EEG Machine Learning Project

Software Setup and Running Instructions in Ten Steps

By William Carpenter

1). Setting up the Virtual Environment

```
Command Prompt
Microsoft Windows [Version 10.0.19042.1586]
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C:\Users\Owner>cd Desktop

C:\Users\Owner\Desktop>python -m venv \Users\Owner\Desktop\mlEnv6

C:\Users\Owner\Desktop>mlEnv6\Scripts\activate.bat

(mlEnv6) C:\Users\Owner\Desktop>cd william_carpenter_eeg

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>pip install -r requirements.txt
```

2). Check Python Version

```
Command Prompt
(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python --version
Python 3.9.10
```

3). Check Package Installs

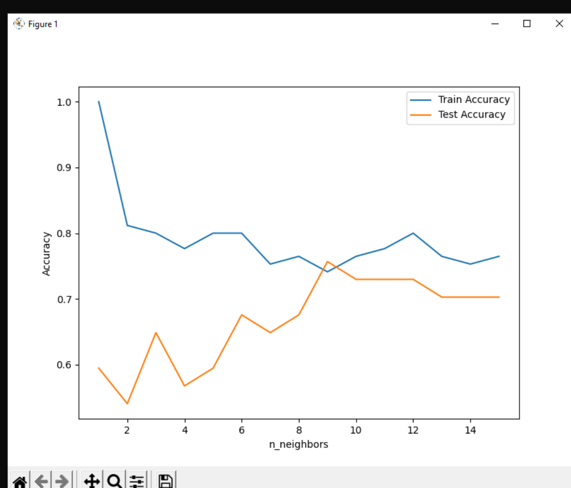
```
Command Prompt
(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>pip list
Package         Version
--------------- -------
cycler          0.11.0
fonttools       4.30.0
imageio         2.16.1
joblib          1.1.0
kiwisolver      1.3.2
matplotlib      3.5.1
mglearn         0.1.9
mne             0.24.1
numpy           1.22.3
packaging       21.3
pandas          1.4.1
Pillow          9.0.1
pip             21.2.4
pyparsing       3.0.7
python-dateutil 2.8.2
pytz            2021.3
scikit-learn    1.0.2
scipy           1.8.0
setuptools      58.1.0
six             1.16.0
threadpoolctl   3.1.0
```

4). Show the KNN Running

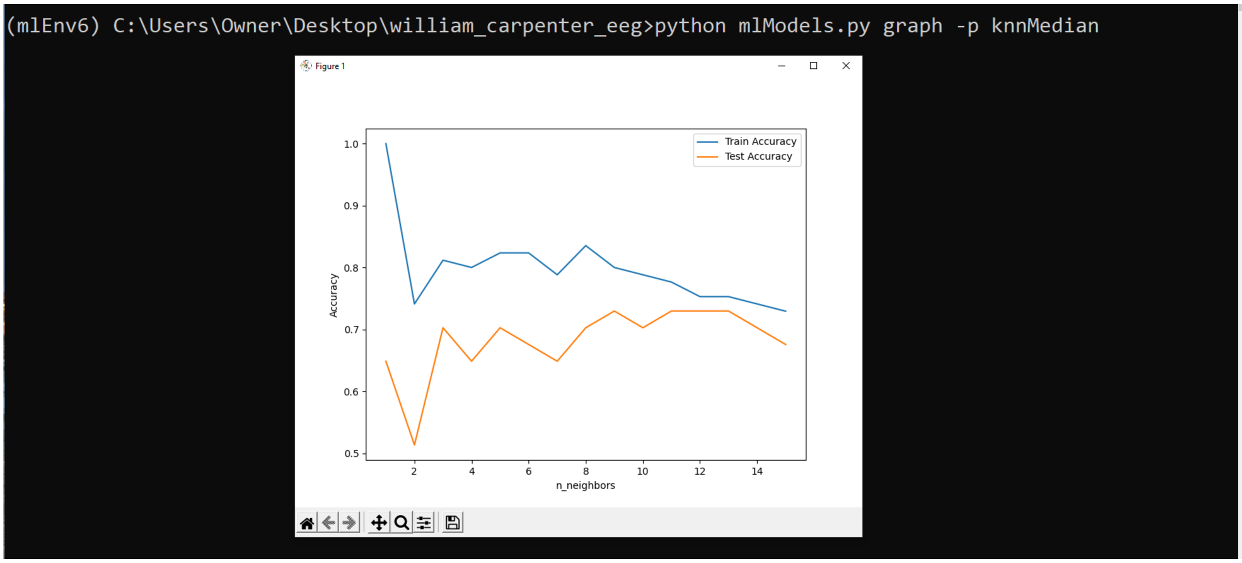
```
Command Prompt

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn1Mean
Test set score for KNN 1-Neighbor: 0.59

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn3Mean
Test set score for KNN 3-Neighbors: 0.65

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn10Mean
Test set score for KNN 10-Neighbors: 0.73

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn1Median
Test set score for KNN 1-Neighbor: 0.65

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn3Median
Test set score for KNN 3-Neighbors: 0.70

(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py print -k knn10Median
Test set score for KNN 10-Neighbors: 0.73
```

5). Show KNN Mean Graph

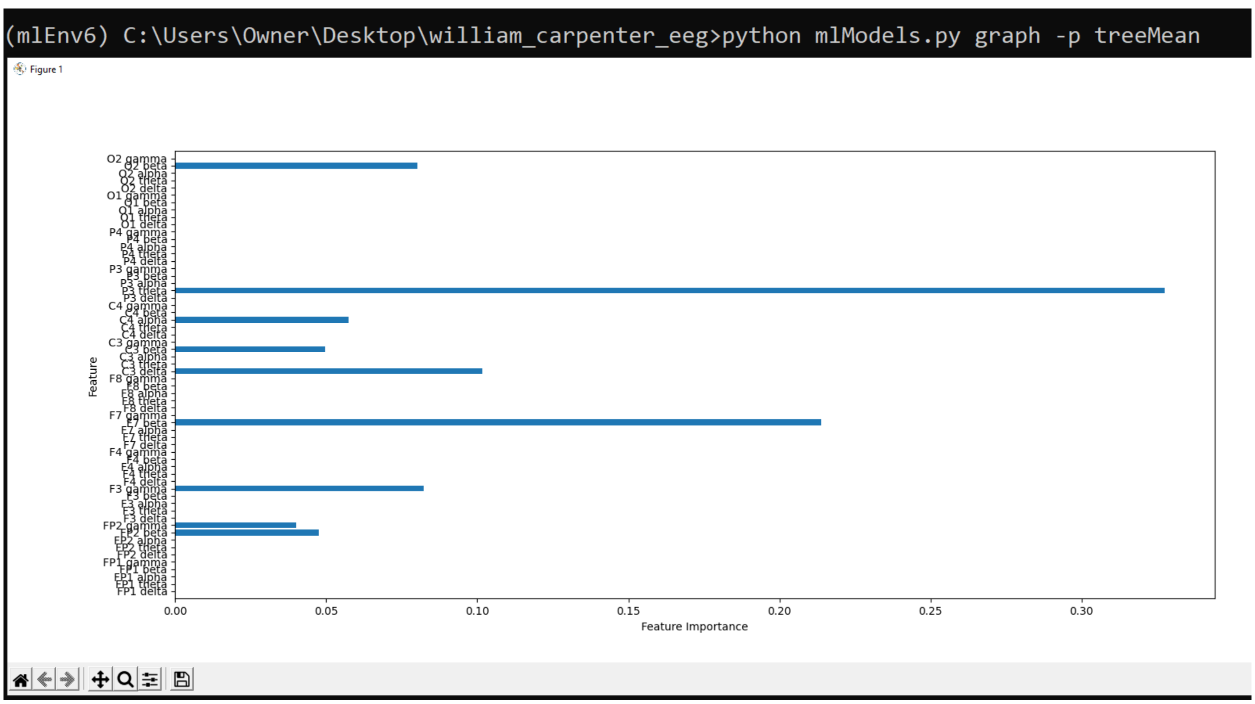
```
(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py graph -p knnMean
```



6). Show KNN Median Graph

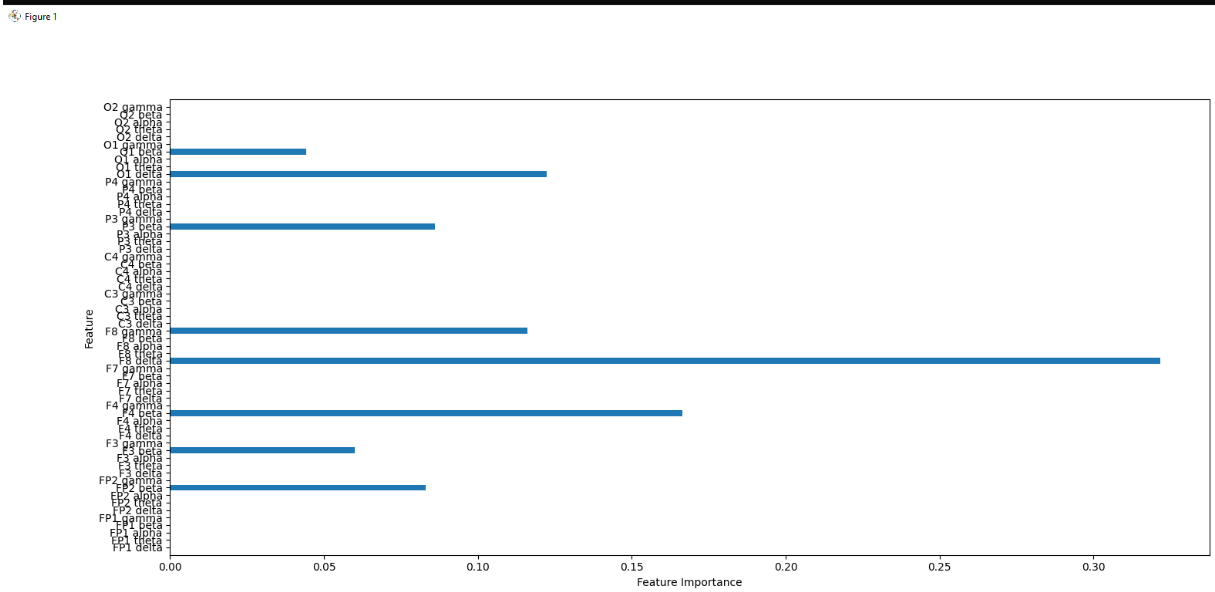


7). Show Mean Decision Tree



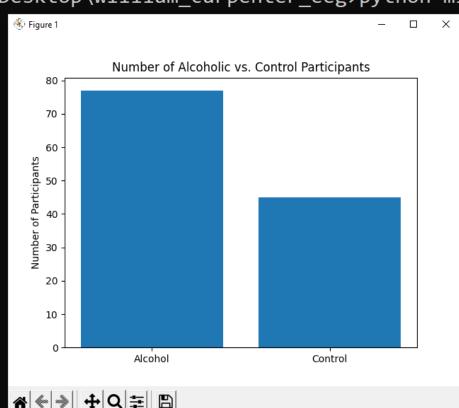
8). Show Median Decision Tree

```
(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py graph -p treeMedian
```



9). Show Stratify Bar Chart

```
(mlEnv6) C:\Users\Owner\Desktop\william_carpenter_eeg>python mlModels.py graph -p stratifyBar
```



10). Show Stratify Pie Chart