CEN 4090L: Software Engineering Lab
Florida State University
- Group Project Proposal Template –

Project Title:

ManuFactor

Brief Overview:

ManuFactor is a software solution designed to streamline accounting processes for manufacturing companies. It focuses on simplifying Cost-Volume-Profit (CVP) analysis and production budgeting. Admin users can manage data for these analyses and control user access, while all users can view the results to support decision-making. By providing a straightforward tool for handling essential accounting tasks, ManuFactor enhances efficiency and accessibility in manufacturing operations.

Motivation:

ManuFactor aims to simplify the complex accounting processes involved in determining production requirements and sales targets to achieve specific income goals. By automating CVP analysis and production budgeting, the software provides an intuitive way for manufacturing companies to streamline decision-making. The idea for this project was inspired by a team member's background in accounting and familiarity with these concepts, making it a unique and practical choice compared to other projects in the course. Additionally, this project will help the team grow by mastering the full web development process, from frontend design with HTML to backend functionality with Python and SQL.

Features to Implement & Types of Users:

Features to Implement:

Data Input for CVP Analysis: Admins can input and update data required for Cost-Volume-Profit (CVP) analysis, including fixed costs, variable costs, and sales prices.

Data Input for Production Budgeting: Admins can input and update data for production budgeting, such as projected production quantities and associated costs.

Results Display: Both admins and general users can access and view the results of CVP analysis and production budgeting in a user-friendly format.

User Management: Admins can manage user accounts by adding or removing users and defining their roles.

User Roles:

Admins: Full access to data input, user management, and viewing analysis results.

General Users: Limited to viewing the results of CVP analysis and production budgeting.

Risk/Challenges:

Learning Curve for New Technologies: The team will need to learn and apply web development technologies, such as HTML, Python, and SQL, which may take time to master and integrate effectively.

Database Management: Setting up and maintaining a functional backend database could be challenging, especially ensuring data consistency and security.

Team Coordination: Coordinating tasks and responsibilities among team members, especially when learning new tools, might result in delays.

Feature Integration: Combining frontend design, backend logic, and database functionality into a cohesive application may pose technical difficulties.

Time Constraints: Completing the project within the designated 3-month period could be tight, especially with potential technical setbacks or debugging challenges.

User Management Implementation: Developing a robust user management system with different access levels (admin and general users) could introduce complexity.

Existing Related Projects:

QuickBooks: A popular accounting software used by small to medium-sized businesses, including manufacturers. It provides tools for budgeting and financial reporting but lacks the specific focus on CVP analysis and production budgeting tailored for manufacturing processes. **How ManuFactor is Different:** ManuFactor is specifically designed for manufacturing companies, with a clear focus on simplifying production-related accounting tasks such as CVP analysis. Additionally, it offers a straightforward user interface for viewing results and includes role-based user management.

SAP Manufacturing Software: A robust solution for manufacturing that includes production planning and financial management. However, its complexity and high cost make it inaccessible for smaller manufacturing companies. **How ManuFactor is Different:** ManuFactor aims to be a lightweight, affordable solution with essential features for smaller manufacturing companies that don't need the extensive capabilities of SAP.

Microsoft Excel/Google Sheets: Many manufacturing companies rely on spreadsheets for budgeting and CVP analysis. While these tools are flexible, they require significant manual effort and are prone to errors. **How ManuFactor is Different:** ManuFactor automates calculations and centralizes data management, reducing the risk of errors and saving time compared to manual spreadsheet-based workflows.

Intended Platform/Programming Language:

Platform: Web-based application accessible via modern web browsers (e.g., Chrome, Firefox, Edge).

Programming Languages:

HTML: For structuring the frontend interface.

Python: For backend logic and integration with the database.

SQL: For managing the backend database to store and retrieve data efficiently.

Third-Party Libraries/APIs to Be Used:

Flask: A Python web framework to handle backend logic and facilitate communication between the frontend and database.

MySQL: A relational database management system to store and manage data for CVP analysis, production budgeting, and user accounts.

Authentication Library: Tools like Flask-Login (if using Flask) or Django's built-in authentication system to manage secure user logins and role-based access. May use Jinga or cipher to develop encryption.

Team members, expertise, project responsibilities, and team organization:

Antonio Garriga (jaf21m) : Primary Major is Accounting. I will be providing the work that is specific to Managerial Accounting on the backend as well as some of the MySQL that is required to work with the backend calculations. I have worked on web development in C# as well as in the Databases course.

Samantha Bui (Sb21bn) : Computer science. I've worked with C++, Java, Python parallel programming and implemented flask, html, sql database, encryption to develop programs/web. I'll be providing front end work that makes up the user interface login page for role based access for admin and users using Flask, html, SQL database, encryption.

Ludginie Dorval (lld22) : I have experience with C++, HTML, CSS, SQL, and some familiarity with Python. For this project, I will help the team with the frontend by adding CSS and working on the login interface. I will also handle parts of the SQL work, like managing and using the databases we need for the project.

Lillian Malik (lam22g) : I am majoring in Computer Science with a focus on Cybersecurity. I have experience with C++ and a foundational understanding of HTML and CSS. For this project, I will take on a flexible role, primarily ensuring that we meet deadlines, adhere to project requirements, and achieve our initial goals. Acting as a de facto scrum master, I will help facilitate communication and coordination within the team. Additionally, I am committed to expanding my knowledge of HTML and CSS to contribute more effectively to front-end development, as well as becoming familiar with the third-party libraries and APIs essential for our project.