BRENDA SANCHEZ

Software Engineer

1techieSanchez@gmail.com • http://github.com/1BrendaSanchez • http://linkedin.com/-brenda-sanchez

Business Requirements Analysis

Key Skills: Requirements Gathering, Stakeholder Collaboration, Project Planning

- Conducted a detailed business analysis for the **DriverPass System**, identifying user needs, system objectives, and functional/non-functional requirements.
- Defined system goals, including **online exam scheduling**, **lesson management**, **progress tracking**, and **role-based access** for students, instructors, and administrators.
- Outlined platform constraints, security standards, and scalability considerations to future-proof the system design.

System Design and UML Modeling

Key Skills: UML Diagrams, System Architecture, Object-Oriented Design

- Created **UML Class Diagrams** to define system entities and their relationships, including **User**, **Instructor**, **Appointment**, **Lesson**, and **Vehicle** classes.
- Developed **UML Use Case Diagrams** to visualize user interactions, highlighting core features like **Register**, **Schedule Appointment**, and **View Progress**.
- Designed **UML Sequence Diagrams** to map the sequential flow of system interactions for appointment scheduling and user management.

Appointment Scheduling System

Key Skills: Activity Diagrams, Database Design, User Experience

- Developed an **Activity Diagram** for appointment scheduling, outlining user actions from login to appointment confirmation.
- Designed the **Database Schema** for storing user accounts, appointments, lessons, and vehicles, ensuring data integrity and role-based access.
- Ensured real-time availability updates and error handling to prevent scheduling conflicts.

System Documentation and Communication

Key Skills: Technical Writing, Documentation, Stakeholder Communication

- Authored a comprehensive **System Design Document**, detailing system architecture, user roles, functional requirements, and platform constraints.
- Created a **Business Requirements Document (BRD)** that communicated project goals, system features, and technical considerations to both technical and nontechnical stakeholders.
- Ensured clarity by using diagrams, tables, and concise explanations to bridge communication gaps.

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Security and Performance Considerations

Key Skills: System Security, Performance Optimization, Scalability Planning

- Incorporated **multi-factor authentication (MFA)** for user login and encrypted sensitive data both in transit and at rest.
- Implemented **role-based access control (RBAC)** to limit user permissions based on their roles (e.g., student, instructor, admin).
- Ensured system performance by setting **2-3 second response times** for scheduling actions and supporting **concurrent users** without degradation.

Key Outcomes and Impact

- Created a user-centric system design that simplifies **lesson scheduling**, **progress tracking**, and **instructor management**.
- Delivered technical documentation that serves as a **blueprint for system implementation**, ensuring clarity for developers and stakeholders.
- Applied **systems development principles** to produce adaptable, scalable solutions aligned with industry best practices.