Faris Malik

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CS 499 1-2

**Enhancement Plan**

**Self-Introduction**

I have been in the Computer Science program for about 2 years at SNHU.

The three most important things I have learned are:

1. Writing clean and modular code for applications.
2. Using databases like MongoDB and connecting them to data-driven dashboards.
3. Applying data analysis methods using Python and visualization tools.

For this project, I will improve my existing dashboard by focusing on software design, algorithms, and databases. These improvements will help me meet the course outcomes related to writing professional code, solving data problems, and working with secure and scalable databases.

My career goal is in cloud and networking, but for this project, I will focus on practical enhancements that improve user experience and data interaction, which are still part of backend systems and decision-support tools.

**ePortfolio Set Up**

I created a GitHub Pages site that will host my ePortfolio.

GitHub Pages URL: https://github.com/Frisbiz/

A screenshot of a computer

AI-generated content may be incorrect.

**Enhancement Plan**

Category One: Software Design and Engineering

Artifact: Animal Rescue Dashboard

Origin: CS 340 Advanced Programming Concepts

**Planned Enhancement:**

I will refactor the existing code into three separate Python files:

* main.py will start the app.
* db\_module.py will handle all database queries.
* ui\_module.py will contain the layout and callbacks.

I will also add a reset all button that clears all filters and resets the map and table to default.

This is a small improvement but useful for the user, and it adds to the app's design quality.

**Pseudocode for enhancement:**

main.py*:*

import ui\_module

import db\_module

launch dashboard

db\_module.py:

define shelter connection

define read function

ui\_module.py:

define layout

define all callbacks including reset\_all

Reset All Button:

On click -> clear selected filters

Reset table and map to show all data

**Skills Demonstrated and Course Outcomes:**

* Refactoring code into separate modules for better organization.
* Adding UI improvements to support user actions.
* Course Outcome: Use tools and techniques to implement and deliver clean, maintainable software.

**Category Two: Algorithms and Data Structures**

Artifact: Animal Rescue Dashboard

Origin: CS 340 Advanced Programming Concepts

**Planned Enhancement:**

I will add a dynamic breed filter dropdown.

This dropdown will be populated from the database and allow the user to select a specific breed to filter the table and map.

This requires using data structures to get unique breed names and applying filtering logic based on user selection.

**Pseudocode for enhancement:**

Get unique breeds from database:

Use set to remove duplicates

UI:

Create dropdown populated with breeds

Callback:

When breed selected:

Filter data where breed == selected

Update table and map

**Skills Demonstrated and Course Outcomes:**

* Using lists and sets to handle unique breed names.
* Applying filtering algorithms to support user-driven data exploration.
* Course Outcome: Apply algorithms and data structures to solve user data filtering needs.

**Category Three: Databases**

Artifact: Animal Rescue Dashboard

Origin: CS 340 Advanced Programming Concepts

**Planned Enhancement:**

I will add an Export to CSV button that lets users download the currently filtered table as a CSV file.

This will use Pandas to\_csv() and create a downloadable link.

**Pseudocode for enhancement:**

On Export button click:

Get currently filtered data

Save as CSV

Provide link to download file

**Skills Demonstrated and Course Outcomes:**

* Using data export to support users who want to work with the data outside the app.
* Using Pandas to handle data manipulation and export.
* Course Outcome: Implement data handling and interaction with databases to support user workflows.

**ePortfolio Overall Skill Set**

**Overall Skills Demonstrated in Portfolio:**

* Writing clean, modular code.
* Using data filtering and aggregation to support user needs.
* Adding data export features for staff use.

**Skills and outcomes in code review video:**

* Review of current app code showing mixed code.
* Walkthrough of planned refactoring and small UI improvements.

**Skills and outcomes in narratives:**

* How each enhancement improves the user experience or app maintainability.
* How the changes demonstrate growth in backend and data interaction skills.

**Skills and outcomes in professional self-assessment:**

* My strengths in backend app structure, data handling, and database interaction.
* How this project supports my interest in building decision support tools and backend systems.