



Marine Corps Community Services Dashboard

Project Progress from Group 7



Aniket Adhikari, Tai-Jung Chen, Jinheng Hu, Ramin Salman Roughani, Junwen Wang



Project Problem

- MCCS monitors shrinkage
 - # of products in stock (actual) \neq recorded # of products in the inventory system (predicted)
- Reasons for shrinkage
 - shoplifting
 - employee theft
 - administrative issues
 - goods become damaged or lost.
- MCCS: construct a dashboard that easily depict relevant asset protection information





Project Description

What did want to make?

- Web-based application

Who is it for?

- Marines in their families
- MCCS members

What will it do?

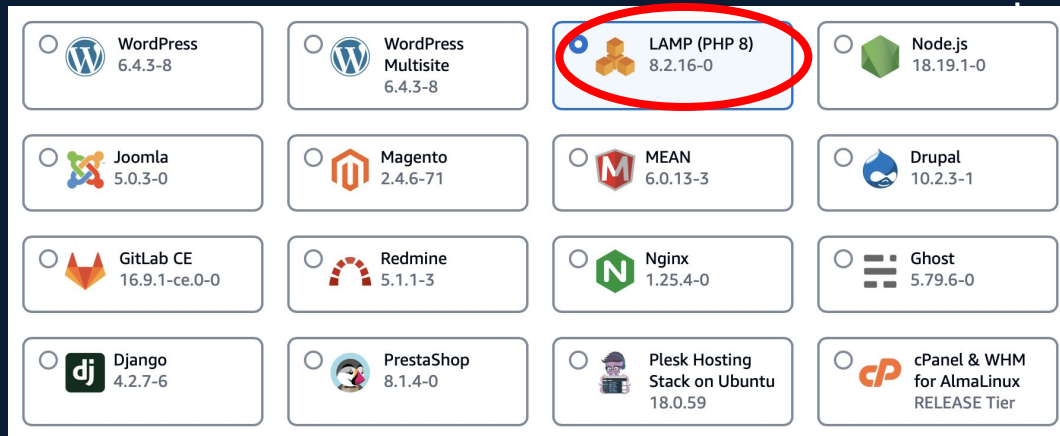
- Consolidate and visualize various data
- Allow for comparison of stores
- Allow for users to rate vendors
- ~~ML model~~

What makes it different?

- Inclusion of visuals + EDA
- Simple and lots of room to extend

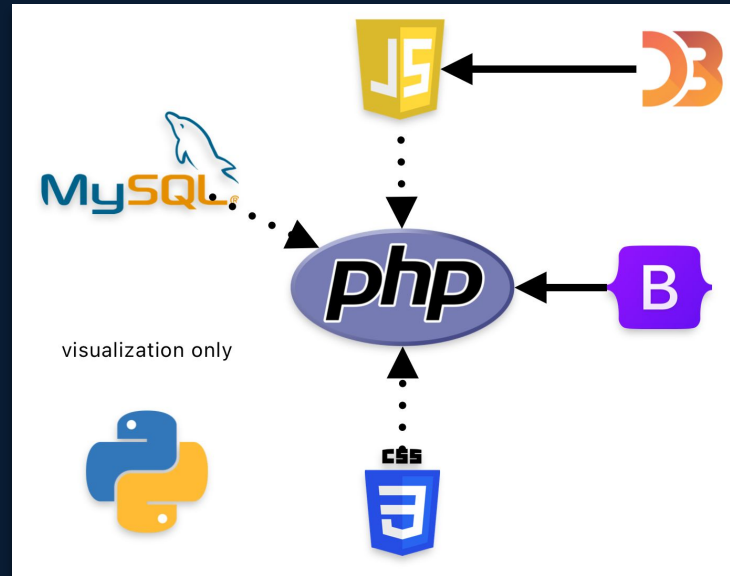
System Tool: Backend

- Website + Database
 - LAMP Stack on AWS Lightsail
- Lightsail > EC2
 - Lightsail: quick deployments for simple web apps
 - EC2: Scalable deployments for enterprise apps



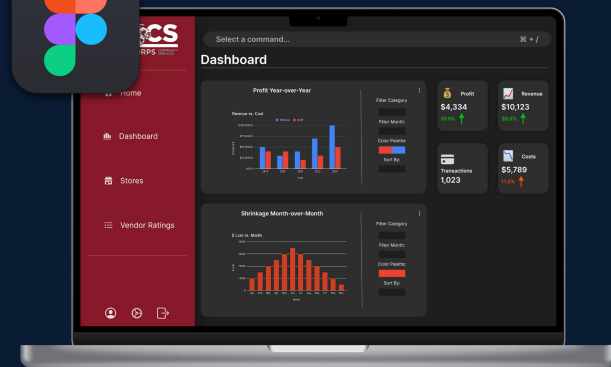
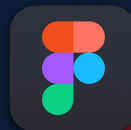
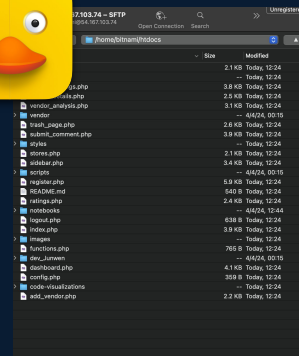
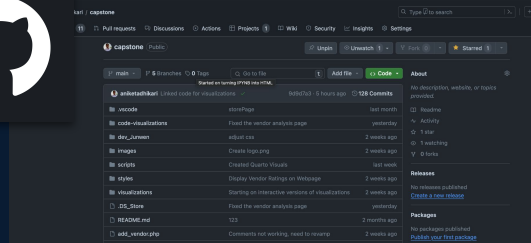
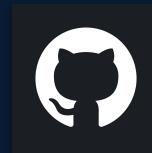
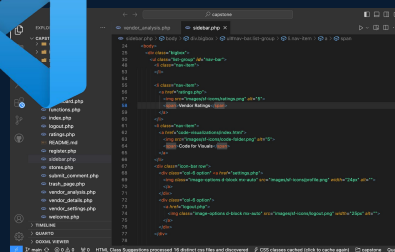
System Tools: Programming

- PHP
- MySQL
- CSS
 - Bootstrap > Vue.js
- JavaScript
 - D3 > Python
- Python
 - For mockup data visualizations



System Tools: Other Tools

- VS Code
 - IDE
- GitHub
 - Version Control
- Cyberduck
 - Deployment
- Figma
 - Prototyping



Challenges + Solutions

1. Using EC2
 - a. Challenge: Configuring instance and Connecting to RDS
 - b. Solution: Moved to Lightsail
2. Configuring workspaces on local machines
 - a. Challenge: Certain members had difficulty configuring their workspace for web dev
 - b. Solution: Regularly scheduled, individual meetings + issue tracking
3. Storage on Lightsail
 - a. Challenge: Difficult to upload GBs of data to MySQL
 - b. Solution: Rented a laptop from the STLD + data cleaning
4. Understanding the Data
 - a. Challenge: Lack of background knowledge in Inventory Management and the datasets
 - b. Solution: Search, EDA, and communicate with Andre

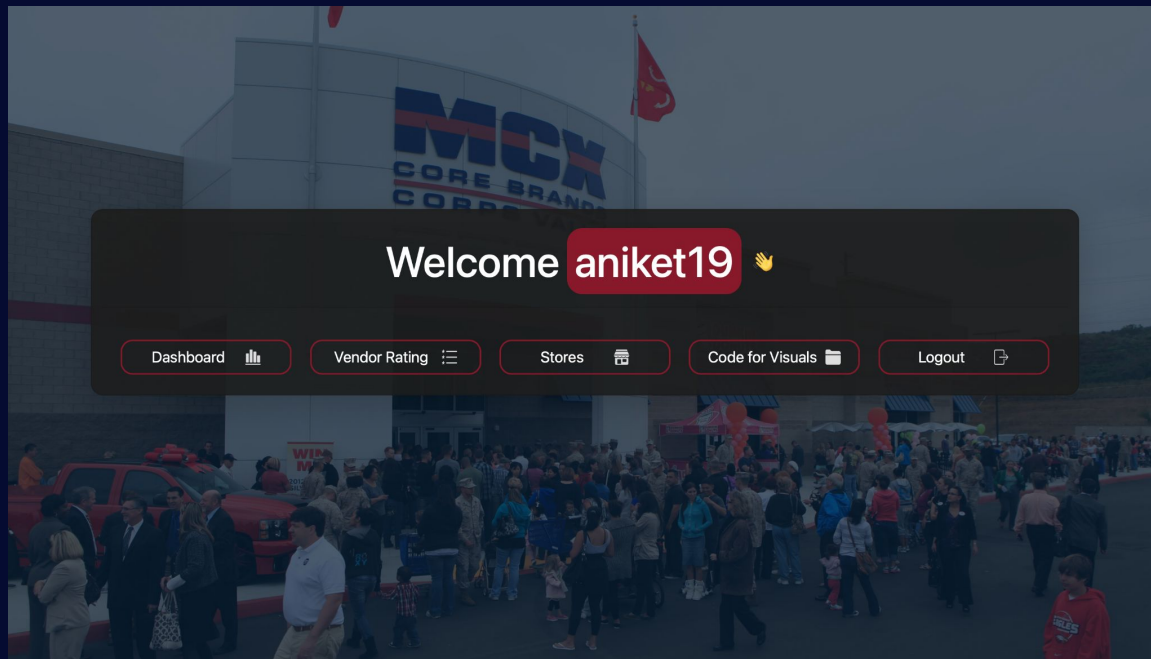
+++

Teaser





Demo





Retrospective

1. Data Cleaning
 - a. Lesson: Data privacy was a major challenge of working with a company in the defense sector
 - b. They didn't always have authorization to share data with us or it would just take a lot of time.
2. Visualization Mockup
 - a. Lesson: Having a plan early on can guide work as it goes on
3. Application of ML Models
 - a. Lesson: More data doesn't necessarily guarantee an accurate ML model as the model is only as high-quality as the data its trained on.
4. Back-End Setup
 - a. Lesson: Having a second option during the setup process was very important in case something went wrong with our first choice
5. Front-End Implementation
 - a. Lesson: Even when you have a plan, things can still go wrong.



Future Work

- Vendor rating:
 - Add additional vendor features for the users to comment on
 - Apply sentiment analysis on the comments
- Dashboard customization
 - Meet with users and stores (or user studies) to determine what they would like to view on the dashboard
 - Provide documentation, instructions, or walkthroughs for users to understand how they can create their own visualizations
- Security
 - Make sure no access for people outside of MCCS
- Machine Learning Application
 - Forecast inventory needs and shrinkage
 - Routinely collect data for building models





Thank you!