Requirement analysis and specification of software development

Assignment-5

GROUP – 7

MEMBERS:

1. Dipayan Maity 2021CSB039
2. Aaratrika Banerjee 2021CSB040
3. Pantho Propan Debnath 2021CSB041
4. Dipmay Biswas 2021CSB043
5. Ketan Khandenwal 2021CSB045

Bus Scheduling and Booking System

User : customer, manager, supervisor, booking clerk

As the assigned module is the "Bus Scheduling and Booking System," it's essential to outline comprehensive requirements that cover various aspects of the system, including user roles, functionalities, inputs, processes, and outputs. Below are the requirements structured according to different user roles and their interactions with the system:

1. Customer Requirements:

Description:

Customers are the primary users who interact with the system to book bus tickets, view schedules, and manage their bookings.

Functional Requirements:

1. User Registration and Authentication:

- **Inputs:** Customer details (name, contact information, email, etc.)
- **Process:** Registration process with validation of user information.
- **Outputs:** Successful registration confirmation message.

2. Bus Schedule Viewing:

- **Inputs:** Date, departure and destination locations.

- **Process:** System retrieves and displays available bus schedules matching the input criteria.

- **Outputs:** List of available bus schedules with details (departure time, arrival time, bus type, etc.).

3. Ticket Booking:

- **Inputs:** Selected bus schedule, number of seats, passenger details.

- **Process:** Reserve seats on the selected bus schedule and generate a booking reference.

- **Outputs:** Booking confirmation with details (booking reference, departure time, seats booked, fare, etc.).

4. Ticket Cancellation:

- **Inputs:** Booking reference or ticket details.

- **Process:** Cancel the booked ticket and update seat availability.

- **Outputs:** Confirmation of ticket cancellation.

5. View Booking History:

- **Inputs:** User credentials.

- **Process:** Retrieve and display the user's booking history.

- **Outputs:** List of previous bookings with details.

6. Payment Processing:

- **Inputs:** Payment details (credit/debit card, payment gateway).

- **Process:** Secure processing of payment for the booked tickets.

- **Outputs:** Payment confirmation and transaction receipt.

2. Manager Requirements:

Description:

Managers oversee the overall operations of the bus scheduling and booking system, including managing schedules, routes, and user accounts.

Functional Requirements:

1. Manage Bus Schedules:

- **Inputs:** Add, edit, or delete bus schedules.

- **Process:** Update the system with new schedules or modify existing ones.

- **Outputs:** Confirmation of schedule updates.

2. Manage Routes:

- **Inputs:** Add, edit, or delete bus routes.

- **Process:** Update the system with new routes or modify existing ones.

- **Outputs:** Confirmation of route updates.

3. Monitor Bookings:

- **Inputs:** Access to booking data and reports.

- **Process:** Monitor booking trends, seat occupancy rates, and revenue.

- **Outputs:** Booking analytics and reports.

4. User Account Management:

- **Inputs:** User account details.

- **Process:** Create, edit, or deactivate user accounts (clerks, supervisors, etc.).

- **Outputs:** Confirmation of account management actions.

3. Supervisor Requirements:

Description:

Supervisors have an intermediary role between managers and booking clerks. They assist in managing bookings and resolving customer issues.

Functional Requirements:

1. Booking Oversight:

- **Inputs:** Access to booking data and customer interactions.

- **Process:** Monitor bookings, assist clerks in resolving booking issues.

- **Outputs:** Booking status updates and resolution reports.

2. Customer Support:

- **Inputs:** Customer inquiries, complaints, and feedback.

- **Process:** Respond to customer queries, resolve complaints, and collect feedback.

- **Outputs:** Resolution of customer issues and feedback analysis.

4. Booking Clerk Requirements:

Description:

Booking clerks interact directly with customers, assisting them with ticket bookings, cancellations, and inquiries.

Functional Requirements:

1. Ticket Booking Assistance:

- **Inputs:** Customer inquiries, booking requests.

- **Process:** Assist customers in booking tickets, checking availability, and selecting seats.

- **Outputs:** Confirmation of booked tickets and assistance provided.

2. Ticket Cancellation Assistance:

- **Inputs:** Customer requests for ticket cancellations.

- **Process:** Assist customers in canceling tickets, providing necessary information.

- **Outputs:** Confirmation of ticket cancellations and assistance provided.

3. Customer Inquiry Handling:

- **Inputs:** Customer inquiries regarding schedules, fares, routes, etc.

- **Process:** Provide accurate information and assistance to customers.

- **Outputs:** Satisfactory resolution of customer inquiries.

Overall System Requirements:

1. User Interface:

- **Description:** The system should have an intuitive user interface accessible from desktop and mobile devices.

- **Requirements:** Responsive design, easy navigation, clear instructions, and error handling.

2. Data Security:

- **Description:** Ensure the security and privacy of user data, including personal and payment information.

- **Requirements:** Encrypted data transmission, secure storage, compliance with data protection regulations.

3. System Performance:

- **Description:** The system should be able to handle multiple user requests simultaneously without performance degradation.

- **Requirements:** Scalability, efficient resource utilization, load balancing, and performance monitoring.

4. Integration with Payment Gateways:

- **Description:** Enable seamless payment processing for ticket bookings.

- **Requirements:** Integration with secure payment gateways, support for various payment methods.

5. Reporting and Analytics:

- **Description:** Provide managers and supervisors with comprehensive reports and analytics for decision-making.

- **Requirements:** Customizable reporting tools, real-time analytics, graphical representations.

6. Error Handling and Logging:

- **Description:** The system should handle errors gracefully and log relevant information for troubleshooting.

- **Requirements:** Error detection, error messages, logging mechanisms for system events and errors.

In conclusion, the Bus Scheduling and Booking System must fulfill the outlined requirements to ensure efficient operations, user satisfaction, and effective management of bus schedules and bookings. These requirements serve as a foundation for system design and development, facilitating clear communication between stakeholders and the development team.