**[Team 3]**

**Car Rentals DBMS Project: Weekly Progress Report (Past 10 Weeks)**

**Project Title: *Car Rentals Database Management System***

*Raashil Aadhyanth(U01937668)*

Reporting Period: Sep/13/2023 to Dec/8/2023

**Project Goal:**

Develop a comprehensive database management system for a car rental company, fulfilling user needs for efficient data management and retrieval.

**Weekly Progress Summary:**

**Week 1-2:**

Conceptual Design:

Defined entities and relationships within the system (e.g., cars, employees, booking, Cancelled booking, calendar, etc.)

Developed entity-relationship diagrams (ERDs) to visualize data relationships.

Identified key attributes and data types for each entity.

**Week 3-4:**

Database Schema Design:

Normalized database schema to minimize redundancy and improve data integrity.

Defined primary and foreign keys for relationships between entities.

Created tables with appropriate data types and constraints.

**Week 5-6:**

User Interface Design:

Defined user roles and access levels for the system.

Sketched initial user interfaces for key functionalities (e.g., car search, booking, employee management).

Considered usability and accessibility principles for the interface.

**Week 7-8:**

System Development:

Started implementing the system backend using a chosen database management system “SQL Server Management Studio”.

Developed functionalities for data creation, retrieval, update, and deletion.

Implemented basic validation and error handling mechanisms.

**Week 9-10:**

Testing and Refinement:

Performed unit testing for individual modules and functionalities.

Conducted integration testing to ensure seamless data flow across the system.

Refactored code for efficiency and clarity based on testing results.

Continued user interface development and implemented additional features.

**Testing and Refinement:**

* Performed unit testing for individual modules and functionalities.
* Conducted integration testing to ensure seamless data flow across the system.
* Refactored code for efficiency and clarity based on testing results.
* Continued user interface development and implemented additional features.

**Current Status:**

* A functional prototype of the Car Rentals DBMS is available with core functionalities for managing cars, employees, reservations, and rentals.
* User interface design is progressing well, with mockups and initial implementation in progress.
* Comprehensive testing and documentation are ongoing.

**Next Steps:**

* Finalize user interface development and implement remaining features.
* Conduct thorough system testing to identify and resolve any remaining bugs or errors.
* Develop user manuals and training materials for system users.
* Prepare for project demonstration and presentation.

**My Contributions in the Team:**

Tasks:

* Created the initial database named CarRentalDB.
* Designed and implemented the Cars, Employees, Bookings, Canceled Bookings, and Calendar tables.
* Defined primary and foreign key relationships to maintain data integrity.
* Developed the script to populate the Calendar table with dates.

**My State:**

* Proficient in conceptual design and backend development.
* Demonstrates strong analytical and problem-solving skills.
* Works independently and effectively collaborates with team members.
* Well-organized and adheres to deadlines.

**Challenges Faced:**

* Initially struggled with database concepts and terminology during the schema design phase.
* Found difficulty juggling conceptual design with backend development tasks due to their differing requirements.
* Faced unforeseen compatibility issues between chosen tools and libraries during user interface development.

**Overall Progress and Timeline:**

The project is progressing well and on track to meet the desired deadlines. I am confident in delivering a robust and user-friendly Car Rentals DBMS that fulfills the initial project goals.