SDV602 AS 2
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Purpose of application

I am building a Python application for the purpose of taking data from csv files and displaying them in 3 different Data Explorer Screens (DES). The data contained in the files is originally from XML files, this is because the files were generated from a video game called “Dwarf Fortress”. In the game, worlds are generated with simulated history, events and characters, all very interesting pieces of data that I thought I could display using this application.

My aim is to have a clean and functional way to view the game data, edit it and add new data at the same time, that would allow me to essentially modify the game. Each DES will be linked up to a server (local host most likely) so that users can modify the files simultaneously, this also gives me the ability to include a chat function in the DES.

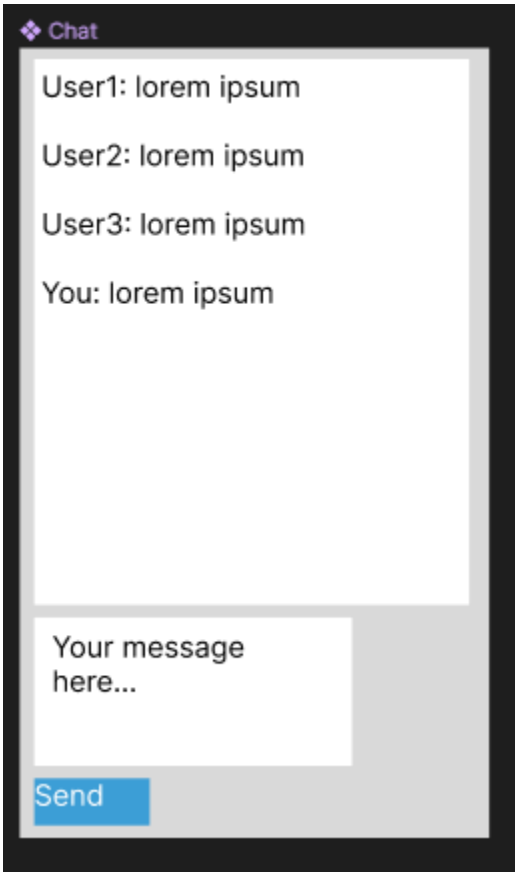
I will also be able to calculate trends in data because each character has a date of birth and a date of death partnered with the cause of death, this allows me to draw graphs with the Matplotlib library. I can really get a good understanding of this made-up world and all its moving parts with this application.

Overview of parts

XML to CSV converter

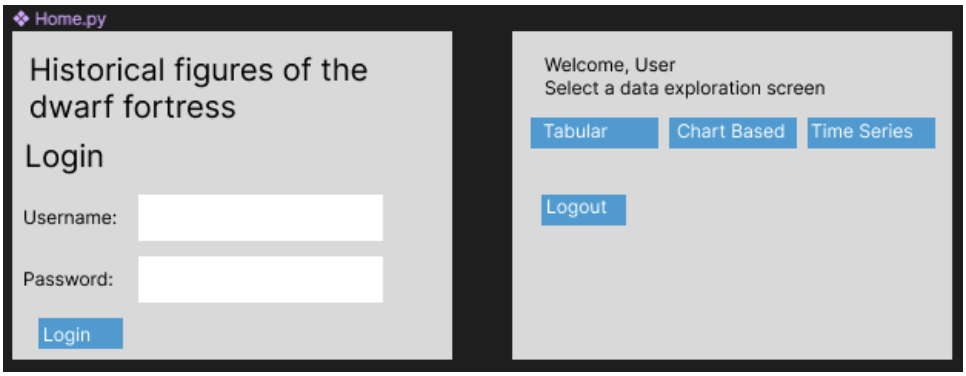
As mentioned previously, the data generated by the game was done so in a XML format, this is not what I need for this application, luckily converting all 46118 lines of this code was far less tedious than it could have been with the help of the Python module “Pandas”. With Pandas I was able to write a script that redacted any data that I did not need from each record and create a CSV file with the new updated records. As this is not required for the project, I will not provide it in the repository, if needed I can provide it however.

Chat tab



Each DES will include a chat section so that users can communicate with other specific users. This will open a new window that can be moved around the screen to let the user set up the workspace as they wish.

Home Screen



This is the screen that allows users to login, logout and choose which DES they wish to use.

Components

Username/Password text input: used for authentication input

Login Button: Checks the login inputs for a correct input and if true will change the screen contents

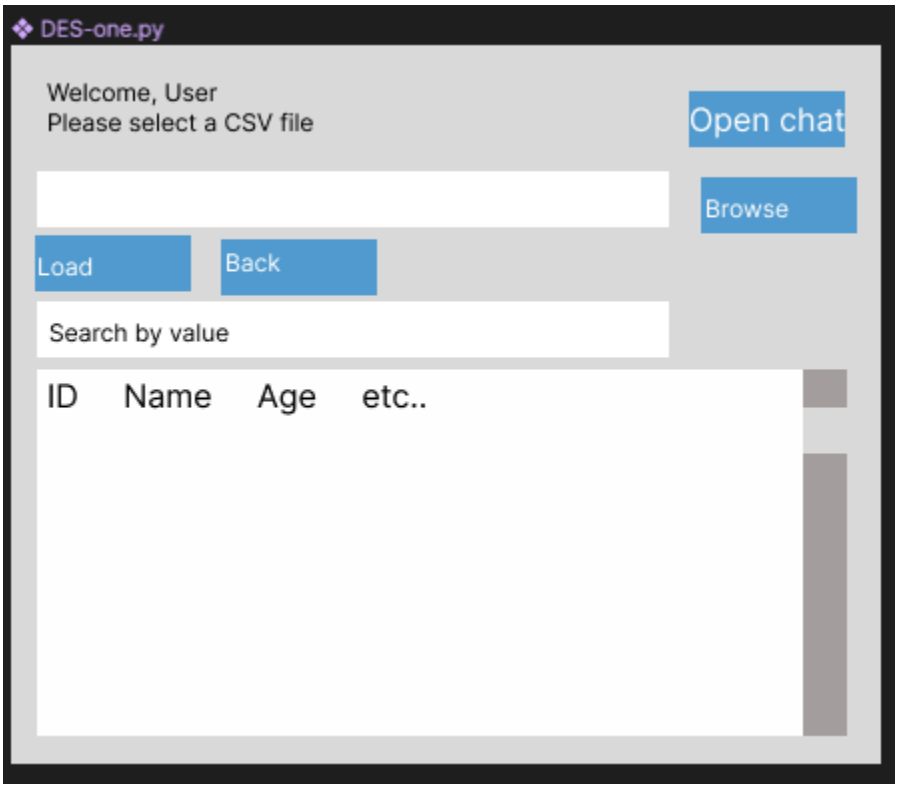
Tabular Button: Opens the Tabular DES with a sub process

Chart based Button: Opens the Chart based DES with a sub process

Time series Button: Opens the Time series DES with a sub process

Logout Button: Logs the user out and closes the app

Tabular data explorer



Components

Open chat button: Opens the chat window

Browse button: Opens the file explorer to locate the file needed

Load: Loads the selected file

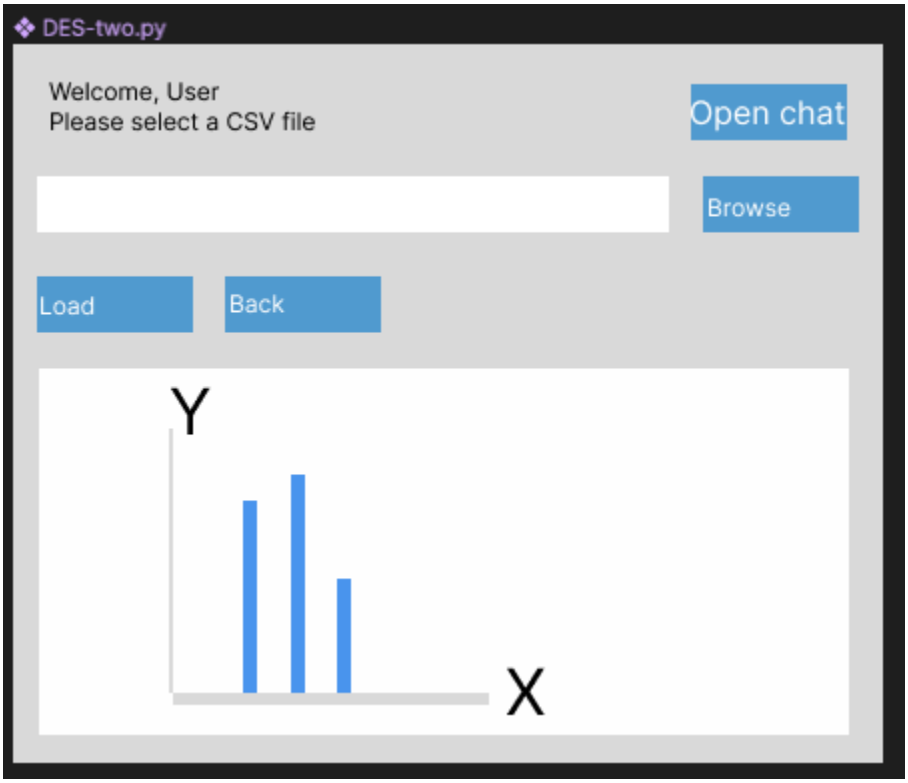
Back: Returns to the home screen

Search by value field: Used for filtering data based on user input

Features:

- Display the dataset in a scrollable table format.
- Implement sorting and filtering options for different columns.
- Include a search bar for finding specific entries that dynamically updates the list as the user types.
- Enable users to select rows and view detailed information.
- Show basic summary statistics for selected columns.

Chart based explorer



Components

Open chat button: Opens the chat window

Browse button: Opens the file explorer to locate the file needed

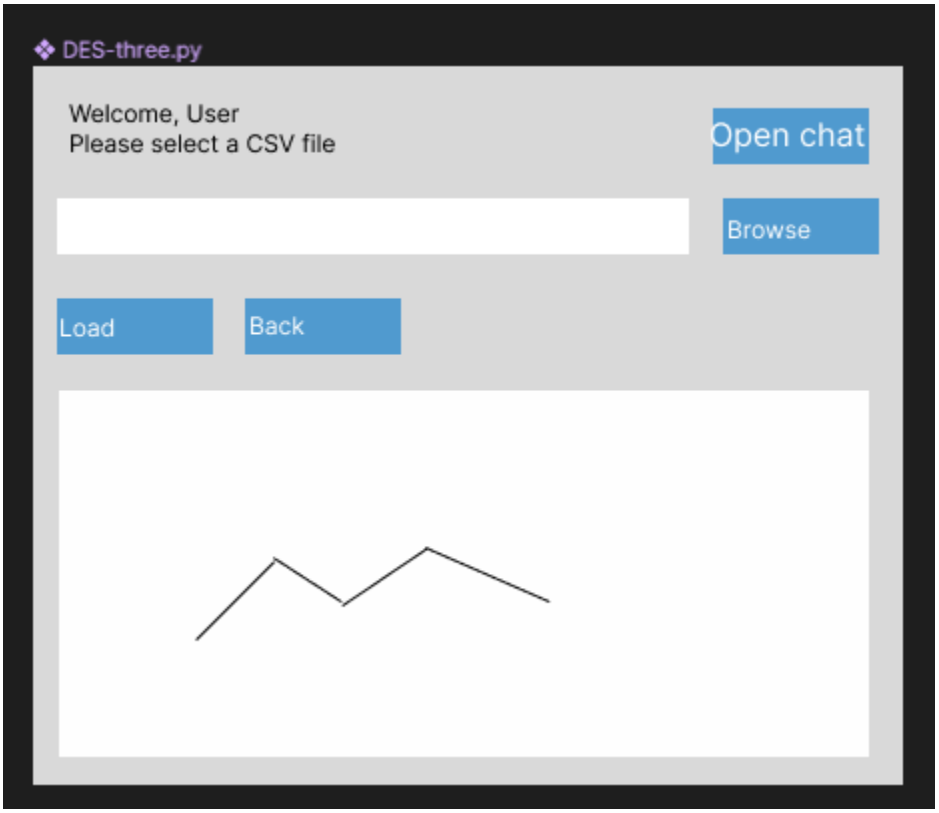
Load: Loads the selected file

Back: Returns to the home screen

Features:

- Allow users to select columns for X and Y axes in the chart.
- Add tooltips to display data values when hovering over chart elements.
- Display summary statistics and trends based on the chosen chart.

Time series data explorer



Components

Open chat button: Opens the chat window

Browse button: Opens the file explorer to locate the file needed

Load: Loads the selected file

Back: Returns to the home screen

Features:

- Display time-series data using line charts, area charts, or other time-specific visualizations.
- Allow users to select a specific time range or period of interest for analysis.
- Implement interactive zoom and pan functionality for exploring different time intervals.
- Include features for identifying anomalies, peaks, and trends in the time series.
- Offer customization options for adjusting chart styles and time intervals.

Final Notes

The prototype GUI made in python is not accurate to the storyboard outlines, they are a proof of concept and will be made to look and function as the storyboard depicts in future.

DES three proved problematic, I was unable to complete it in time as I ran into strange errors, this is most likely due to my data, I could potentially obtain more varied data or change to a different format of display in future.