Marwadi University
Marwadi Chandarana Group

NAAC A+

FACULTY OF COMPUTER APPLICATIONS

A Python Project for Academic Year 2024 - 2025

RENTAL CAR MANAGEMENT SYSTEM

Subject Code : 05BC3404
Subject Name : Python Programing

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Introduction

- The Car Rental Management System is a Python-based console application designed to manage and maintain records for a car rental service. It handles customer information, booking details, car preferences, and journey plans using simple file-based storage. This system eliminates the need for an external database by relying on CSV files, making it lightweight and easy to manage.

- The system provides a **menu-driven interface** where users can add, update, search, and delete customer records. It also allows users to clear all data or display a summary of names with booking dates. The goal of this project is to simplify rental management for small car rental businesses using Python's standard libraries.

Technical Information

Technologies Used

- **Programming Language:**Python 3.x
- **Data Storage:**CSV (Comma-Separated Values) and TXT FILE
- **Libraries Used:**
  - csv – For reading and writing data to CSV files.
  - os – For handling file operations.

Development Tools

- **Code Editor:**
  - Visual Studio Code (VS Code)
  - PyCharm
- **Execution Environment:**
  - Command Line Interface (CLI) / Terminal
- **Version Control System:**
  - Git (optional, for tracking changes)

System Requirements

- **Software:**

- Python 3.x
- Any text editor or Python IDE
- CLI or Terminal for execution

- **Hardware:**

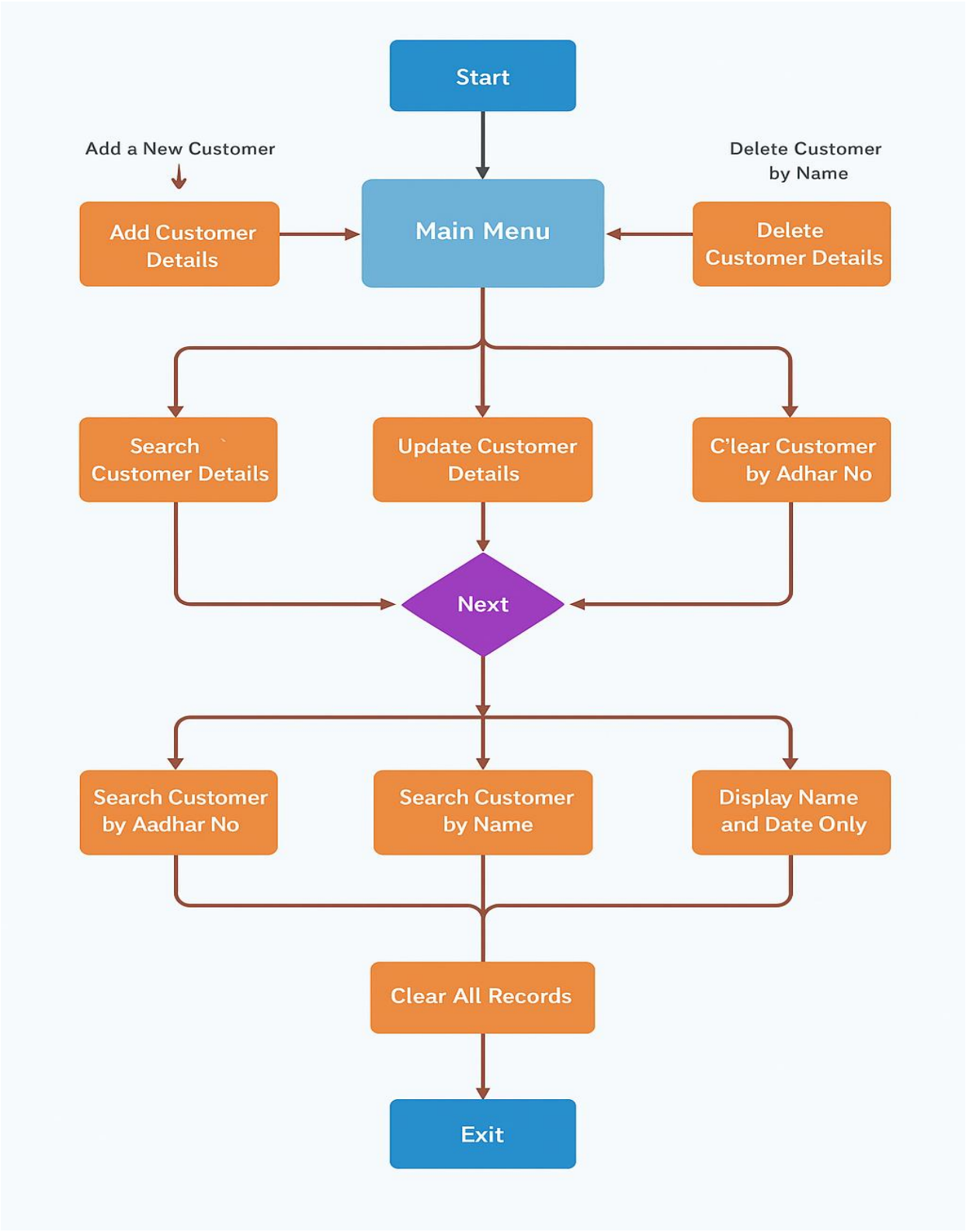
  - Basic system capable of running Python
  - At least 512MB RAM
  - Minimal disk space for CSV storage

Project Structure

- The core functionalities are implemented in a single Python file **rental_car(last one)**`.py`. It performs customer data handling, booking details management, and basic CRUD operations.

```
Car_Rental_Management/
├── rental(1)(last one).py # Main Python script
├── rental_car.csv # Data file (created automatically)
```

Diagram(s)



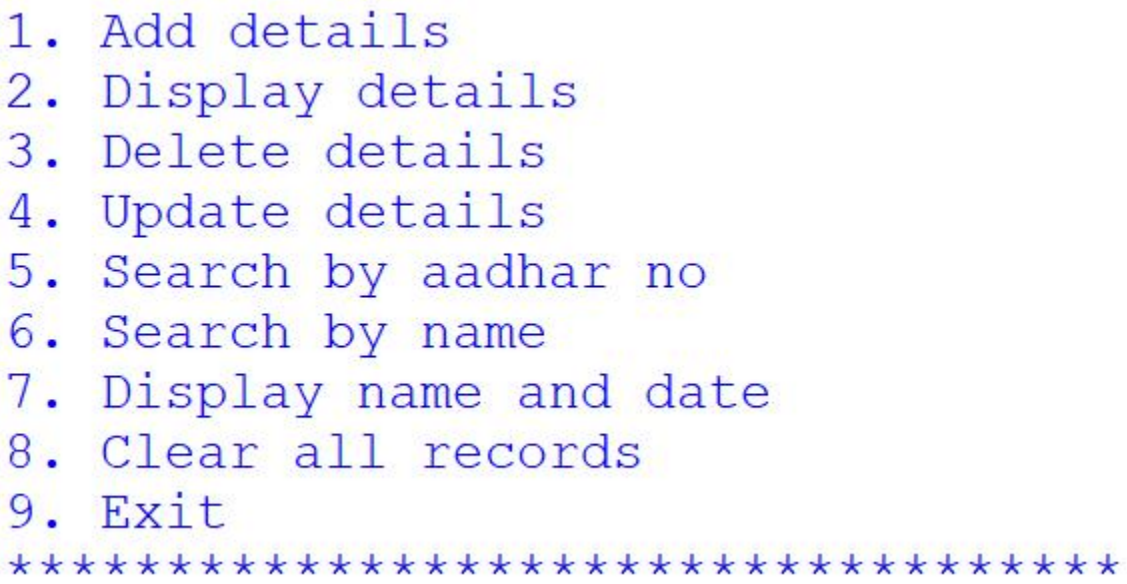
[Flow chart of Rental car Management System]

Features

- Add customer and booking details
- View all customer records
- Delete a customer record using Aadhar number
- Update customer information
- Search by Aadhar number or name
- Display names with booking dates
- Clear all records (reset database)
- Prevent duplicate entries by checking existing Aadhar numbers

Output Screenshots

Below are the screenshots of the system's functionality:



MAIN MENU

Adding a Customers

```
Enter your choice: 1
Enter aadhar no: 7898389392
Enter Name: nandni korat
Enter the City you belong to: rajkot
Enter contact no: 839284292
Enter age: 21
Enter gender: female
Enter nationality: indian
Enter the date you want car: 12-4-2025
Enter the place from you want to start your journey: rajkot
Enter the place to which you want to end your journey: delhi
Enter the car pick up time: 3 pm
Enter car you would like to have your journey with: thar

The record is successfully added.....
```

Delete Customers

```
Enter your choice: 3
Enter aadhar_no to delete: 4283394882

Record deleted.
```

Display customers details

```
************************************
aadhar_no:7898389392
name:nandni korat
city:rajkot
phone_no:839284292
age:21
gender:female
nationality:indian
date:12-4-2025
from_place:rajkot
to_place:delhi
pick_up:3 pm
car:thar

************************************
aadhar_no:4283394882
name:hasti trambadiya
city:mumbai
phone_no:23294928
age:25
gender:female
nationality:indian
date:30-5-2025
from_place:mumbai
to_place:pune
pick_up:6 am
car:kia

************************************
```

Update CustomersDetails

```
Enter your choice: 4
Enter aadhar_no to update: 4283394882
Enter New Name: bansi thummar
Enter the New City you belong to: pune
Enter New phone no: 324455543
Enter New age: 45
Enter New gender: female
Enter New nationality: indian
Enter the New date you want car: 25-5-2025
Enter the new  place from you want to start your journey: pune
Enter the new  place to which you want to end your journey: mumbaki
Enter the new car pick up time: 6 am
Enter new car you would like to have your journey with: kia
```

Search Customers by Name

```
Enter your choice: 6
Enter name to search: nandni korat
aadhar_no:7898389392
name:nandni korat
city:rajkot
phone_no:839284292
age:21
gender:female
nationality:indian
date:12-4-2025
from_place:rajkot
to_place:delhi
pick_up:3 pm
car:thar
```

Display only Name and Date Details

```
Enter your choice: 7
aadhar_no:7898389392
name:nandni korat
date:12-4-2025

************************************
aadhar_no:4283394882
name:bansi thummar
date:25-5-2025
```

Search Customers by Aadhar no

```
Enter your choice: 5
Enter aadhar_no to search: 4283394882
aadhar_no:4283394882
name:bansi thummar
city:pune
phone_no:324455543
age:45
gender:female
nationality:indian
date:25-5-2025
from_place:pune
to_place:mumbaki
pick_up:6 am
car:kia
```

Clear All Records

```
Enter your choice: 8
All records have been cleared.
```

Learning Objectives

This project helps in understanding and developing essential skills, including:

- **File handling using Python's csv module: Enables reading from and writing to CSV files for structured data storage without using databases.**
- **Creating CLI-based user interfaces: Develops interactive, text-based menus for user-friendly command-line navigation.**
- **Implementing CRUD operations: Teaches how to Create, Read, Update, and Delete records in a programmatic and structured way.**
- **Input validation and handling: Ensures data accuracy and prevents errors by checking user inputs before processing.**
- **Python data structures and functions: Utilizes lists, strings, and functions to organize and manipulate data efficiently.**
- **Logical structuring of code using menu-driven loops: Implements continuous user interaction through structured loops and conditional logic.**

- **Error handling for file operations: Prevents program crashes by managing file-related exceptions like missing or unreadable files.**
- **Project organization and modularity: Encourages clean, maintainable code by separating logic into reusable and well-defined functions.**

Conclusion

- The Car Rental Management System offers a simple, effective way to manage rental operations for small businesses. It uses Python's core features to maintain customer records, update details, and track bookings without relying on databases. The project demonstrates efficient data handling, functional programming techniques, and the benefits of structured console-based interfaces.
- Future improvements may include GUI development using Tkinter or PyQt, adding automated billing, and moving from CSV-based storage to a relational database for scalability.