University of Hafer Al Batin

College of Computer Science and Engineering

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CO-OP Training Progress Report

CAMERON
A Schlumberger Company

مجموعة الرشيد
Al-Rushaid Group

CAMERON AL-RUSHAID

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xecutive Summary:

e particular purpose of this report is to provide the reader an idea of my COOP training progress at Cameron ·Rushaid for the first 7 weeks, summarizing training goals, activities, and accomplishments. Then describing e key elements of the training period.

oreover, the analysis in which I executed a full website regarding a new a visit management system. This ebsite was subjective according to Cameron Al-Rushaid relationship managers. It was my main project, orking two months to accomplish this task.

sum up, the report will be concluded with a brief summary, if they were taken in account, improve the work vironment making the training period more convenient for COOP students. Hopefully, you enjoy it.

Week 1: Introduction and Setup

The first week of my Co-op program was primarily focused on getting acclimated to the work environment and setting up the necessary tools for development. This involved configuring the company's computer to suit my workflow, which included installing essential programming languages, packages, and development environments. During this time, I also familiarized myself with the company's development practices and procedures, laying the groundwork for the project that I would later undertake.

Week 2: Project Planning and Analysis

In the second week, I was introduced to the website project that I would be developing. This project is a comprehensive visitor management system designed to streamline the process of managing visitors, managers, and gate security within the company. My tasks during this week included:

- **Project Planning**: I spent time understanding the project requirements and expectations, meeting with stakeholders to gather detailed information.
- **System Design**: I created initial diagrams and sketches to outline the system architecture, including relationship diagrams to map out the interactions between different entities in the database.
- **Initial Meetings**: I conducted meetings with the relevant teams to discuss the project's scope, features, and technical requirements. This ensured that everyone involved had a clear understanding of the project goals and timeline.

Week 3: NEST Course

During the third week, I had to take a break from the project to complete a mandatory NEST course. Although this temporarily paused my work on the visitor management system, the course provided valuable knowledge that I could apply to my project upon returning.

Week 4 to Week 7: Development of the Visitor Management System

After completing the NEST course, I resumed work on the project in the fourth week. The following weeks (from Week 4 to Week 7) were dedicated to the actual development of the visitor management system:

1. **Database Design and Implementation**:
    - I designed the database structure, focusing on creating a robust schema that could effectively manage the relationships between visitors, managers, and gate security personnel.
    - Initial implementation led to challenges with foreign key constraints and data type compatibility, which required careful debugging and refactoring.
2. **Frontend and Backend Development**:
    - I developed the three main sections of the website:
        - **Visitor Section**: Created the form for visitors to fill out and submit, with functionality for generating and displaying a unique form ID.
        - **Manager Section**: Implemented account creation, login, and a dashboard that allows managers to review, approve, or reject visitor requests.
        - **Gate Security Section**: Developed the security dashboard for gate personnel to manage visitor check-ins and check-outs.
    - Integrated email notifications to keep all parties informed about visit status updates.
3. **Error Handling and Debugging**:

between models and the database. These errors were particularly challenging due to the complexity of the relationships between different entities.

- Adjustments were made to the Entity Framework models to ensure smooth operation and data consistency across the application.

4. **User Authentication and Role Management**:
   - Implemented a secure authentication system that distinguishes between managers and gate security personnel. This system was designed to provide appropriate access based on user roles while ensuring a user-friendly interface.

Challenges and Solutions

Throughout the project, several challenges arose, including:

- **Database Integrity Issues**: Initial issues with database relationships required significant refactoring to ensure data integrity and functionality.
- **Consistency Across the Application**: Maintaining consistency in the codebase, especially after changes to the database schema, was an ongoing challenge.
- **Debugging Complex Relationships**: Errors related to entity relationships were complex and required thorough analysis and iterative debugging to resolve.

Conclusion

Overall, the project has progressed well, with substantial work completed from Week 4 to Week 7. Despite the challenges, I have gained valuable experience in full-stack web development, particularly in database management, frontend/backend integration, and user authentication. The next steps will involve further testing and optimization to ensure the system meets all requirements and functions smoothly. This report provides an overview of my work during the Co-op program and the progress made so far.