

CEIS400 BUSINESS PROBLEM SCENARIO

(Course Project Lab Assignment #1)

Version	Date	Revision Summary	Author
2.0	04/18/2025	Overall revisions to fit newly established criteria	Member D

(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.)

CEIS400 Business Problem Scenario Information
Company/Scenario Name: GB Manufacturing Automated Equipment Checkout System (ECS) Date: 03/05/2025 Prepared By: Louie Santino Venegas
<i>General Project Information:</i> Project Team #: G Project Team Name: G Project Leader and Team Members: Louie Venegas, Team Member A, Team Member G, Team Member C, Team Member B, Team Member F, Team Member E, Team Member D
<i>Business Problem/Scope Statement:</i> Business Problem: GB Manufacturing, a producer of electronic components and testing equipment, is experiencing significant inefficiencies in its Equipment Depot operations. The depot is responsible for providing maintenance employees with tools and equipment necessary for their tasks. However, due to a manual check-in/check-out process, high levels of lost, stolen, and unreturned equipment have resulted in an estimated annual loss exceeding \$50,000. Additionally, employees face long wait times for equipment processing, contributing to delays and frustration. Scope Statement: An automated Equipment Checkout System (ECS) is proposed to address these issues. The proposed Equipment Checkout System (ECS) will automate and enhance the tracking of equipment check-ins and check-outs for GB Manufacturing's maintenance department. The system will integrate a digital inventory management solution to streamline the equipment lending process, ensuring that tools are efficiently assigned, returned, and monitored in real-time. Key functionalities include automated check-in/check-out, employee accountability tracking, equipment availability status, and reporting tools for inventory management. The ECS will reduce checkout processing time, minimize losses, improve inventory control, and provide a user-friendly interface for employees and depot staff. By implementing this system, GB Manufacturing aims to improve operational efficiency, reduce financial losses, and

increase workforce productivity across its multiple facilities.

Project Objectives:

- Reduce equipment checkout processing time to under 2 minutes per transaction.
- Decrease annual equipment losses by at least 50% through automated tracking and accountability measures.
- Implement real-time equipment availability status to reduce delays in locating necessary tools.
- Ensure only authorized employees with proper skill classifications can check out specific equipment.
- Generate reports on equipment usage, losses, and maintenance needs to aid decision-making.
- Improve employee accountability by providing ability to create statements of checked-out equipment.
- Enhance security by integrating role-based access control for equipment transactions.
- Minimize excess inventory and carrying costs by optimizing resource allocation.
- Provide a user-friendly interface to simplify the check-in/check-out process for employees and depot staff.

Customers/Stakeholders:

- **Maintenance Employees:** Primary users who check out and return equipment.
- **Equipment Depot Staff:** Manage inventory and track check-ins/outs.
- **Supervisors & Management:** Oversee operations and review equipment usage reports.
- **Finance & Compliance Teams:** Monitor costs and ensure proper equipment handling.
- **Vendors/Suppliers:** Provide new and replacement equipment as needed.
- **Development Team:** Responsible for designing, building, and maintaining the ECS system.

Project Description:

The Equipment Checkout System (ECS) is a digital solution designed to streamline the process of checking in and checking out equipment for maintenance employees at GB Manufacturing. The system will provide an intuitive user interface for employees to request and return equipment efficiently, reducing processing time and minimizing losses. ECS will also enforce accountability by tracking each employee's equipment transactions and restricting access to specific tools based on skill classifications. The system will generate real-time reports on equipment usage, availability, and loss trends for better decision-making and inventory management.

From a technical standpoint, ECS will be developed using Java and Apache Ant in the NetBeans IDE for both frontend and backend development. The system will be built on a MySQL database to efficiently store and manage equipment records. ECS will also integrate with barcode scanning technology to automate check-ins and check-outs, reducing manual input errors. The development team will leverage version control tools for tracking code changes and ensuring collaboration, along with automated testing strategies to maintain code quality and system reliability. The system will be

deployed securely to provide stable and scalable access across multiple GB Manufacturing locations.

Software Engineering Best Practices:

- **Requirement Analysis:** Clearly define functional and non-functional requirements before development.
- **Modular Development:** Implement a structured approach with reusable and maintainable code components.
- **Version Control:** Use Git for managing source code changes and collaboration.
- **Code Reviews:** Regular peer reviews to ensure code quality and adherence to best practices.
- **Automated Testing:** Implement unit, integration, and system tests to ensure reliability.
- **Continuous Integration/Deployment (CI/CD):** Automate build and deployment processes for efficiency.
- **Security Best Practices:** Follow secure coding principles and implement authentication and authorization controls.
- **Documentation:** Maintain up-to-date documentation for developers and end-users.
- **Scalability Considerations:** Design the system to handle increased data loads and users efficiently.
- **Performance Optimization:** Regularly monitor and optimize system performance to reduce latency and improve user experience.

Major Project Deliverables:

Refer to Course Project Lab Assignment deliverables. Think in terms of the system development life cycle (SDLC) phases and map each deliverable to the appropriate SDLC phase or work. You are starting your high-level work breakdown structure (WBS) here—Phases/Activities/Tasks).

Individual/Team Member Job Descriptions/Responsibilities for each course project lab assignment:

Job descriptions can be based on the SDLC deliverables or lab numbers or sections to ensure accountability for all project deliverables. Responsibilities can overlap among team members. However, there must be a **primary** team member and **secondary** team member accountability for each task (as back up).

Detail bullet format (List the team member name and bullet format the job description for all team members.)

(Note: This job description will be cross-checked to your individual time sheet journals and MS project plan and overall contribution to the project.)

Additional Comments (optional):