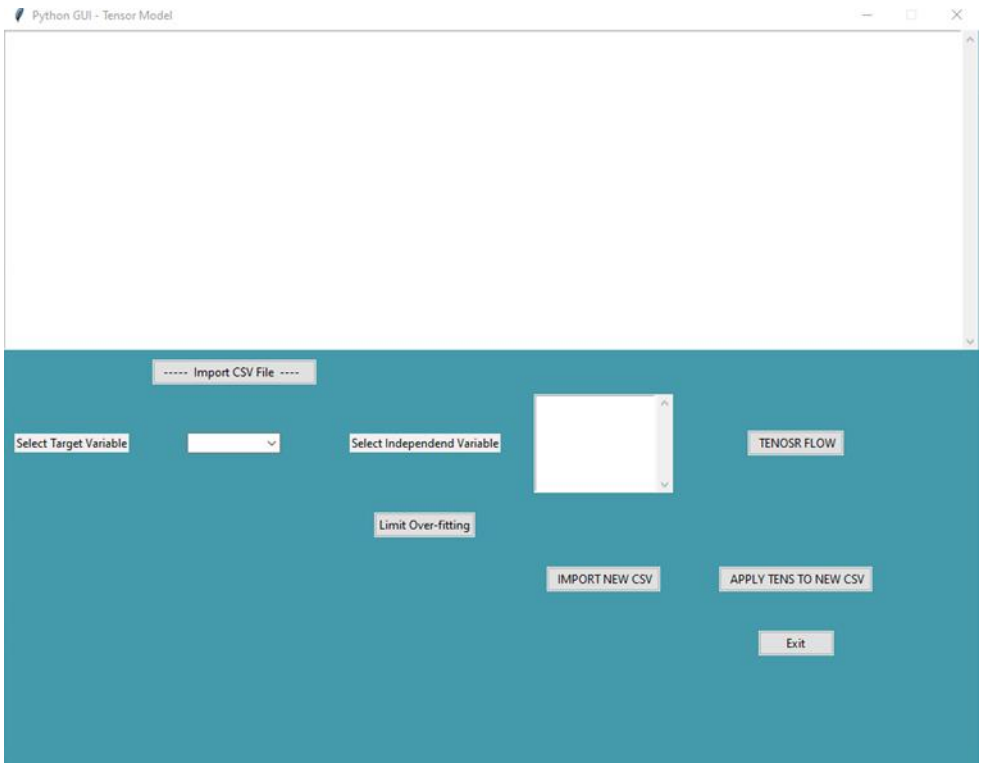
USER MANUAL GUIDE FOR TENSORFLOW

Instructions to running TensorFlow GUI

1) First run all of the libraries

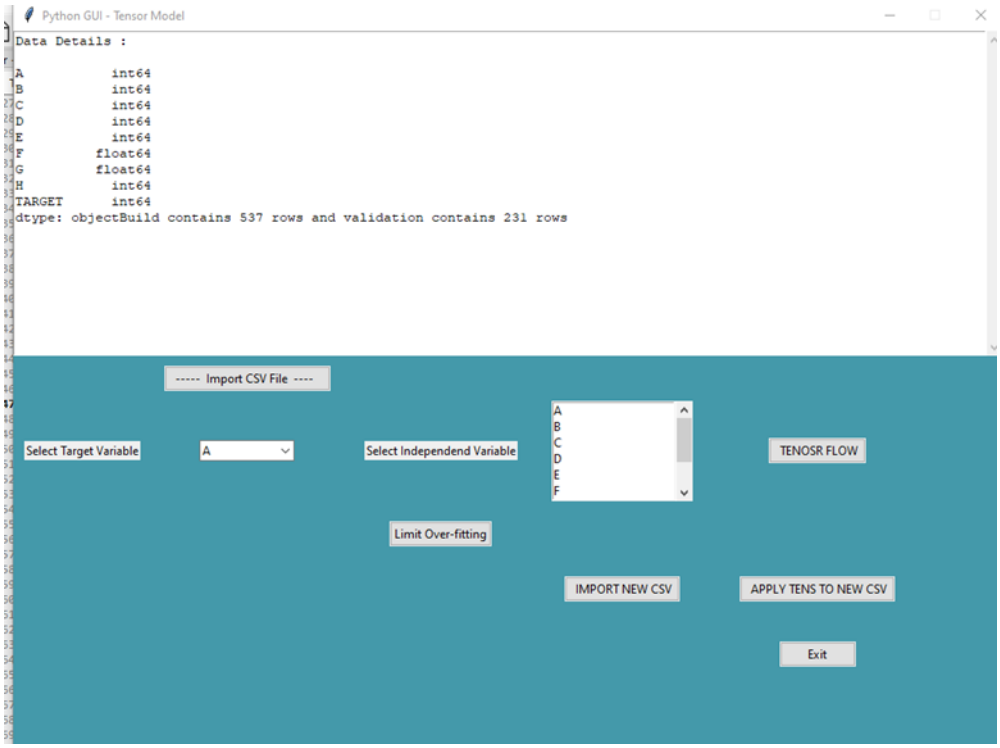
```
import tkinter as tk
from tkinter import ttk
from tkinter import *
from tkinter import scrolledtext
from tkinter import Tk
from tkinter.filedialog import askopenfilename
import seaborn as sns
import statsmodels.api as sm
#import statsmodels.formula.api as sm

import pandas as pd
import numpy as np
from scipy import stats
import matplotlib.pyplot as plt
from tkinter import filedialog


import pandas.core.algorithms as algos
from pandas import Series
import re
import traceback

import matplotlib
matplotlib.use("TkAgg")
from matplotlib.backends.backend_tkagg import ( FigureCanvasTkAgg, NavigationToolbar2Tk)
from matplotlib.figure import Figure


from sklearn.model_selection import train_test_split

# Create first network with Keras
from keras.models import Sequential
from keras.layers import Dense
import numpy
from pandas import read_csv
from sklearn.preprocessing import LabelEncoder

```

2) Run all the code between:
    a. Tk().withdraw()
    b. root.mainloop()
3) You get the GUI



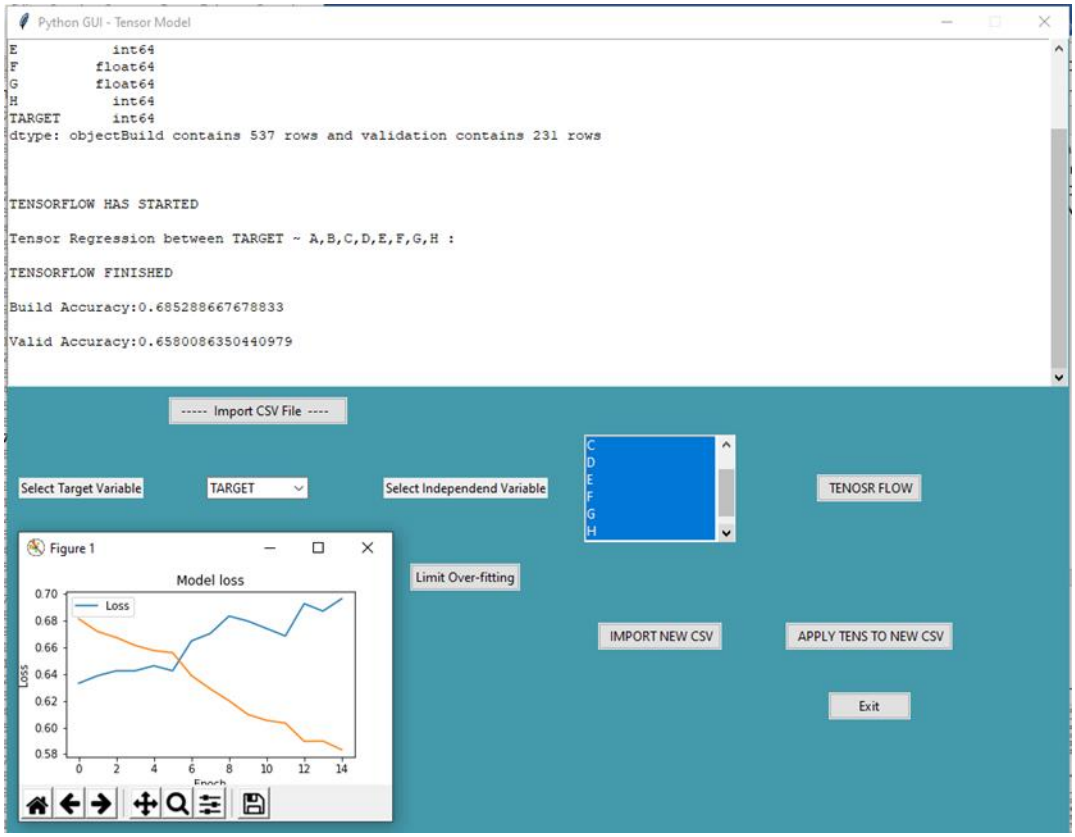
Using the GUI

1) Import CSV file – click this to get your CSV file



It will provide you with the data details, as well as splitting the data:

2) Create TensorFlow
   - Select Target Variable
     - This can easily be changed, but in this scenario, we will be using **Target**
   - Select Independent Variable
     - Click on each variable you wish to model, in this scenario
     - A B C D E F G H
   - Then press **TENSORFLOW**

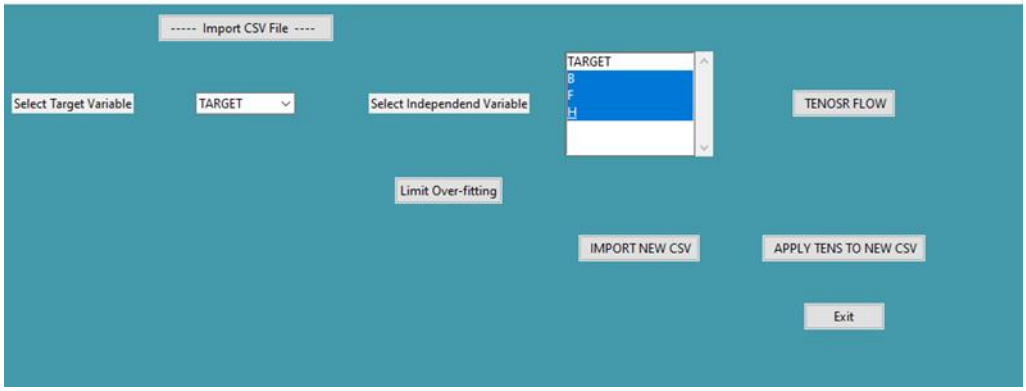


It will provide you Model loss chart as well as your accuracy rates

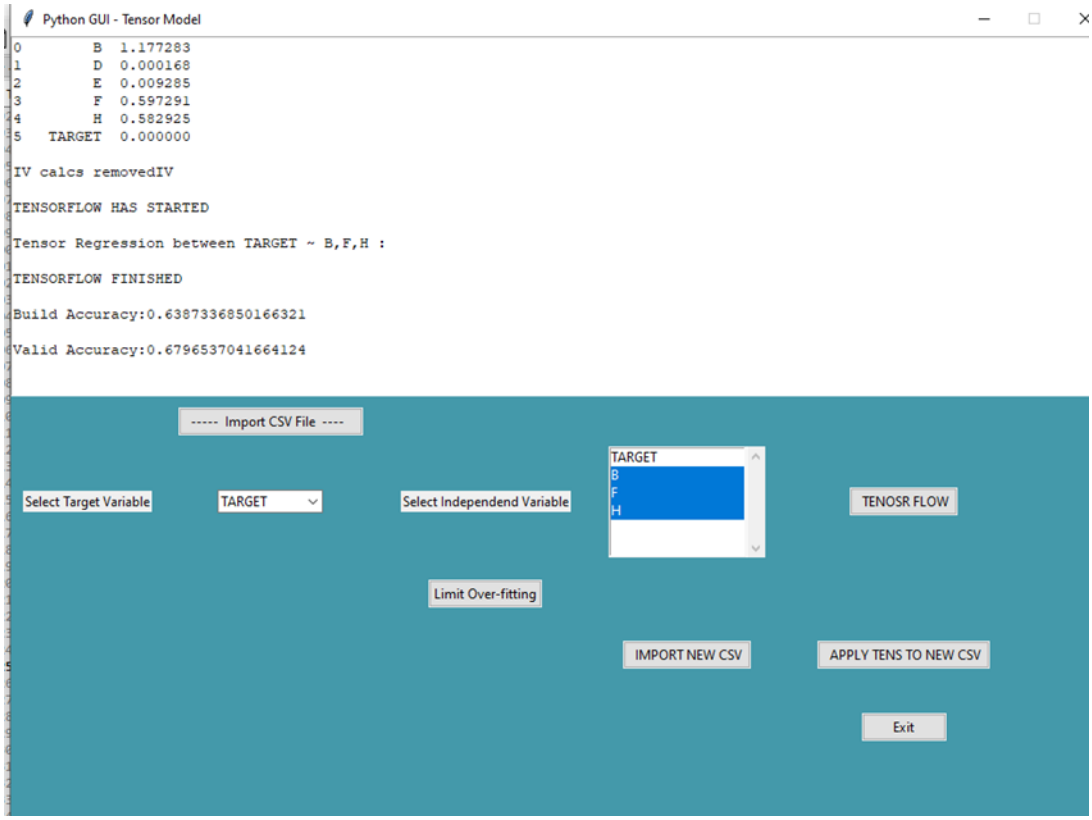
3) Limit overfitting

Too many variables produces overfitting, but which ones to keep can be problematic if you are looking at data for the first time. The **Limit overfitting** button removes highly correlated variable (0.9) and weak predicting variable.

From our data, only B,F and H are left



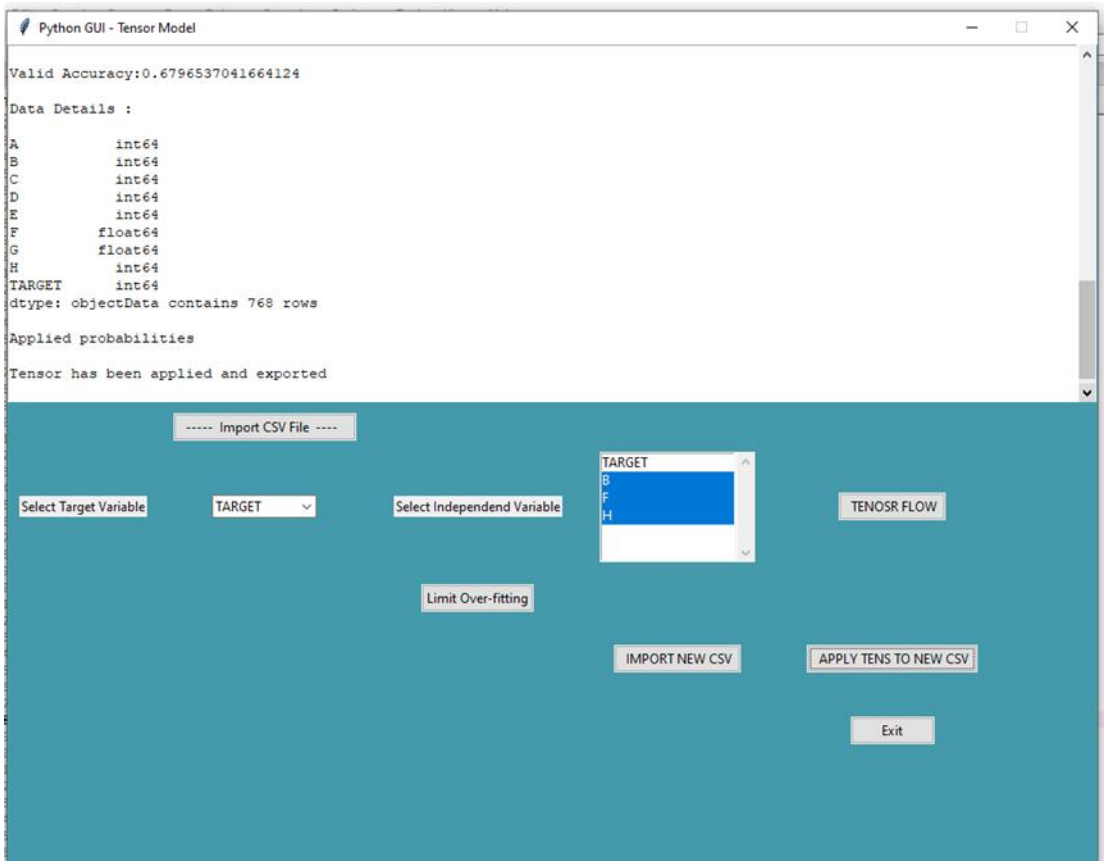
Performance has slightly dropped, but not too much.

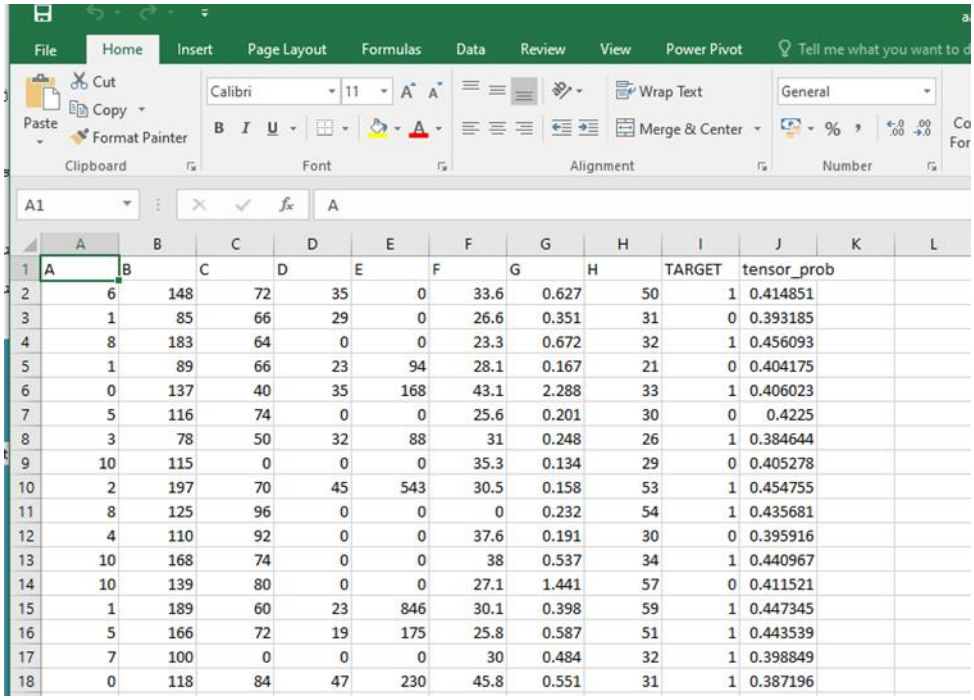


Applying the Tensorflow Model on different data

To apply the Tensor Flow Model onto different data:

1) Click **IMPORT NEW CSV**
    a. Make sure that the variables used in the TENSORFLOW model are in the CSV file
2) Click **APPLY TENS TO NEWCSV**
    a. This will apply model to your CSV file and export it called **aanewtensor.csv**


Python GUI - Tensor Model
Valid Accuracy:0.6796537041664124
Data Details :
A int64
B int64
C int64
D int64
E int64
F float64
G float64
H int64
TARGET int64
dtype: objectData contains 768 rows
Applied probabilities
Tensor has been applied and exported
----- Import CSV File ----
Select Target Variable
TARGET
Select Independend Variable
TARGET
B
F
H
TENOSR FLOW
Limit Over-fitting
IMPORT NEW CSV
APPLY TENS TO NEW CSV
Exit



	A	B	C	D	E	F	G	H	TARGET	tensor_prob
2	6	148	72	35	0	33.6	0.627	50	1	0.414851
3	1	85	66	29	0	26.6	0.351	31	0	0.393185
4	8	183	64	0	0	23.3	0.672	32	1	0.456093
5	1	89	66	23	94	28.1	0.167	21	0	0.404175
6	0	137	40	35	168	43.1	2.288	33	1	0.406023
7	5	116	74	0	0	25.6	0.201	30	0	0.4225
8	3	78	50	32	88	31	0.248	26	1	0.384644
9	10	115	0	0	0	35.3	0.134	29	0	0.405278
10	2	197	70	45	543	30.5	0.158	53	1	0.454755
11	8	125	96	0	0	0	0.232	54	1	0.435681
12	4	110	92	0	0	37.6	0.191	30	0	0.395916
13	10	168	74	0	0	38	0.537	34	1	0.440967
14	10	139	80	0	0	27.1	1.441	57	0	0.411521
15	1	189	60	23	846	30.1	0.398	59	1	0.447345
16	5	166	72	19	175	25.8	0.587	51	1	0.443539
17	7	100	0	0	0	30	0.484	32	1	0.398849
18	0	118	84	47	230	45.8	0.551	31	1	0.387196

Finishing the session

Press the **Exit** button.