PROJECT REPORT

Rentify – Vehicle Rental System

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Batch: 09

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ABSTRACT

The Rentify is a Python-based application that allows users to rent vehicles from multiple categories such as cars, bikes, autos, and e-rickshaws. The system provides secure customer login, rental cost calculation based on distance, and a simulated GPS tracker that updates the vehicle's location. Administrators can manage vehicle lists and view customer data. All information is stored using JSON for easy data handling. This project demonstrates practical use of Python concepts like file handling, functions, classes, and data structures to create an efficient and user-friendly rental platform.

PROBLEM STATEMENT

Traditional vehicle rental services often rely on manual processes for customer registration, vehicle selection, pricing,

and tracking. This results in delays, errors, lack of transparency, and poor user experience. There is a need for an automated system that allows customers to easily browse available vehicles, calculate rental charges, securely login, and track their rented vehicle's location. Additionally, administrators should be able to manage vehicle inventory efficiently. The Rentify aims to develop a Python-based Vehicle Rental System that solves these issues through digital automation, secure data handling, and simulated GPS-based tracking.

OBJECTIVES

- To automate the vehicle rental process by providing a digital platform for selecting and renting vehicles easily.
- To offer secure user authentication through customer ID and 6-digit PIN for safe access.
- To provide transparent rental pricing using predefined base fares and per kilometer rates for all vehicle categories.
- To implement GPS-based location simulation so users can track the real-time position of their rented vehicle.
- To improve user experience by providing a simple, interactive, and efficient rental interface.

DESIGN AND WORKING OF SYSTEM

The Rentify is designed as a modular Python program that handles customer login, vehicle selection, rental cost calculation, and GPS tracking. Customers can register, choose a vehicle category, select a model, and enter the distance they want to travel. The system then calculates the total rental cost and activates a simulated GPS tracker to show the vehicle's live

location. All customer and rental details are saved using JSON for future use. Administrators can manage vehicles and customer data through the admin panel. Overall, the system works by combining user interaction, automated pricing, and GPS simulation in a simple and efficient workflow.

MAIN PYTHON CONCEPTS USED

- Functions
- Dictionaries
- Classes & Objects
- File Handling (JSON)
- Loops & Conditional Statements
- User Input Handling

APPLICATIONS

- It allows customers to rent different types of vehicles through an interactive menu.
- It simulates GPS tracking to monitor the real-time location of rented vehicles.
- It provides an admin panel to manage vehicle inventory and customer records.
- It stores customer data and rental history in a JSON file for future use.

FUTURE SCOPE

- Integration with real GPS hardware
- Mobile app integration
- Cloud storage for location history
- AI-based route prediction
- Geofencing alerts
- IoT and smart vehicle connectivity
- Multi-user fleet dashboard

CONCLUSION

Rentify successfully demonstrates how GPS based tracking can monitor real-time movement using Python. It provides a simple yet effective system for generating live coordinates, displaying location updates, and simulating how real tracking applications work. The model highlights the usefulness of Python in handling data, automation, and location-based services, while also opening possibilities for future enhancements like real GPS integration, mobile apps, and IoT connectivity.