

```
import matplotlib.image as mpimg
import matplotlib.pyplot as plt
import numpy as np
import os
import pickle
import random
import shutil
import time
import pandas as pd
from google.colab import drive
```

```
import tensorflow as tf
print("done.")
```

```
done.
```

```
! curl -L -O https://www.kaggle.com/mlg-ulb/creditcardfraud/download
```

% Total	% Received	% Xferd	Average Speed	Time	Time	Time	Current
			Dload Upload	Total	Spent	Left	Speed
0 0	0 0	0 0	0 0	--:--:--	--:--:--	--:--:--	0
100 6229	0 6229	0 0	8305 0	--:--:--	--:--:--	--:--:--	8305

```
!unzip -q archive.zip
```

```
!ls -lha
```

```
!du -sh
```

```
total 210M
drwxr-xr-x 1 root root 4.0K Apr 29 18:30 .
drwxr-xr-x 1 root root 4.0K Apr 29 18:19 ..
-rw-r--r-- 1 root root 66M Apr 29 18:29 archive.zip
drwxr-xr-x 4 root root 4.0K Apr 21 13:38 .config
-rw-r--r-- 1 root root 144M Sep 20 2019 creditcard.csv
-rw-r--r-- 1 root root 6.1K Apr 29 18:27 download
drwxr-xr-x 2 root root 4.0K Apr 29 18:30 .ipynb_checkpoints
drwxr-xr-x 1 root root 4.0K Apr 21 13:39 sample_data
265M .
```

```
!head creditcard.csv -n3 # take a look at a few rows
```

```
"Time", "V1", "V2", "V3", "V4", "V5", "V6", "V7", "V8", "V9", "V10", "V11", "V12", "V13", "V14"
0, -1.3598071336738, -0.0727811733098497, 2.53634673796914, 1.37815522427443, -0.3383
0, 1.19185711131486, 0.26615071205963, 0.16648011335321, 0.448154078460911, 0.0600176
```

```
!wc -l creditcard.csv
```

284808 creditcard.csv

```
df = pd.read_csv('creditcard.csv')
df.pop('Time')
eps = 0.001 # 0 => 0.1¢
df['Log Ammount'] = np.log(df.pop('Amount')+eps)

df.to_csv("processed_creditcards.csv", sep=',')

!head -n4 processed_creditcards.csv

,V1,V2,V3,V4,V5,V6,V7,V8,V9,V10,V11,V12,V13,V14,V15,V16,V17,V18,V19,V20,V21,V22,'
0,-1.3598071336738,-0.0727811733098497,2.53634673796914,1.37815522427443,-0.3383:
1,1.1918571113148602,0.26615071205963,0.16648011335321,0.448154078460911,0.06001'
2,-1.35835406159823,-1.3401630747360902,1.77320934263119,0.3797795930343279,-0.5

shutil.make_archive('data', 'zip', "data")

'/content/data.zip'

! ls -lha

total 279M
drwxr-xr-x 1 root root 4.0K Apr 29 18:39 .
drwxr-xr-x 1 root root 4.0K Apr 29 18:19 ..
-rw-r--r-- 1 root root 66M Apr 29 18:29 archive.zip
drwxr-xr-x 4 root root 4.0K Apr 21 13:38 .config
-rw-r--r-- 1 root root 144M Sep 20 2019 creditcard.csv
drwxr-xr-x 2 root root 4.0K Apr 29 18:39 data
-rw-r--r-- 1 root root 70M Apr 29 18:40 data.zip
-rw-r--r-- 1 root root 6.1K Apr 29 18:27 download
drwxr-xr-x 2 root root 4.0K Apr 29 18:30 .ipynb_checkpoints
drwxr-xr-x 1 root root 4.0K Apr 21 13:39 sample_data
```

