

## Car Rental System Project

### Weekly Meeting Report - Week 1

Date: 3rd March

#### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

#### Agenda:

- 1. Introduction and brainstorming project ideas.*
- 2. Decision on the project topic.*

Minutes of the Meeting: 45 minutes

#### 1. Introduction:

- Each team member introduced themselves and shared their interests and strengths.
- Discussion on the goals and expectations for the project.

#### 2. Brainstorming Project Ideas:

- Various ideas were proposed, including:
  - E-commerce platform
  - Online education system
  - Social media app
  - Healthcare management system
  - Car rental system
- Each idea was evaluated based on feasibility, scope, and interest.

#### 3. Decision on Project Topic:

- After thorough discussion, the team unanimously decided to pursue the “ Car Rental System” project.
- Reasons for choosing the car rental system:
  - It offers a wide range of functionalities to model.
  - It is a common real-world application, making it practical and relevant.
  - It provides opportunities to explore different aspects of software modeling, such as user management, booking processes, and payment systems.

## Weekly Meeting Report - Week 2

Date: 7th March

Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

Agenda:

- 1. Presentation of the project topic.*
- 2. Explanation of system functionalities and user roles.*
- 3. Setting up a Git repository.*

Minutes of the Meeting: 45 minutes

### 1. Presentation of the Project Topic:

- A presentation was created to explain the car rental system project in detail.
- The presentation covered the main objectives and scope of the project.

### 2. Explanation of System Functionalities and User Roles:

- The focus of the software will be to manage a car rental franchise.
- The system will keep data about all cars, including:
  - Car model
  - Year of production
  - Color
  - Transmission type (automatic/manual)
  - Price per day
  - Fuel type
  - Number of doors
  - Number of seats
- The system will also track reservations by date, time, and location.
- The application will have a four-level user system:
  - Administrator: Manages the overall system and users.
  - Car Rental Agent: Handles car rentals and customer service.
  - Customer: Can browse cars, make reservations, and view their rental history.
  - Driver: Associated with a reservation to drive the car.

### 3. Setting Up a Git Repository:

- A Git repository was opened to manage the project's code and documentation.
- All team members were added to the repository.

## Weekly Meeting Report - Week 3

Date: 15th March

### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

### Agenda:

1. Finalize project requirements.
2. Review of initial tasks and progress.

Minutes of the Meeting: 45 minutes

### 1. Finalizing Project Requirements:

- The team discussed and decided on the detailed requirements for the car rental system.
- Key functional requirements include:
  - Managing car inventory with attributes such as model, year, color, transmission type, price, fuel type, number of doors, and seats.
  - Handling reservations, including date, time, and location tracking.
  - User management with four distinct roles: Administrator, Car Rental Agent, Customer, and Driver.
- Key non-functional requirements include:
  - System security and data privacy.
  - User-friendly interface.
  - High availability and reliability.
  - Scalability to handle increasing numbers of users and reservations.

### 2. Review of Initial Tasks and Progress:

- The team reviewed the progress on the initial tasks assigned last week:
  - Data model for cars and reservations was outlined.
  - User interface mockups were started.
  - Database schema was being defined.
  - User management system was being outlined.
  - Research on API integration for payment processing was ongoing.
  - Draft project timeline and milestones were prepared.

## Weekly Meeting Report - Week 4

Date: 11th April

### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

### Agenda:

1. Discussion on use case tables.
2. Development of activity diagrams.

Minutes of the Meeting: 45 minutes

### 1. Discussion on Use Case Tables:

- The team reviewed and refined the use case tables for the car rental system.
- Each use case was detailed with specific actors, preconditions, postconditions, and a step-by-step description.
- Key use cases included:
  - User sign-in and sign-up.
  - Car search and reservation.
  - Managing car inventory.
  - Handling payments and invoices.
  - Generating reports.

### 2. Development of Activity Diagrams:

- The team worked on creating activity diagrams to visually represent the workflows of various use cases.
- Activity diagrams for key processes such as car reservation, payment processing, and user management were developed.
- Each diagram detailed the sequence of actions and decision points involved in the processes.

## Weekly Meeting Report - Week 5

Date: 2 May

Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

Agenda:

1. Development of BPMN diagrams.
2. Creation of state diagrams.

Minutes of the Meeting: 45 minutes

### 1. Development of BPMN Diagrams:

- The team focused on developing Business Process Model and Notation (BPMN) diagrams for various processes within the car rental system.
- Detailed BPMN diagrams were created for key workflows, including:
  - Customer registration and authentication.
  - Car search and reservation process.
  - Payment and invoice generation.
  - Car return and inspection process.
- Each BPMN diagram was reviewed to ensure it accurately represents the business processes and interactions between different actors.

### 2. Creation of State Diagrams:

- The team also worked on creating state diagrams to model the behavior of various entities within the system.
- State diagrams were developed for key entities, such as:
  - Car (states include Available, Reserved, Rented, UnderMaintenance).
  - Reservation (states include Created, Confirmed, Cancelled, Completed).
  - Payment (states include Pending, Completed, Failed).
- Each state diagram was reviewed for accuracy and completeness, ensuring all possible states and transitions are captured.

### 3. Review and Feedback:

- Team members reviewed each other's diagrams to provide feedback and suggestions for improvement.
- Necessary adjustments were made to ensure consistency and clarity across all diagrams.

## Weekly Meeting Report - Week 6

### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

### Agenda:

1. Development of the class diagram.
2. Matching the class diagram with the ERD (Entity-Relationship Diagram).

Minutes of the Meeting: 45 minutes

#### 1. Development of the Class Diagram:

- The team worked on creating a comprehensive class diagram for the car rental system.
- The class diagram included classes such as:
  - User (with subclasses for Administrator, Car Rental Agent, Customer, Driver)
  - Car
  - Reservation
  - Payment
  - Invoice
- Each class was detailed with attributes and methods, ensuring all necessary functionalities were captured.

#### 2. Matching the Class Diagram with the ERD:

- The team reviewed the existing Entity-Relationship Diagram (ERD) and matched it with the newly created class diagram.
- Ensured that all entities in the ERD were accurately represented as classes in the class diagram.
- Verified the relationships between entities in the ERD were correctly translated into associations between classes in the class diagram.
- Made adjustments as necessary to align both diagrams, ensuring consistency and completeness.

#### 3. Review and Feedback:

- Team members reviewed the class diagram and its alignment with the ERD to provide feedback and suggestions.
- Necessary adjustments were made to ensure both diagrams accurately represent the system's structure and relationships.

## Weekly Meeting Report - Week 7

### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

### Agenda:

1. Development of sequence diagrams.
2. Creation of collaboration diagrams.

Minutes of the Meeting: 45 minutes

### 1. Development of Sequence Diagrams:

- The team focused on developing sequence diagrams for various use cases in the car rental system.
- Detailed sequence diagrams were created for key interactions, including:
  - User sign-in process.
  - Car search and reservation process.
  - Payment processing.
  - Car return and inspection process.
- Each sequence diagram was reviewed to ensure it accurately represents the flow of messages and interactions between objects.

### 2. Creation of Collaboration Diagrams:

- The team also worked on creating collaboration diagrams to illustrate the relationships and interactions between objects during specific processes.
- Collaboration diagrams were developed for key scenarios such as:
  - Customer registration.
  - Reservation management.
  - Invoice generation.
  - User role assignment and management.
- Each diagram was reviewed for accuracy and completeness, ensuring all necessary objects and interactions are captured.

### 3. Review and Feedback:

- Team members reviewed each other's diagrams to provide feedback and suggestions for improvement.
- Necessary adjustments were made to ensure consistency and clarity across all diagrams.

## Weekly Meeting Report - Week 8

### Attendees:

- Joel Bitri
- Denaldo Selala
- Arlind Alliu
- Alesio Rajta
- Inva Lybeshari
- Hedije Jazaj

### Agenda:

1. Discussion on design patterns.
2. Development of interaction diagrams.

Minutes of the Meeting: 45 minutes

#### 1. Discussion on Design Patterns:

- The team discussed various design patterns to be implemented in the car rental system.
- Key design patterns considered included:
  - Singleton for managing a single instance of database connections.
  - Factory pattern for creating different types of users (Administrator, Car Rental Agent, Customer, Driver).
  - Observer pattern for notification services.
  - Strategy pattern for payment processing methods.
- Each pattern was discussed in terms of its applicability and benefits to the system architecture.

#### 2. Development of Interaction Diagrams:

- The team focused on creating interaction diagrams to visualize the flow of control and data among objects.
- Interaction diagrams were developed for key scenarios, including:
  - User authentication and session management.
  - Car reservation process.
  - Payment processing and confirmation.
  - Car return and inspection workflow.
- Each diagram was reviewed to ensure accuracy and clarity, illustrating the interactions between objects and the sequence of events.

#### 3. Review and Feedback:

- Team members reviewed the proposed design patterns and interaction diagrams, providing feedback and suggestions for improvement.
- Necessary adjustments were made to ensure the design patterns and diagrams are well-integrated into the overall system design.



