

jupyter main_banking fraud transaction detection Last Checkpoint: an hour ago (autosaved)

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Feature techniques:

- **PCA Transformation:** The description of the data says that all the features went through a PCA transformation (Dimensionality Reduction technique) (Except for time and amount).
- **Scaling:** Keep in mind that in order to implement a PCA transformation features need to be previously scaled. (In this case, all the V features have been scaled or at least that is what we are assuming the people that develop the dataset did.)

```
In [1]: # This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load in

# Imported Libraries

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
import tensorflow as tf
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.manifold import TSNE
from sklearn.decomposition import PCA, TruncatedSVD
import matplotlib.patches as mpatches
import time

# Classifier Libraries
from sklearn.linear_model import LogisticRegression
from sklearn.svm import SVC
from sklearn.neighbors import KNeighborsClassifier
from sklearn.tree import DecisionTreeClassifier
from sklearn.ensemble import RandomForestClassifier
import collections
```

select “+” as highlighted in blue in the picture above

This will add a new cell

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```
from imblearn.metrics import classification_report_imbalanced
from sklearn.metrics import precision_score, recall_score, f1_score, roc_auc_score, accuracy_score, classification_report
from collections import Counter
from sklearn.model_selection import KFold, StratifiedKFold
import warnings
warnings.filterwarnings("ignore")

#df = pd.read_csv('transactions.csv')
#df.head()
```

```
In [ ]: !pip install --upgrade pip
```

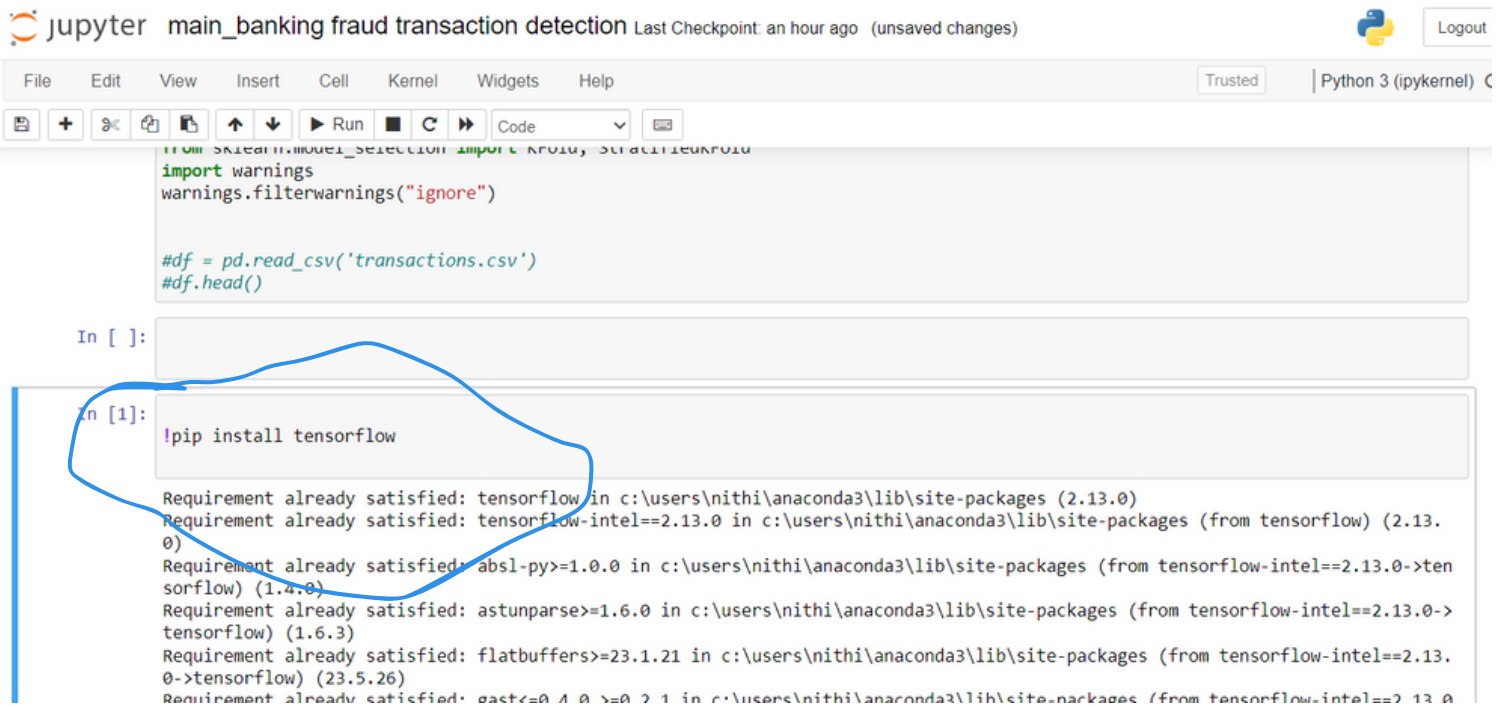
```
In [ ]:
```

```
In [2]: df = pd.read_csv('transactionscopy.csv')
df.head()
```

Out[2]:

	Time	V1	V2	V3	V4	V5	V6	V7	V8	V9	...	V21	V22	V23	V24	V2
0	0	-1.359807	-0.072781	2.536347	1.378155	-0.338321	0.462388	0.239599	0.098698	0.363787	...	-0.018307	0.277838	-0.110474	0.066928	0.12853
1	0	1.191857	0.266151	0.166480	0.448154	0.060018	-0.082361	-0.078803	0.085102	-0.255425	...	-0.225775	-0.638672	0.101288	-0.339846	0.16717
2	1	-1.358354	-1.340163	1.773209	0.379780	-0.503198	1.800499	0.791461	0.247676	-1.514654	...	0.247998	0.771679	0.909412	-0.689281	-0.32764

after typing this command then run this cell, make sure you are connected to internet the download will start



The screenshot shows a Jupyter Notebook window titled "main_banking fraud transaction detection" with a "Last Checkpoint: an hour ago (unsaved changes)" status. The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, running cells, and other functions. The code editor displays the following Python code:

```
from sklearn.model_selection import KFold, StratifiedKFold
import warnings
warnings.filterwarnings("ignore")

#df = pd.read_csv('transactions.csv')
#df.head()
```

Below the code editor, the input prompt "In []:" is followed by an empty cell. The next cell, labeled "In [1]:", contains the command `!pip install tensorflow`. The output of this command is displayed below the cell, showing that the requirements are already satisfied for the specified versions of tensorflow, tensorflow-intel, absl-py, astunparse, flatbuffers, and gast.

```
Requirement already satisfied: tensorflow in c:\users\nithi\anaconda3\lib\site-packages (2.13.0)
Requirement already satisfied: tensorflow-intel==2.13.0 in c:\users\nithi\anaconda3\lib\site-packages (from tensorflow) (2.13.0)
Requirement already satisfied: absl-py>=1.0.0 in c:\users\nithi\anaconda3\lib\site-packages (from tensorflow-intel==2.13.0->tensorflow) (1.4.0)
Requirement already satisfied: astunparse>=1.6.0 in c:\users\nithi\anaconda3\lib\site-packages (from tensorflow-intel==2.13.0->tensorflow) (1.6.3)
Requirement already satisfied: flatbuffers>=23.1.21 in c:\users\nithi\anaconda3\lib\site-packages (from tensorflow-intel==2.13.0->tensorflow) (23.5.26)
Requirement already satisfied: gast<=0.4.0, >=0.2.1 in c:\users\nithi\anaconda3\lib\site-packages (from tensorflow-intel==2.13.0->tensorflow) (0.4.0)
```

Then do add one more cell and enter this command
this library/module will start to download just like
shown in above picture