

VS Code interface showing a Jupyter Notebook with a credit card fraud detection project. The terminal displays the execution of a Python script, showing the loading of data and the execution of a model. The output shows the results of the model, including the number of transactions, the number of fraud cases, and the number of transactions that were not fraud.

```
PS E:\lab\project> & C:/Users/lenovo/AppData/Local/Microsoft/WindowsApps/python3.11.exe "e:/lab/project/codsoft task 2/credit_card_fraud_detection.py"
Unnamed: 0      cc_num      amt      zip      lat      long      city_pop      unix_time      merch_lat      merch_long      is_fraud
count  1.852394e+06  4.173860e+17  7.006357e+01  4.881326e+04  3.853931e+01  -9.022783e+01  8.864367e+04  1.358674e+09  3.853898e+01  -9.022794e+01  5.210015e-03
mean   5.371934e+05  4.173860e+17  7.006357e+01  4.881326e+04  3.853931e+01  -9.022783e+01  8.864367e+04  1.358674e+09  3.853898e+01  -9.022794e+01  5.210015e-03
std    3.669110e+09  1.309115e+18  1.592540e+02  2.688185e+04  5.071470e+00  1.374789e+01  3.014876e+05  1.819508e+07  5.105604e+00  1.379696e+01  7.199217e-02
min    0.000000e+00  6.041621e+10  1.000000e+00  1.257000e+03  2.002710e+01  -1.656723e+02  2.300000e+01  1.325376e+09  1.902742e+01  -1.666716e+02  0.000000e+00
25%    2.315490e+05  1.800429e+14  9.640000e+00  2.623700e+04  3.466890e+01  -9.679800e+01  7.410000e+02  1.343017e+09  3.474012e+01  -9.689944e+01  0.000000e+00
50%    4.630980e+05  3.521417e+15  4.745000e+01  4.817400e+04  3.935430e+01  -8.747690e+01  2.443000e+03  1.357000e+09  3.936890e+01  -8.744069e+01  0.000000e+00
75%    8.335750e+05  4.642255e+15  8.310000e+01  7.204200e+04  4.194040e+01  -8.015800e+01  2.032800e+04  1.374581e+09  4.195626e+01  -8.024511e+01  0.000000e+00
max    1.296674e+06  4.992346e+18  2.894890e+04  9.992100e+04  6.669330e+01  -6.795030e+01  2.906700e+06  1.388534e+09  6.751027e+01  -6.695090e+01  1.000000e+00
(555719, 23)

Unnamed: 0      trans_date_trans_time      cc_num      merchant      ...      unix_time      merch_lat      merch_long      is_fraud
0      2019-01-01 00:00:18      2703186189652095      fraud_Rippin, Kub and Mann      ...      1325376018      36.011293      -82.048315      0
1      2019-01-01 00:00:44      630423337322      fraud_Heller, Gutmann and Zieme      ...      1325376044      49.159047      -118.186462      0
2      2019-01-01 00:00:51      38894092057661      fraud Lind-Buckridge      ...      1325376051      43.150704      -117.154401      0
3      2019-01-01 00:01:16      3534093764340240      fraud_Kutch, Hermiston and Farrell      ...      1325376076      47.493431      -112.561071      0
4      2019-01-01 00:03:06      375534208663984      fraud_Keeling-Crist      ...      1325376186      38.674999      -78.632459      0

[5 rows x 23 columns]

Unnamed: 0      cc_num      amt      zip      lat      long      city_pop      unix_time      merch_lat      merch_long      is_fraud
count  1.852394e+06  4.173860e+17  7.006357e+01  4.881326e+04  3.853931e+01  -9.022783e+01  8.864367e+04  1.358674e+09  3.853898e+01  -9.022794e+01  5.210015e-03
mean   5.371934e+05  4.173860e+17  7.006357e+01  4.881326e+04  3.853931e+01  -9.022783e+01  8.864367e+04  1.358674e+09  3.853898e+01  -9.022794e+01  5.210015e-03
std    3.669110e+09  1.309115e+18  1.592540e+02  2.688185e+04  5.071470e+00  1.374789e+01  3.014876e+05  1.819508e+07  5.105604e+00  1.379696e+01  7.199217e-02
min    0.000000e+00  6.041621e+10  1.000000e+00  1.257000e+03  2.002710e+01  -1.656723e+02  2.300000e+01  1.325376e+09  1.902742e+01  -1.666716e+02  0.000000e+00
25%    2.315490e+05  1.800429e+14  9.640000e+00  2.623700e+04  3.466890e+01  -9.679800e+01  7.410000e+02  1.343017e+09  3.474012e+01  -9.689944e+01  0.000000e+00
50%    4.630980e+05  3.521417e+15  4.745000e+01  4.817400e+04  3.935430e+01  -8.747690e+01  2.443000e+03  1.357000e+09  3.936890e+01  -8.744069e+01  0.000000e+00
75%    8.335750e+05  4.642255e+15  8.310000e+01  7.204200e+04  4.194040e+01  -8.015800e+01  2.032800e+04  1.374581e+09  4.195626e+01  -8.024511e+01  0.000000e+00
max    1.296674e+06  4.992346e+18  2.894890e+04  9.992100e+04  6.669330e+01  -6.795030e+01  2.906700e+06  1.388534e+09  6.751027e+01  -6.695090e+01  1.000000e+00
Unnamed: 0      trans_date_trans_time      cc_num      merchant      category      amt      first      last      gender      street      city      state      zip      lat      long
0      2019-01-01 00:00:18      2703186189652095      fraud_Rippin, Kub and Mann      0      0      0      0      0      0      0      0      0      0      0
1      2019-01-01 00:00:44      630423337322      fraud_Heller, Gutmann and Zieme      0      0      0      0      0      0      0      0      0      0      0
2      2019-01-01 00:00:51      38894092057661      fraud Lind-Buckridge      0      0      0      0      0      0      0      0      0      0      0
3      2019-01-01 00:01:16      3534093764340240      fraud_Kutch, Hermiston and Farrell      0      0      0      0      0      0      0      0      0      0      0
4      2019-01-01 00:03:06      375534208663984      fraud_Keeling-Crist      0      0      0      0      0      0      0      0      0      0      0
```

VS Code interface showing a Jupyter Notebook with a credit card fraud detection project. The terminal displays the execution of a Python script, showing the loading of data and the execution of a model. The output shows the results of the model, including the number of transactions, the number of fraud cases, and the number of transactions that were not fraud.

```
long      0
city_pop  0
job      0
dob      0
trans_num 0
unix_time 0
merch_lat 0
merch_long 0
is_fraud 0
dtype: int64
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 555719 entries, 0 to 555718
Data columns (total 23 columns):
#   Column      Non-Null Count  Dtype
---  ---
0   Unnamed: 0  555719 non-null  int64
1   trans_date_trans_time  555719 non-null  object
2   cc_num      555719 non-null  int64
3   merchant    555719 non-null  object
4   category    555719 non-null  object
5   amt         555719 non-null  float64
6   first       555719 non-null  object
7   last        555719 non-null  object
8   gender      555719 non-null  object
9   street      555719 non-null  object
10  city        555719 non-null  object
11  state       555719 non-null  object
12  zip         555719 non-null  int64
13  lat         555719 non-null  float64
14  long        555719 non-null  float64
15  city_pop    555719 non-null  int64
16  job         555719 non-null  object
17  dob         555719 non-null  object
18  trans_num   555719 non-null  object
19  unix_time   555719 non-null  int64
20  merch_lat   555719 non-null  float64
21  merch_long  555719 non-null  float64
22  is_fraud    555719 non-null  int64
dtypes: float64(5), int64(6), object(12)
memory usage: 97.54 MB
None
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1296675 entries, 0 to 1296674
Data columns (total 23 columns):
```

File Edit Selection View Go ... project

EXPLORER ... PROBLEMS OUTPUT TERMINAL PORTS

PROJECT

- codsoft_task 1
- codsoft_task 2
 - credit_card_fraud_de...
 - fraudTest.csv
 - fraudTrain.csv
 - 1.webp
 - 2.jpg
 - 3.webp
 - 4.jpeg
 - 11.png
 - domonant.py
 - no_detect.py
 - sentimental_analysis.py

OPEN EDITORS

- credit_card_frau...

DEBUG CONSOLE

Filter (e.g. text, L...)

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1296675 entries, 0 to 1296674
Data columns (total 23 columns):
#   Column              Non-Null Count  Dtype
---  -
0   Unnamed: 0           1296675 non-null   int64
1   trans_date_trans_time 1296675 non-null   object
2   cc_num               1296675 non-null   int64
3   merchant             1296675 non-null   object
4   category             1296675 non-null   object
5   amt                  1296675 non-null   float64
6   first                1296675 non-null   object
7   last                 1296675 non-null   object
8   gender               1296675 non-null   object
9   street               1296675 non-null   object
10  city                 1296675 non-null   object
11  state                1296675 non-null   object
12  zip                  1296675 non-null   int64
13  lat                  1296675 non-null   float64
14  long                 1296675 non-null   float64
15  city_pop             1296675 non-null   int64
16  job                  1296675 non-null   object
17  dob                  1296675 non-null   object
18  trans_num            1296675 non-null   object
19  unix_time            1296675 non-null   int64
20  merch_lat            1296675 non-null   float64
21  merch_long           1296675 non-null   float64
22  is_fraud              1296675 non-null   int64
dtypes: float64(5), int64(6), object(12)
memory usage: 227.5+ MB

None
(1296675, 23)
(555719, 23)
(1852394, 23)
Empty DataFrame
Columns: [Unnamed: 0, cc_num, merchant, category, amt, gender, ... transaction_month, transaction_day, transaction_hour, birth_year, birth_month, birth_d
Index: []
Unnamed: 0      cc_num  merchant  category  amt  gender  ... transaction_month  transaction_day  transaction_hour  birth_year  birth_month  birth_d
ay
0      0  2703186189652095      514      8  4.97  0 ...              1              1              0      1988              3
9
1      1  630423337322      241      4  107.23  0 ...              1              1              0      1978              6
21
```

Ln 142, Col 32 Spaces: 4 UTF-8 CRLF Python 3.11.7 64-bit (Microsoft Store)

File Edit Selection View Go ... project

EXPLORER ... PROBLEMS OUTPUT TERMINAL PORTS

PROJECT

- codsoft_task 1
- codsoft_task 2
 - credit_card_fraud_de...
 - fraudTest.csv
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OPEN EDITORS

- credit_card_frau...

DEBUG CONSOLE

Filter (e.g. text, L...)

```
Unnamed: 0      cc_num  merchant  category  amt  gender  ... transaction_month  transaction_day  transaction_hour  birth_year  birth_month  birth_d
ay
0      0  2703186189652095      514      8  4.97  0 ...              1              1              0      1988              3
1      1  630423337322      241      4  107.23  0 ...              1              1              0      1978              6
2      2  38859492057661      390      0  220.11  1 ...              1              1              0      1962              1
3      3  3534093764340240      360      2  45.00  1 ...              1              1              0      1967              1
4      4  375534208663984      297      9  41.96  1 ...              1              1              0      1986              3
28

[5 rows x 23 columns]
count      Unnamed: 0      cc_num  merchant  category  amt  ... transaction_day  transaction hour  birth year  birth month  birth day
mean  5.3719334e+05  4.173860e+17  3.429269e+02  6.230569e+00  7.006357e+01 ...  1.852394e+06  1.852394e+06  1.852394e+06  1.852394e+06  1.852394e+06
std    3.669110e+05  1.309115e+18  2.010519e+02  3.913273e+00  1.592540e+02 ...  8.876245e+00  6.815753e+00  1.739057e+01  3.398164e+00  8.887820e+00
min    0.000000e+00  6.041621e+10  0.000000e+00  0.000000e+00  1.000000e+00 ...  0.000000e+00  0.000000e+00  1.924000e+03  1.000000e+00  1.000000e+00
25%   2.315490e+05  1.800429e+14  1.660000e+02  3.000000e+00  9.640000e+00 ...  8.000000e+00  7.000000e+00  1.962000e+03  4.000000e+00  8.000000e+00
50%   4.630900e+05  3.521417e+15  3.400000e+02  6.000000e+00  4.745000e+01 ...  1.600000e+01  1.400000e+01  1.975000e+03  7.000000e+00  1.500000e+01
75%   8.335750e+05  4.642255e+15  5.140000e+02  1.000000e+01  8.310000e+01 ...  2.400000e+01  1.900000e+01  1.967000e+03  9.000000e+00  2.300000e+01
max   1.296674e+06  4.992345e+18  6.920000e+02  1.300000e+01  2.894890e+04 ...  3.100000e+01  2.300000e+01  2.805000e+03  1.200000e+01  3.100000e+01

[8 rows x 23 columns]
Unnamed: 0      0
cc_num          0
merchant        0
category        0
amt             0
gender          0
zip             0
lat             0
long            0
city_pop        0
job             0
unix_time       0
merch_lat       0
merch_long      0
is_fraud        0
transaction_year 0
transaction_month 0
transaction_day  0
```

Ln 142, Col 32 Spaces: 4 UTF-8 CRLF Python 3.11.7 64-bit (Microsoft Store)

Figure 1 shows a screenshot of a Jupyter Notebook interface within a code editor. The interface displays a file explorer on the left, a terminal window at the top, and a notebook cell containing a pandas DataFrame. The DataFrame has 23 columns and 19 rows. The columns include 'cc_num', 'merchant', 'category', 'amt', 'transaction_day', 'transaction_hour', 'birth_year', 'birth_month', and 'birth_day'. The rows represent individual transactions, with the first row showing a transaction amount of 38859492057661 and a birth year of 1962. The notebook cell also displays the output of a pandas command, showing the first 5 rows of the DataFrame. The output is a table with 23 columns and 5 rows, showing the first 5 rows of the DataFrame. The columns include 'cc_num', 'merchant', 'category', 'amt', 'transaction_day', 'transaction_hour', 'birth_year', 'birth_month', and 'birth_day'. The rows represent individual transactions, with the first row showing a transaction amount of 38859492057661 and a birth year of 1962.

Figure 1

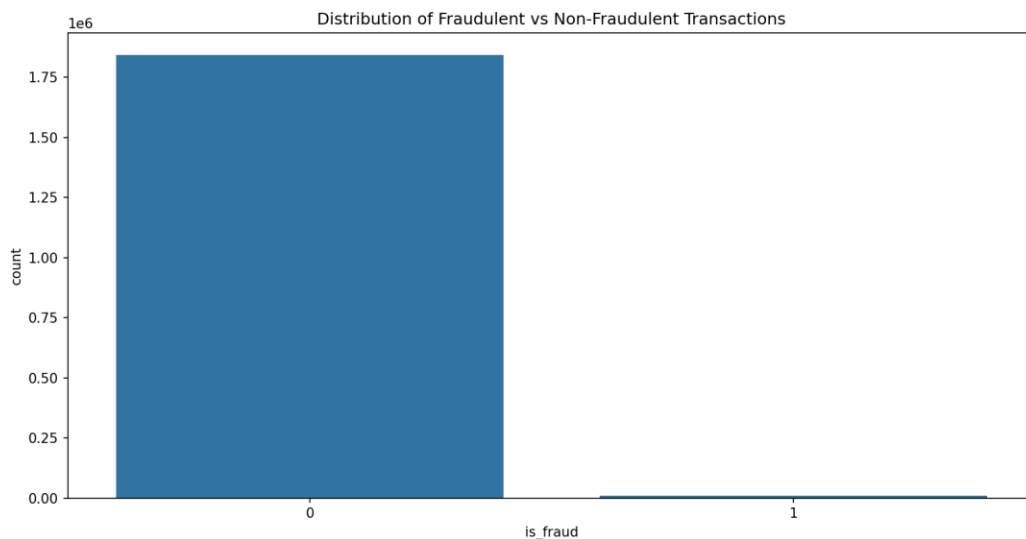


Figure 2 shows a screenshot of a Jupyter Notebook interface within a code editor. The interface displays a file explorer on the left, a terminal window at the top, and a notebook cell containing a pandas DataFrame. The DataFrame has 23 columns and 19 rows. The columns include 'cc_num', 'merchant', 'category', 'amt', 'transaction_day', 'transaction_hour', 'birth_year', 'birth_month', and 'birth_day'. The rows represent individual transactions, with the first row showing a transaction amount of 38859492057661 and a birth year of 1962. The notebook cell also displays the output of a pandas command, showing the first 5 rows of the DataFrame. The output is a table with 23 columns and 5 rows, showing the first 5 rows of the DataFrame. The columns include 'cc_num', 'merchant', 'category', 'amt', 'transaction_day', 'transaction_hour', 'birth_year', 'birth_month', and 'birth_day'. The rows represent individual transactions, with the first row showing a transaction amount of 38859492057661 and a birth year of 1962.

File Edit Selection View Go ... project

EXPLORER

- PROJECT
 - codsoft_task 1
 - codsoft_task 2
 - credit_card_fraud_de...
 - fraudTest.csv
 - fraudTrain.csv
 - 1.webp
 - 2.jpg
 - 3.webp
 - 4.jpeg
 - 11.png
 - domonant.py
 - no_detect.py
 - sentimental_analysis.py

PROBLEMS

OUTPUT

TERMINAL

PORTS

[5 rows x 23 columns]

	Unnamed: 0	cc_num	merchant	category	amt	...	transaction_day	transaction_hour	birth_year	birth_month	birth_day
count	1.852394e+06	1.852394e+06	1.852394e+06	1.852394e+06	1.852394e+06	...	1.852394e+06	1.852394e+06	1.852394e+06	1.852394e+06	1.852394e+06
mean	5.371934e+05	4.173860e+17	3.429269e+02	6.230569e+00	7.006357e+01	...	1.585076e+01	1.280612e+01	1.973289e+03	6.526735e+00	1.566482e+01
std	3.669110e+05	1.309115e+18	2.010519e+02	3.913273e+00	1.509254e+02	...	8.876245e+00	6.815753e+00	1.739057e+01	3.398164e+00	8.887820e+00
min	0.000000e+00	6.041621e+10	0.000000e+00	0.000000e+00	1.000000e+00	...	1.000000e+00	0.000000e+00	1.000000e+00	1.000000e+00	1.000000e+00
25%	2.315490e+05	1.800429e+14	1.660000e+02	3.000000e+00	9.640000e+00	...	8.000000e+00	7.000000e+00	1.962000e+03	4.000000e+00	8.000000e+00
50%	4.630980e+05	3.521417e+15	3.460000e+02	6.000000e+00	4.745000e+01	...	1.600000e+01	1.400000e+01	1.975000e+03	7.000000e+00	1.500000e+01
75%	8.335758e+05	4.642255e+15	5.140000e+02	1.000000e+01	8.310000e+01	...	2.400000e+01	1.900000e+01	1.987000e+03	9.000000e+00	2.300000e+01
max	1.296674e+06	4.992346e+18	6.920000e+02	1.300000e+01	2.894890e+04	...	3.100000e+01	2.300000e+01	2.005000e+03	1.200000e+01	3.100000e+01

[8 rows x 23 columns]

Unnamed: 0	cc_num	merchant	category	amt	gender	state	zip	lat	long	city_pop	job	unix_time	merch_lat	merch_long	is_fraud	transaction_year	transaction_month	transaction_day	transaction_hour	birth_year	birth_month	birth_day	dtype: int64
0																							555719
1																							0

Ln 142, Col 32 Spaces: 4 UTF-8 CRLF Python 3.11.7 64-bit (Microsoft Store)

