BiteUP Bakery Management System Project Report

Being part of the BiteUP Bakery Management System project has been a meaningful and exciting experience. I primarily worked on the backend, focusing on the Inventory Module, the Costing Calculator, and designing the structure of our database. The main goal of our project is to help bakeries run more smoothly by reducing manual work and combining everything, like inventory, costing, and records, into one easy-to-use system.

- **Inventory System**

- I worked on making sure ingredients could be added, updated, and displayed properly. Each item includes its name, brand, unit, price, purchase date, and quantity. I made sure this information is saved correctly in the database and used in other parts of the system.
- The inventory process we built is based on how real bakeries work—receiving ingredients through receipts, for example. This makes the system more natural for users. I wanted it to feel familiar and helpful, not confusing.
- It was also important to keep the data clean. If something went wrong here, it could affect other parts, like costing or records. I learned that even small details can have big effects.

- **Costing Calculator**

- I developed the initial backend for the Costing Calculator, which uses the inventory data to display the product and product ingredients from the database to the calculator.
- Watching the system update in real time was exciting. Especially now, when Juliene added the automatic calculations per portion, and seeing them update in real-time. It gave us a real sense that the system was alive and doing real work for its users.

- **Procurement Records and Receipts**

- I also worked on linking purchase receipts to procurement records. Every time inventory is added, the system generates a log that acts like a digital receipt, showing where and when each ingredient was bought.

- These records are saved in the database and can be viewed later in the Inventory Records section. This helps users go back and check past purchases, which is useful for auditing, budgeting, and tracking supplier reliability.
- Building this feature taught me a lot about data history and traceability. It was fulfilling to see a clear timeline of activities forming in the system, giving users a dependable way to track their procurement history.

● **Database Design**

- Together with Gracie, I planned and built the MySQL database for the project. This included organizing tables and setting relationships so that data could be shared between modules like Inventory, Costing, and Records.
- I had to think carefully about how each part of the system would use the data. I used foreign keys and indexes to make it fast and reliable.
- This work helped me understand how important the database is—it's like the foundation of the whole system. If it's not built well, everything else suffers.

● **Connecting Modules**

- I made sure the different parts of the system could share and update data properly. For example, when someone adds a new inventory item, that data also appears in the costing and receipt sections.
- I created API routes to handle these connections. This helped the whole system feel connected and seamless.
- Seeing data flow correctly between modules was one of the most rewarding parts of the project. It felt like everything was finally clicking into place.

● **Debugging and Server Maintenance**

- I also spent a lot of time fixing bugs and keeping the server running. At first, this was difficult and time-consuming, but I learned to spot patterns and solve problems more quickly.
- I monitored our Node.js server to make sure it stayed online and responsive, especially during team testing. If the server went down, it slowed everyone down. Solving bugs is frustrating sometimes, but it's also very satisfying. Each fix made the system stronger.

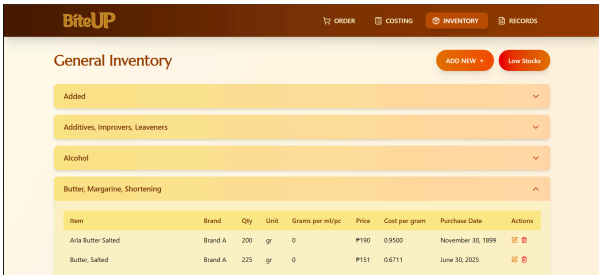
● **Teamwork and Fair Task Division**

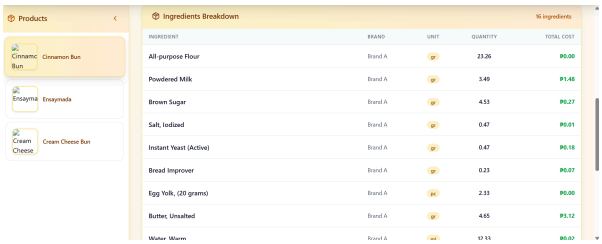
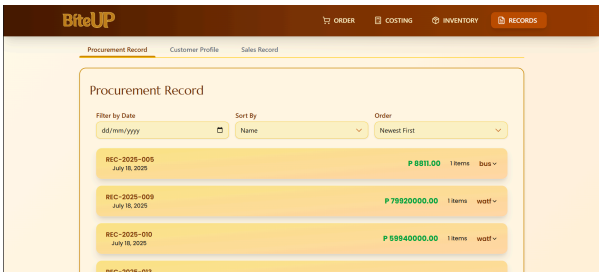
- Our group divided the work based on what each of us was interested in. Although I was used to being a frontend developer in past projects, I focused on the backend this time since I had the experience of integrating both ends of a project, while others handled the frontend and user interface. This lets us work more efficiently and learn from each other.
- We communicated well and helped each other out. It felt like a real team effort, with everyone contributing something valuable. Thus, I believe the work was divided fairly. Everyone had a good balance of responsibilities and supported one another throughout the project.

- **Tools We Used**

- We used React.js for the frontend, Tailwind CSS for design, Express.js and Node.js for the backend, and MySQL for the database. These tools gave us flexibility and power to build a modern system.
- Node.js helped us set up routes quickly, and MySQL kept our data clean and organized. Though we faced a few challenges learning some tools (especially the inflexibility of MySQL), they ended up making our system better.
- These technologies helped bring our ideas to life. I'm excited to keep improving my skills with them.

We've made strong progress on all the modules. We'll be adding more features soon and polishing the designs. Screenshots and demos are shared below. I'm excited to see the system working fully and to know that it might help real bakery staff do their jobs better. Overall, this project has helped me grow as a developer. I'm proud of what we've built and happy to be part of the team.

	General Inventory page - Helped with the CRUD feature of inventory, the low-stock monitoring, and fixing bugs in fetching data.

	Costing Calculator - Fetched and displayed data from different tables in the database
	Procurement Records - Connected the receipt modal of the inventory to the recording of the receipts for each simulated purchase and restocking of ingredients.

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