DBMS Project Presentation

Car Rental Service Management System

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01 Introduction

- Manual car rental processes are inefficient and error-prone.
- This creates a need for a centralised database to manage customers,cars,reservations, etc.
- Our Goal: To streamline car rental operations and provide real-time updates.

02 Objectives

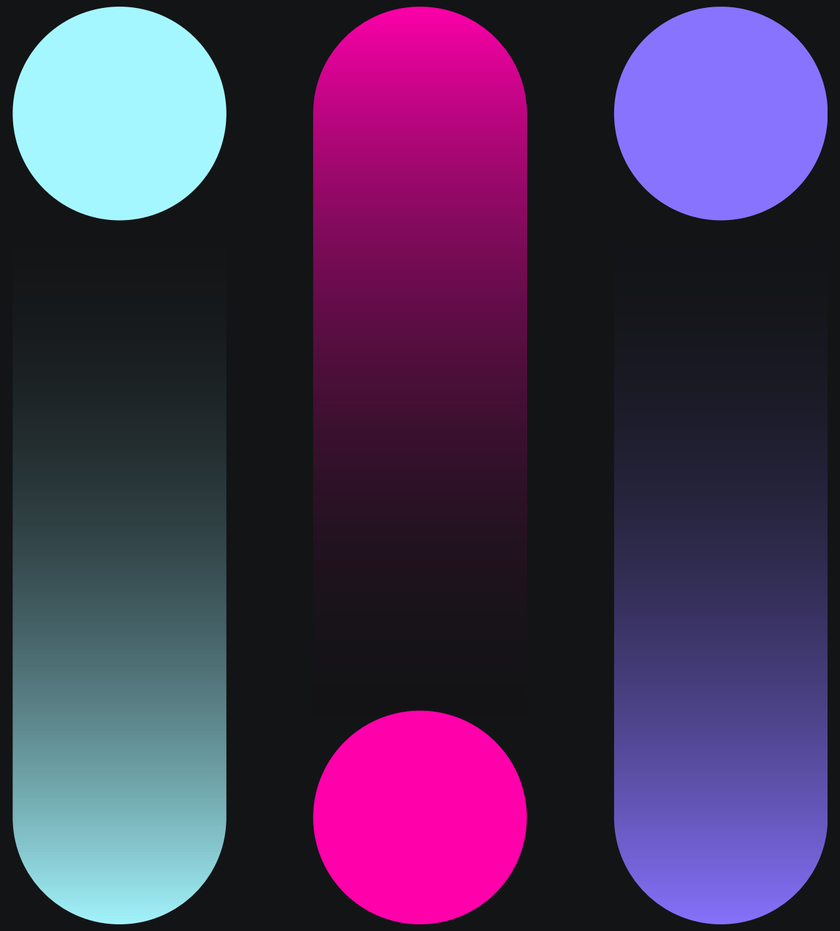
- Manage car reservations, rentals and payments
- Track customers, employees, locations and accidents.
- Provide an interface for CRUD operations using Python
- Ensure data integrity with MySQL relational database

03 System Architecture

- Python CLI application communicates with MySQL database
- Modular menus for each entity(cars, customers, employees, etc.)
- Data is stored securely in multiple related tables

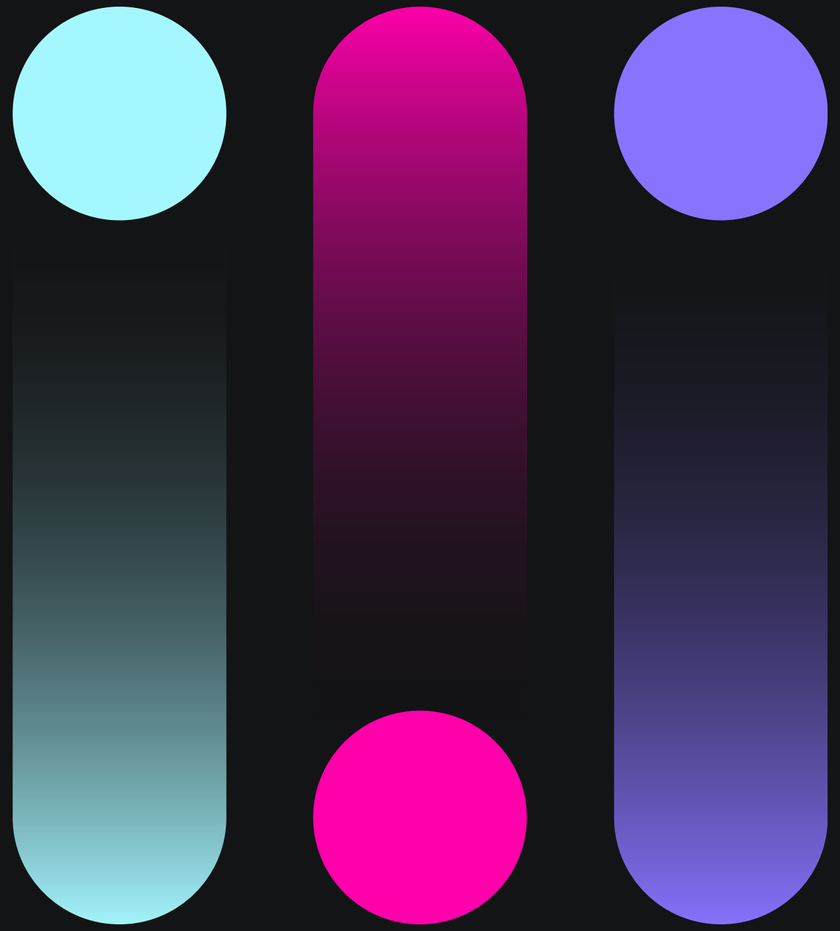
Database Entities

- Branches
- Cars
- Customers
- Employees
- Reservations



Database Entities

- Rental
- Payments
- Accident History
- Transaction History
- Locations



Database Schemas

Branches

- Branch ID (primary key)
- Branch Name
- Address
- Phone Number

Cars

- Car ID (primary key)
- Model
- Make
- Year
- Car Type
- Registraion Number
- Availability Status
- Branch ID

Customers

- Customer ID (primary key)
- First Name
- Last Name
- Email
- Phone Number
- Address
- License Number
- Date of Birth

Employees

- Employee ID (primary key)
- First Name
- Last Name
- Role
- Branch ID
- Email
- Phone Number

Database Schemas

Reservations

- Reservation ID (primary key)
- Customer ID
- Car ID
- Reservation Date
- Pickup Location ID
- Drop off Location ID
- Status

Rental

- Rental ID (primary key)
- Reservation ID
- Rental Start Date
- Rental End Date
- Actual Return Date
- Total Cost

Payments

- Payment ID (primary key)
- Rental ID
- Payment Date
- Payment Method
- Amount
- Status

Accident History

- Accident ID (primary key)
- Car ID
- Customer ID
- Accident Date
- Description
- Damage Cost

Database Schemas

Transaction History

- Transaction ID (primary key)
- Rental ID
- Transaction Date
- Transaction Details
- Description

Locations

- Location ID (primary key)
- Branch ID
- Address
- IsPickupPoint
- IsDropoffPoint

Python Application Features

1

Command-Line Interface

uses Colorama & Tabulate

2

Menus for each module

Branch, Customer, Employee, Car, Location, Reservation, Rental, Payment, Accident, Transaction

3

CRUD

Create, Read, Update and Delete operations supported for all major entities.

4

Validations and formatted tabular outputs

Ensures no data inconsitency as well as appropriate representation.

Advantages

- Centralized database ensures consistency
- Modular code for scalability
- Real-time data updates and reporting
- Easily extensible to web or GUI front-end

Thank You