**CEIS400 BUSINESS PROBLEM SCENARIO**

**(Course Project Lab Assignment #1)**

**(Instructions: Complete the template below based on your *selected project business case study scenario* in the Course Home, or provided by the professor. Keep the course project lab deliverables moving by listing and/or confirming any assumptions with the professor, *as needed*.)**

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| **CEIS400 Business Problem Scenario Information** |
| **Company/Scenario Name: GB Manufacturing**  **Date: 12/08/2024**  **Prepared By: Victor Camacho** |
| ***General Project Information:***  **Project Team Name: GB Automation Team**  **Project Leader and Team Members: Victor Camacho** |
| ***Business Problem/Scope Statement:***  **Problem Statement:** GB Manufacturing is experiencing significant losses due to inadequate tracking of equipment checked out from the maintenance department’s equipment depot. The manual process is error-prone and lacks accountability, leading to over $50,000 in lost or stolen equipment annually. This challenge impacts the ability to monitor checked-out equipment effectively and ensure its timely return. Developing a streamlined system that tracks equipment and encourages responsible usage is crucial to minimizing these losses.  **Scope Statement:** This project will develop a software-based automated equipment checkout system to manage and track the check-in and check-out of tools and equipment within the maintenance department. The system will include secure user authentication, an intuitive interface for employees, real-time tracking of equipment status, and automated alerts for overdue items. By implementing a reliable system, the project aims to enhance accountability, reduce equipment losses, and improve overall efficiency in equipment management. |
| ***Project Objectives:***   * Successfully implement a digital system that tracks equipment check-in and check-out, ensuring accountability and usability. * Conduct thorough system testing based on predefined test cases to validate functionality and identify potential defects for resolution. * Ensure that the system components, such as authentication, equipment tracking, and notifications, meet the specified requirements. |
| ***Customers/Stakeholders:***   * **Maintenance Employees**: Primary users responsible for checking out and returning equipment for job assignments. They interact directly with the system for equipment tracking. * **Maintenance Managers**: Oversee equipment usage, ensure compliance with check-in/check-out procedures, and review reports to address any discrepancies in equipment handling. * **GB Manufacturing Executives**: Key stakeholders interested in reducing equipment losses, improving cost efficiency, and ensuring accountability in equipment management. * **IT Department**: Responsible for the technical maintenance, support, and regular updates of the equipment checkout system to ensure it operates smoothly and securely. |
| ***Project Description:***  **Business Description/High-Level Functional Requirements:** The automated equipment checkout system will provide a secure digital platform for maintenance employees to check out and return equipment. Employees will authenticate themselves using unique login credentials, and each transaction will be securely logged. The system will track the status of each piece of equipment in real-time, with automated notifications sent to users and managers for overdue returns. Management will have access to detailed usage reports, enabling them to spot trends or recurring issues in equipment handling.  **Technical Description/Language, Tools, and Technical Resources:** The system has been developed using C# as the programming language and Visual Studio as the primary development environment. It includes console-based implementation with future potential for web or GUI integration. SQLite remains the database choice for tracking equipment and transaction logs. |
| ***Software Engineering Best Practices:***   * **Adopt Agile Development**: Use Agile practices to support continuous iteration, allowing for regular feedback and adjustments to improve project alignment with requirements. * **Conduct Code Reviews**: Implement regular code reviews to maintain quality and ensure adherence to coding standards, improving overall reliability and readability. * **Utilize Version Control (Git)**: Git is used for collaborative development and secure code management, facilitating traceability and version tracking for all project updates. * **Implement Automated Testing:** Automated testing is performed to verify system stability and functional accuracy, focusing on traceable requirements as outlined in the IEEE SRS 830. * **Conduct Risk Analysis:** Regularly analyze risks to identify potential security and data privacy issues, ensuring the system remains secure and compliant with organizational policies. |
| ***Major Project Deliverables:***   * **Development Phase:** Completed source code with implemented features such as user authentication, equipment checkout, and notifications for overdue items. * **Testing Phase:** A set of detailed test cases covering all functional requirements and system features. The test results will guide further improvements. * **Final Documentation:** Updated SRS and other project-related documents to reflect changes and testing insights. |
| ***Individual/Team Member Job Descriptions/Responsibilities for each course project lab assignment:***  **Victor (Project Developer):** Responsible for the complete design, development, and implementation of the automated equipment checkout system. This includes creating and managing the backend database, developing the frontend interface, handling user authentication, setting up the check-in/check-out tracking functionality, and ensuring data security. Victor will also conduct testing, resolve any identified issues, and document the system’s features and functionalities. |
| ***Additional Comments (optional):***   * **Assumptions:** Once the system is implemented, all maintenance employees are assumed to follow the new check-in/check-out procedures. * **Risks:** Potential challenges include ensuring data security for user information and managing reliable authentication to prevent unauthorized access to the system. |