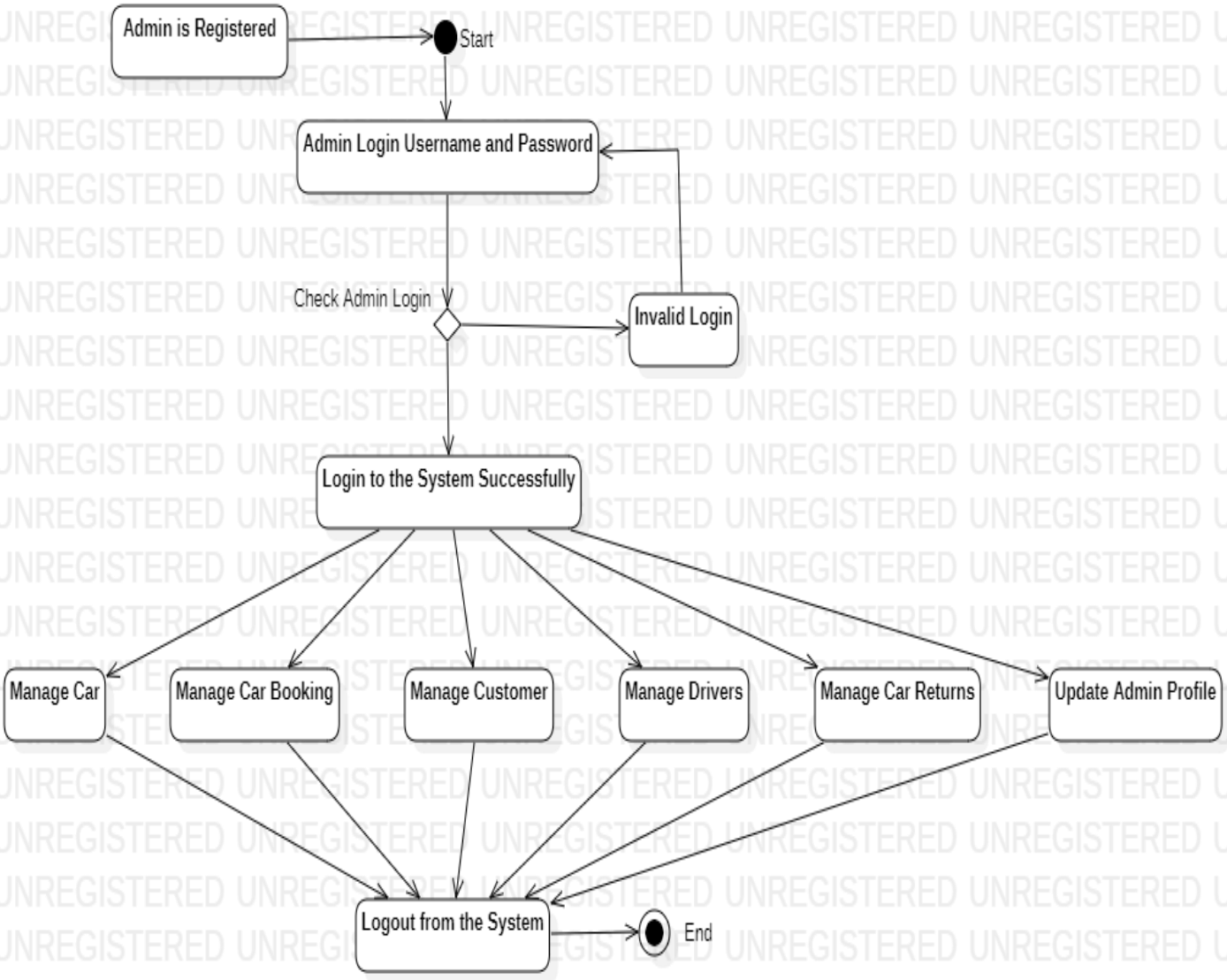
## 2.3. User Levels

### 2.3.1. Admin

- Admin has access to the whole system.
- Admin has the ability to view and manage car details, customer details, drivers details, and rentals cars and returns cars details.
- Admin can change login details.

# 3. DIAGRAMS

## 3.1. Activity Diagram




This is the Activity Diagram of Car Rental System which shows the flows between the activity of cars booking, cars returning, cars management, drivers management, customers and admin management.

# 4. METHODOLOGY

## 4.1. Rapid Application Development

This car rental institution has been running in a physical manual system and now, they are going to upgrade their business method to full-fledged computer software. We selected the RAD model to develop this system. The Rapid Application Development model is based on prototyping and iterative development with no specific planning involved. The process of writing the software itself involves the planning required for developing the product.

Rapid Application Development focuses on gathering customer requirements through workshops or focus groups, early testing of the prototypes by the customer using iterative concepts, reuse of the existing prototypes (components), continuous integration and rapid delivery.

We use this model because of We have a small number of team members to develop this system and we want to develop this system quickly.So the RAD model is a very suitable model for developing this application.

In every Systems development Life Cycle, we can find some main phases. And according to the RAD model some of them are a bit different.

- Business Modeling
- Process Modeling
- Application Modeling
- Testing and Turnover

In the rad model we can see many advantages like as,

- Changing requirements can be accommodated.
- Progress can be measured.
- Iteration time can be short with use of powerful RAD tools.
- Productivity with fewer people in a short time.
- Reduced development time.

## 4.2. How we are planning to carry out our development phases

- Business modeling - In this we gathered information about many business sources.
- Data modeling - we planning to analysis data gathered from business modeling process.
- Process modeling - all the group information gathered from data modeling
- Application generation - We are planning the actual system to be built and coding is done by using automation tools to convert process and data models into actual prototypes.
- Testing and Turnover - planning to testing every prototypes build in the application generation phase

# 5. RESOURCES

## 5.1. Software requirement

- NetBeans IDE or JavaFX

  NetBeans IDE and JavaFX are software applications for designing the desktop applications, making the code with using java programming language.

- MySQL-connector in java

  MySQL – connector with java is a library documents in NetBeans IDE and JavaFX for connecting between MySQL functions and java applications.

- XAMPP Server

  XAMPP is another software which uses MySQL functions such as add, update, delete for making desktop applications.

- ORM Frameworks

- Unit testing Frameworks

- Web browser

  Google chrome, Firefox, Microsoft edge are some of examples for browsers for getting information for project.

## 5.2. Hardware requirement

- Laptop/Desktop Computers
    - Mouse/Keyboard/Touchpad
    - 4 GB RAM/high and general speed processor
    - 100 GB with Hard Disk
    - Windows 10 or higher OS

- Internet Connection
    - Wi-Fi - router
    - Smart phone (Mobile data hotspot connection)

## 5.3. Technology

- Java
- MySQL

# 6. PROJECT PLAN

## 6.1. Gantt Chart

| Activity | Project Time Duration – 16 weeks | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1.Identify topic, Gathering requirements and information for project | | | | | | | | | | | | | | | | |
| 2.Requirement Analysis and sharing work between team members | | | | | | | | | | | | | | | | |
| 3.Project proposal submission | | | | | | | | | | | | | | | | |
| 4.project proposal presentation | | | | | | | | | | | | | | | | |
| 6. Database Design | | | | | | | | | | | | | | | | |
| 7.Desktop application design | | | | | | | | | | | | | | | | |
| 8.Application Development | | | | | | | | | | | | | | | | |
| 9.Testing and Debugging | | | | | | | | | | | | | | | | |
| 10.Verification | | | | | | | | | | | | | | | | |
| 11.project progress presentation | | | | | | | | | | | | | | | | |
| 12.System implementation | | | | | | | | | | | | | | | | |
| 13.Final Report Submission | | | | | | | | | | | | | | | | |

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