

User Guide

Accessing the detection site and
Using the detector



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Introduction

The Credit Card Fraud Detection system is designed to identify fraudulent transactions using a Logistic Regression Model. This model uses transaction features to predict the legitimacy of the transaction with a high degree of accuracy.

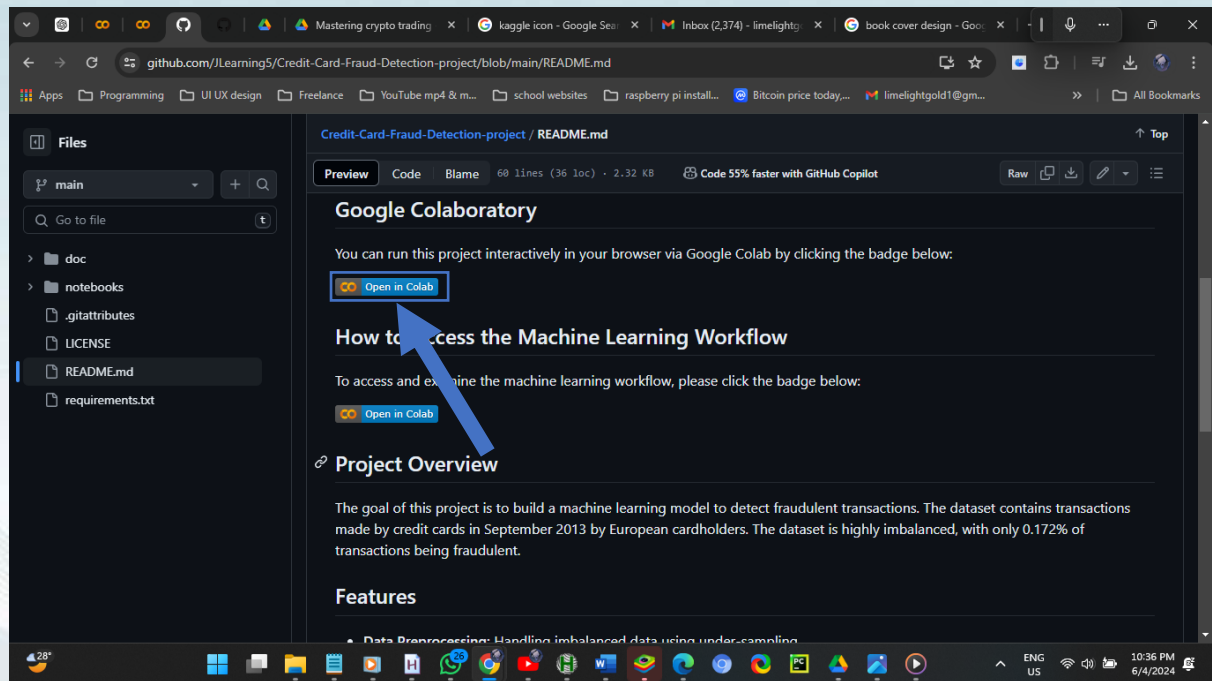
This guide is intended to help you use the Credit Card Fraud Detection system effectively. By following these steps, you can ensure accurate and efficient use of the model to detect fraudulent transactions.

How to access the detection site

1. Opening the Notebook in Google Colab

Instructions:

- Navigate to the Jupyter notebook link provided. This will open the notebook in Google Colab.



2. Running All Cells

Via Menu:

- Go to the top menu bar and click on the 'Runtime' option.

```
# @title
# Install gdown to download files from Google Drive
!pip install gdown

# Download the dataset from Google Drive using the file ID
import gdown

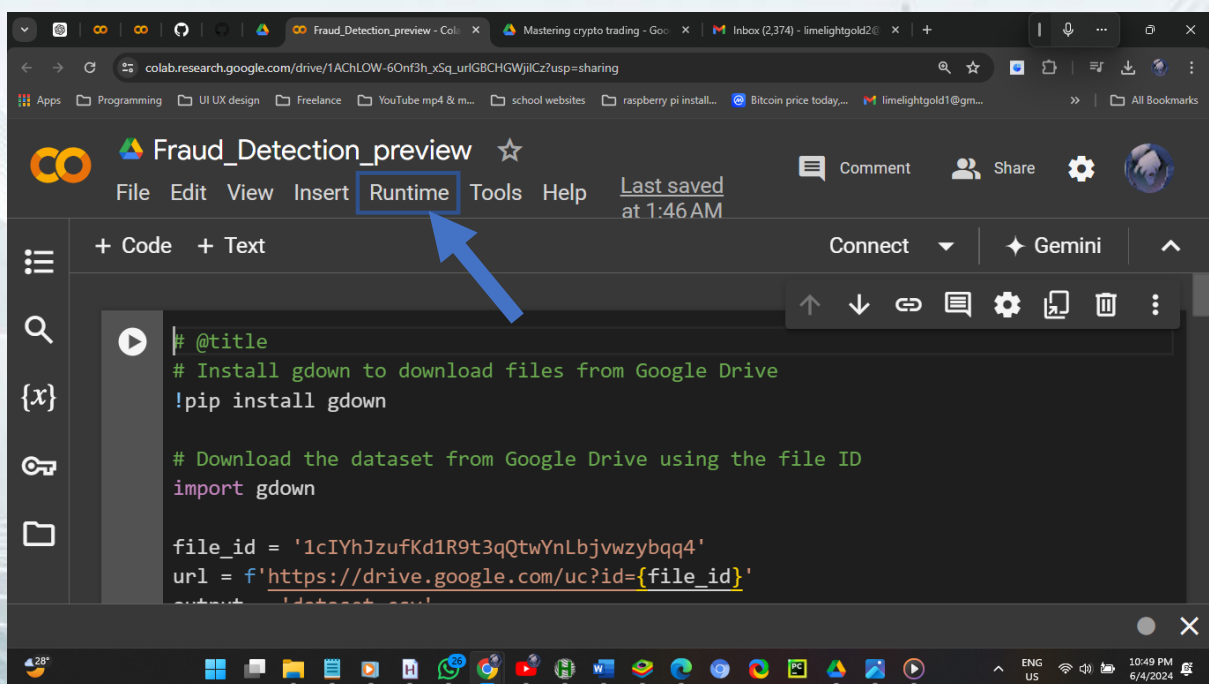
file_id = '1cIYhJzuzfKd1R9t3qQtwYnLbjvzybqq4'
url = f'https://drive.google.com/uc?id={file_id}'
output = 'dataset.csv'
gdown.download(url, output, quiet=False)

# Load the dataset
import pandas as pd
df = pd.read_csv('dataset.csv')

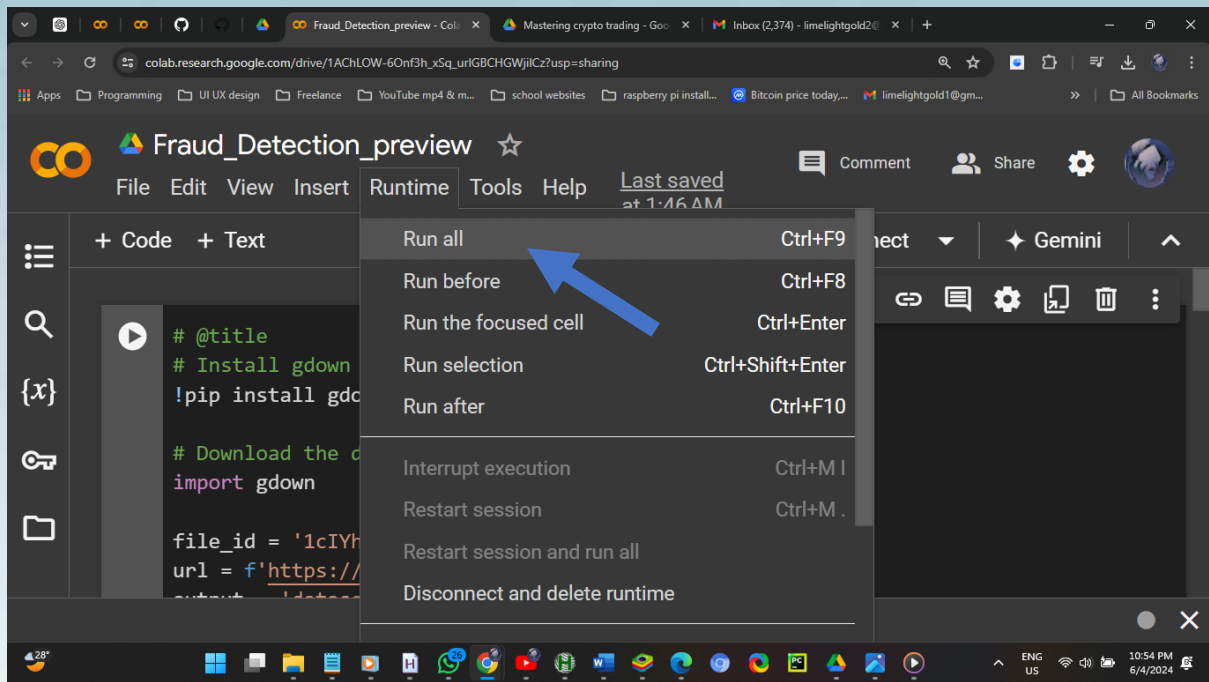
# Display the first few rows of the dataset
df.head()
```

Requirement already satisfied: gdown in /usr/local/lib/python3.10/dist-packages (5.1.0)
Requirement already satisfied: beautifulsoup4 in /usr/local/lib/python3.10/dist-packages (from gdown) (4.12.3)
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from gdown) (3.14.0)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from gdown) (2.31.0)
Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages (from gdown) (4.66.4)
Requirement already satisfied: soupsieve>1.2 in /usr/local/lib/python3.10/dist-packages (from beautifulsoup4->gdown) (2.5)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests[socks]->gdown) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests[socks]->gdown) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests[socks]->gdown) (2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests[socks]->gdown) (2024.2.2)
Requirement already satisfied: PySocks<1.5.7,>=1.5.6 in /usr/local/lib/python3.10/dist-packages (from requests[socks]->gdown) (1.7.1)
Downloading...
From (origin): https://drive.google.com/uc?id=1cIYhJzuzfKd1R9t3qQtwYnLbjvzybqq4
From (redirected): https://drive.google.com/uc?id=1cIYhJzuzfKd1R9t3qQtwYnLbjvzybqq4&confirm=t&usid=27c19556-c87c-448a-9e89-a12834d9c7b7
To: /content/dataset.csv
100% [#####] 151M/151M [00:04:00:00, 35.7MB/s]

Time	V1	V2	V3	V4	V5	V6	V7	V8	V9	...	V21	V22	V23	V24	V25	V26	V27	V28	Amount	Class	
0	0.0	-1.350807	-0.072781	2.536347	1.378155	-0.338321	0.482388	0.230599	0.080668	0.363787	...	-0.018307	0.277838	-0.110474	0.000628	0.128639	-0.189115	0.133558	-0.021053	149.62	0



- Select 'Run all' from the dropdown menu.



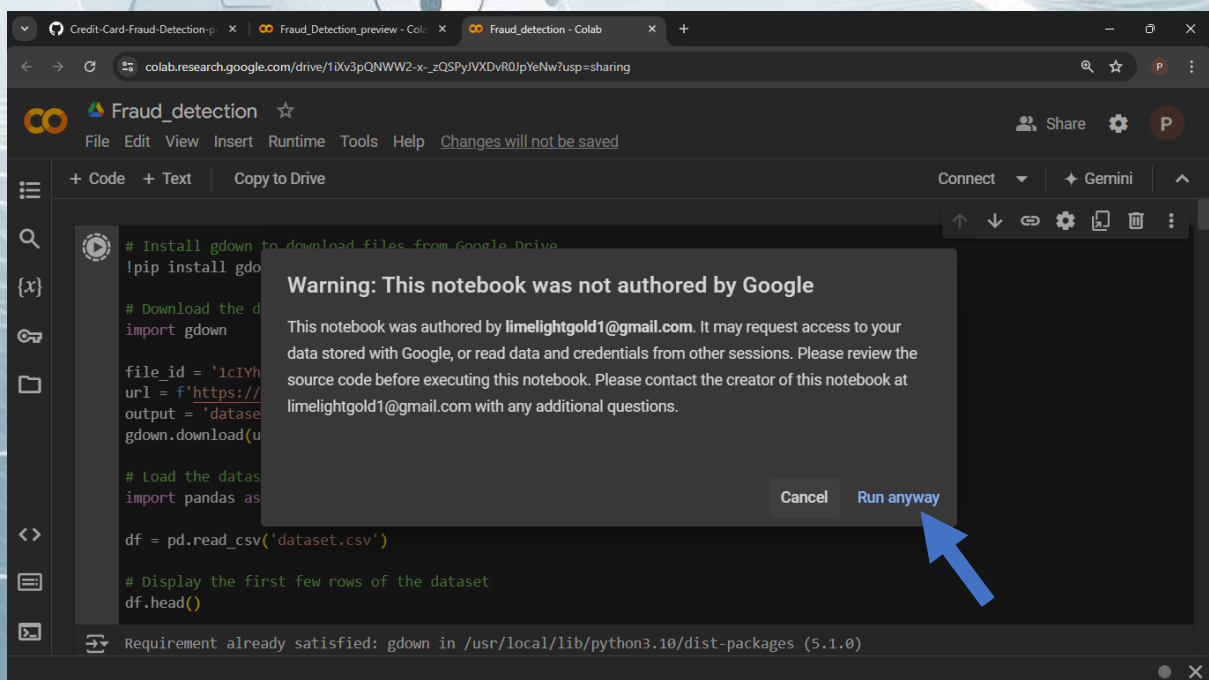
Via Shortcut:

- Press Ctrl + F9 on your keyboard to run all cells.

3. Authorising the Notebook

Instructions:

- If prompted, click on the 'Run anyway' button.

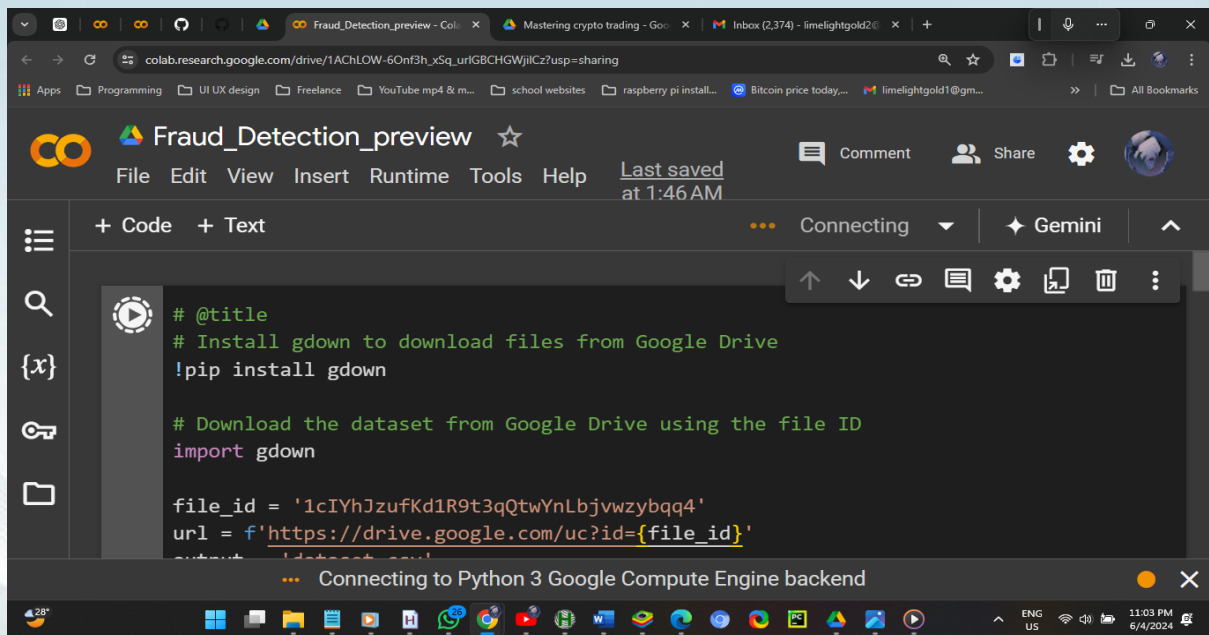


- Follow the on-screen instructions to allow necessary permissions.

4. Waiting for All Cells to Load

Instructions:

- Wait for the process to complete.

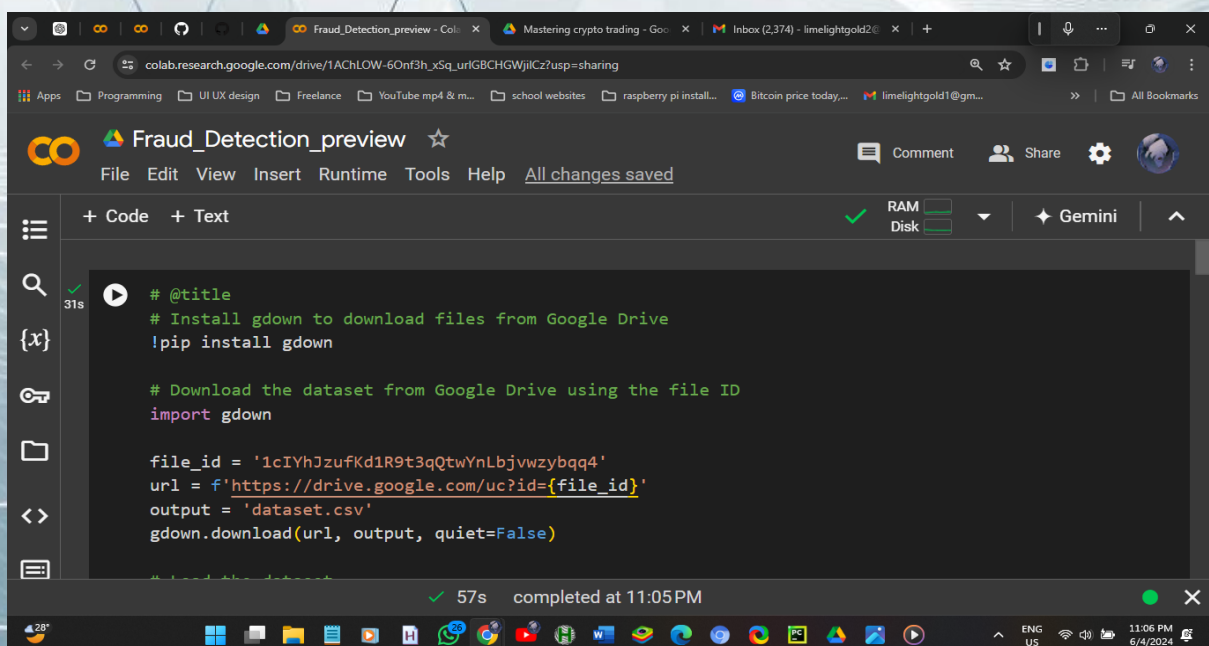


```
# @title
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import gdown

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url = f'https://drive.google.com/uc?id={file_id}'
output = 'dataset.csv'
```

Processing...



```
# @title
# Install gdown to download files from Google Drive
!pip install gdown

# Download the dataset from Google Drive using the file ID
import gdown

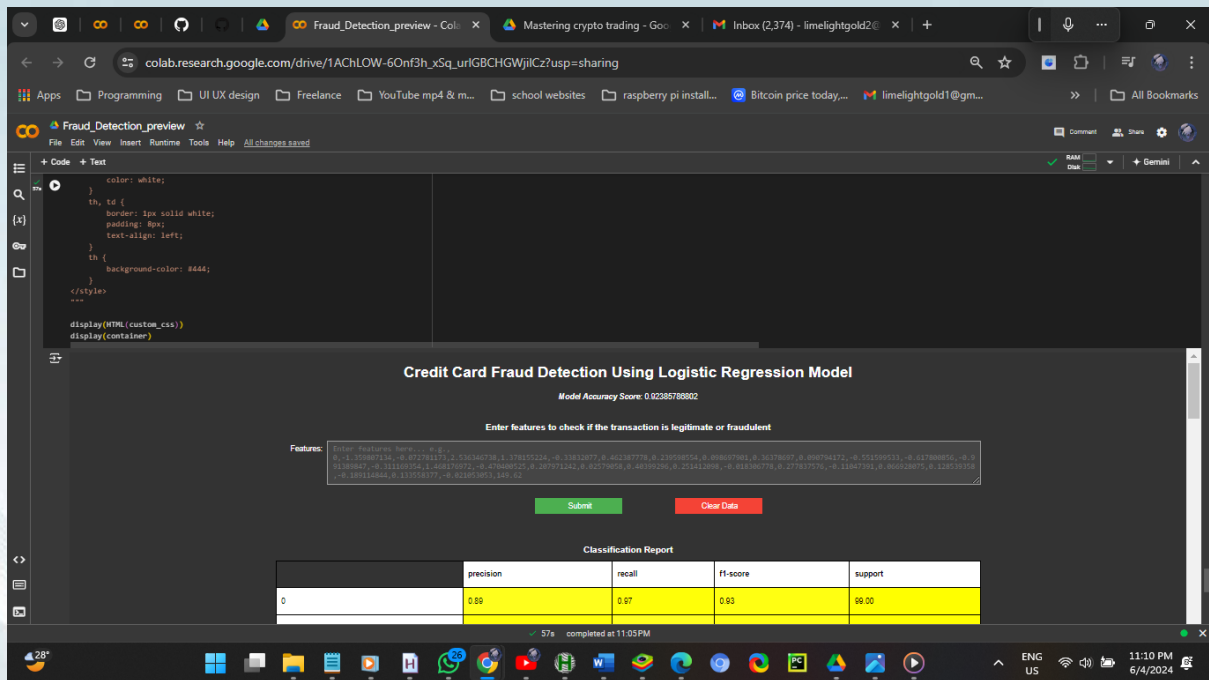
file_id = '1cIYhJzufKd1R9t3qQtwYnLbjvwzybqq4'
url = f'https://drive.google.com/uc?id={file_id}'
output = 'dataset.csv'
gdown.download(url, output, quiet=False)
```

Process completed

5. Viewing the Output in Fullscreen

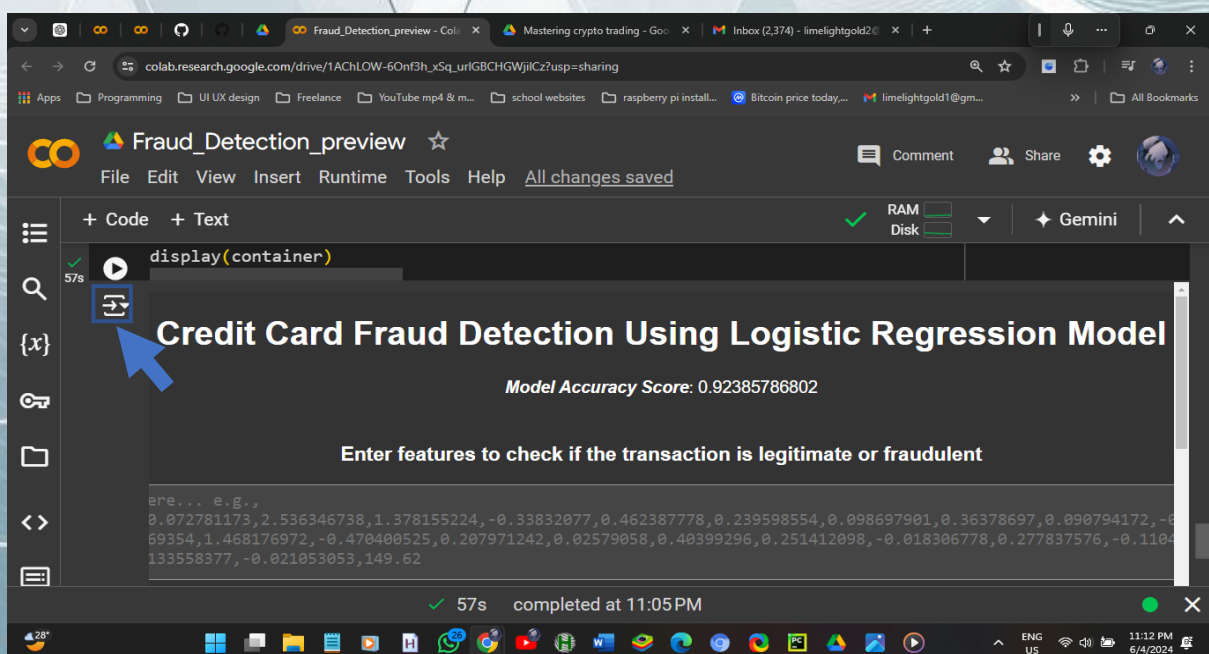
Instructions:

- Scroll down to the end of the page or locate the last cell of the notebook.

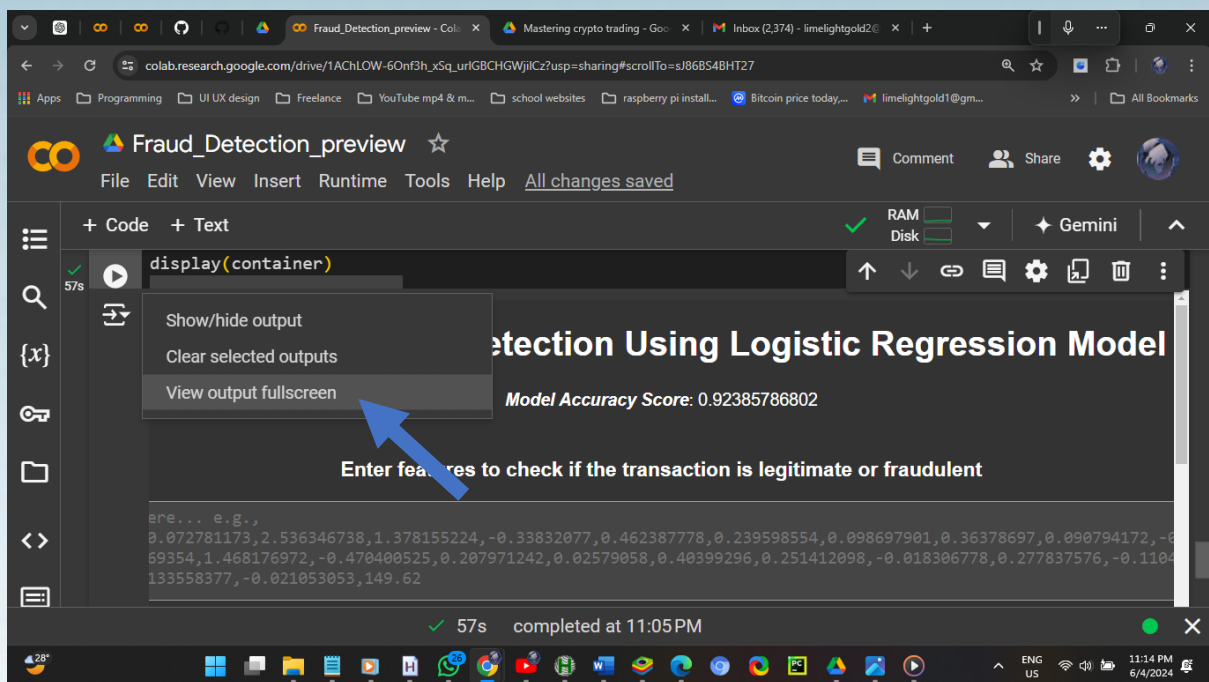


End of page or last cell

- Click on the button with the image of 'code cell output actions'.



- Select 'View output fullscreen'.



Credit Card Fraud Detection Using Logistic Regression Model

Model Accuracy Score: 0.92385786802

Enter features to check if the transaction is legitimate or fraudulent

Features: Enter features here... e.g.,
0, -1.359807134, -0.072781173, 2.536346738, 1.378155224, -0.33832077, 0.462387778, 0.239598554, 0.098697901, 0.36378697, 0.090794172, -0.551599533, -0.617800856, -0.91389847, -0.311169354, 1.468176972, -0.470400525, 0.207971242, 0.02579058, 0.40399296, 0.251412098, -0.018306778, 0.277837576, -0.11047391, 0.066928075, 0.128539358, -0.189114844, 0.133558377, -0.021053053, 149.62

[Submit](#) [Clear Data](#)

Classification Report

	precision	recall	f1-score	support
0	0.89	0.97	0.93	99.00
1	0.97	0.88	0.92	98.00
accuracy	0.92			
macro avg	0.93	0.92	0.92	197.00
weighted avg	0.93	0.92	0.92	197.00

Credit Card Fraud Detection Project

This project aims to detect fraudulent credit card transactions using a Logistic Regression model. The dataset used is the 'Credit Card Fraud Detection' dataset from Kaggle.

Source: <https://www.kaggle.com/datasets/mlg-ulb/creditcardfraud/data>

The detection site

How to use the detector

Following the steps mentioned above, you will see the interface titled 'Credit Card Fraud Detection Using Logistic Regression Model' (as shown in the image).

Credit Card Fraud Detection Using Logistic Regression Model

Model Accuracy Score: 0.92385786802

Enter features to check if the transaction is legitimate or fraudulent

Features:

Classification Report

	precision	recall	f1-score	support
0	0.89	0.97	0.93	99.00
1	0.97	0.88	0.92	98.00
accuracy	0.92			
macro avg	0.93	0.92	0.92	197.00
weighted avg	0.93	0.92	0.92	197.00

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This project aims to detect fraudulent credit card transactions using a Logistic Regression model. The dataset used is the 'Credit Card Fraud Detection' dataset from Kaggle.

Source: <https://www.kaggle.com/datasets/mlg-ulb/creditcardfraud/data>

Checking if a transaction is legitimate or fraudulent

1. Enter the transaction features

In the text box labelled 'Features', enter the transaction features as a comma-separated list.

Example format:

4,0.507333394,0.478048468,0.105139135,-0.264563389,0.528658946,-
1.22970537,1.418076739,1.556907918,-
0.879188755,0.044961551,0.721562547,0.155782591,-1.387034597,-1.163487022,-
1.046408514,-0.24673884,-0.605133764,0.057097128,-0.24959798,-0.378035354,-
0.875723674,-0.172384197,0.476539789,0.164738748,-1.073890765,-0.412927344,-
0.558693454,1.434215211,849.16

Click the badge below to check out more features:



2. Submit the Transaction

- Once you have entered the features, click the 'Submit' button.

- The model will process the input and display the result indicating whether the transaction is **Legitimate** or **Fraudulent**.

Clear Data (if needed)

- To enter a new set of features, click the 'Clear Data' button to clear the text box.
- Clear data again to enter new transaction features.

3. Troubleshooting

Common Issues:

- **Incorrect Number of Features:**
Ensure that you are entering exactly 30 features. If you enter more or fewer than 30, you will receive an error message.
 - **Error Message:** 'Custom Message: Invalid input! The number of features should be 30.'
- **Invalid Input Format:**
 - Ensure that the features are numeric and separated by commas without any spaces.
 - If you receive a message related to invalid feature names, ensure that the input format matches the expected format.

4. Contact Support

If you encounter issues that are not addressed in this guide, please contact our support team:

- **Email:** limelightgold1@gmail.com
- **Phone:** 0813 122 3569