Interactive Visualization Framework

In this project, an interactive visualization framework for a correlation-based analysis is introduced. The data used here was from a study of the adverse events of a drug on 117 patients affected by Crohn's disease. This visualization framework allows users to see the relationships between each feature.

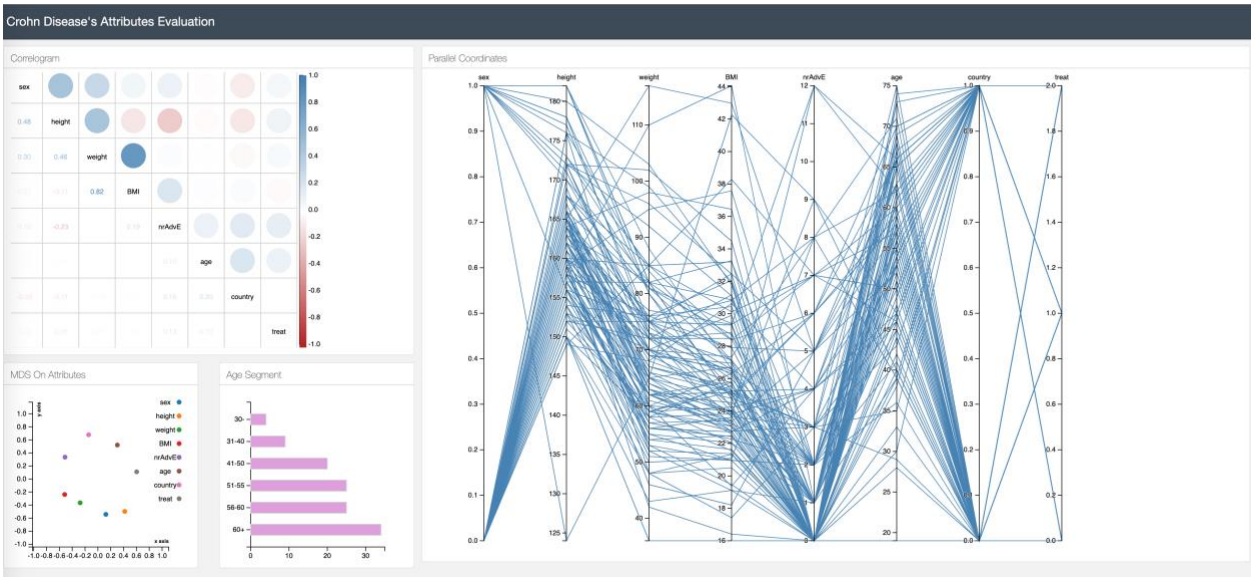
Directory Structure

Here is the structure of all the files

```
README.md
/mysite
    app.py
    /input
        the dataset (.csv)
    /templates
        index.html
    /static
        /css
        ...
```

- The Flask server's code is in app.py
- The custom CSS code is stored under /static/css
- All the charts and front-end code can be found in /templates/index.html

The Visualization Framework



Here are in total 4 charts in the visualization framework:

- The **correlogram** (top left) shows the correlations between each feature
- The MDS **scatter plot** (bottom left) shows the embedded features in 2D space, which also indicate the correlations (if two features are close to each other, they are high correlated)
- **Age segment bar chart** (bottom middle) shows the distribution of age of patients
- **Detailed view** (right) in Parallel Coordinate for all the data in the datasets

How to run the code

- You need Python 2.7.x and 4 Python libraries: Pandas, sklearn, Numpy, Flask. You can install them using *pip*.
- Download the dataset (CrohnD.csv) from R Datasets and save the CSV file in the /input folder.
- From the /mysite folder, run *python app.py*

After the server initializes, it will listen on port 5000 waiting for connections. Then open up the web browser and enter the following URL in the address field:

http://localhost:5000

Now you can play on the visualization tool!