

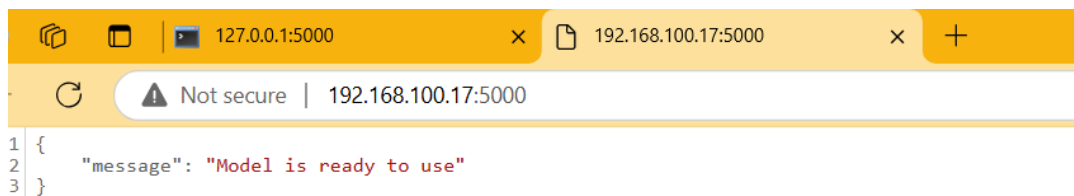
Test deployment of our models.

Run application in terminal:

```
Terminal Local x + v
(base) PS D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy> python API.py
* Serving Flask app 'API'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://192.168.100.17:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 385-434-846
```

? Endpoints:

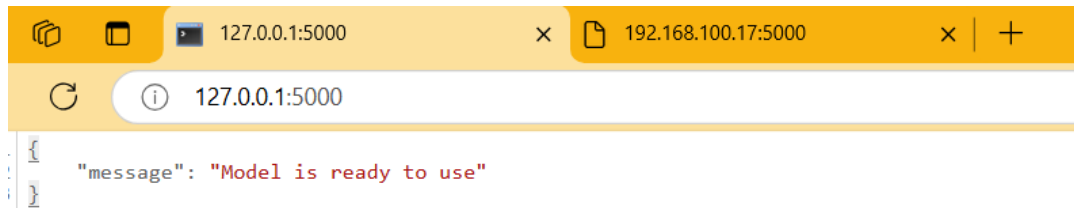
- GET /: Returns a message confirming that the model is ready to use.



A screenshot of a web browser with two tabs. The active tab is titled '192.168.100.17:5000'. The address bar shows '192.168.100.17:5000' with a 'Not secure' warning. The page content displays a JSON response:

```
{
  "message": "Model is ready to use"
}
```

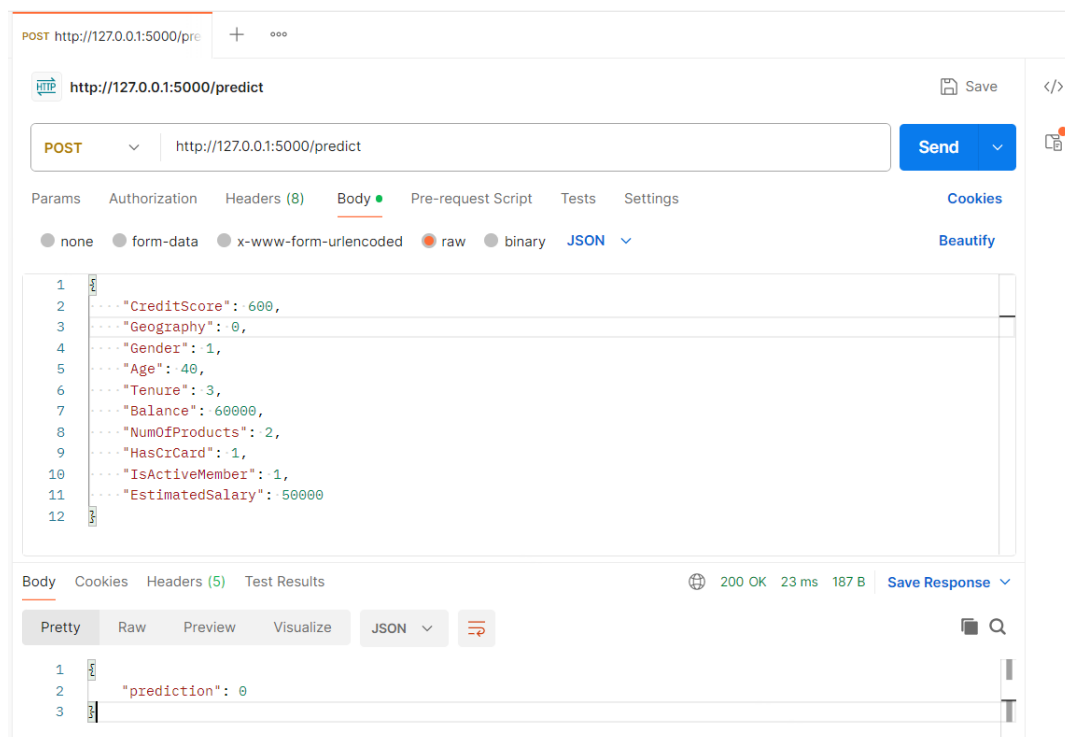
-



A screenshot of a web browser with two tabs. The active tab is titled '127.0.0.1:5000'. The address bar shows '127.0.0.1:5000' with an information icon. The page content displays a JSON response:

```
{
  "message": "Model is ready to use"
}
```

- POST /predict: Accepts JSON data for prediction and returns the model's prediction.



A screenshot of a REST client interface. The top bar shows 'POST http://127.0.0.1:5000/pre'. The main area shows a POST request to 'http://127.0.0.1:5000/predict' with a 'Send' button. Below the request, there are tabs for 'Params', 'Authorization', 'Headers (8)', 'Body', 'Pre-request Script', 'Tests', and 'Settings'. The 'Body' tab is selected, showing a JSON payload:

```
{
  "CreditScore": 600,
  "Geography": 0,
  "Gender": 1,
  "Age": 40,
  "Tenure": 3,
  "Balance": 60000,
  "NumOfProducts": 2,
  "HasCrCard": 1,
  "IsActiveMember": 1,
  "EstimatedSalary": 50000
}
```

 Below the request, there are tabs for 'Body', 'Cookies', 'Headers (5)', and 'Test Results'. The 'Body' tab is selected, showing a JSON response:

```
{
  "prediction": 0
}
```

Check real data from our initial dataset in API application

	API.py	ModelingDataSet.csv	data.json
1		CreditScore,Geography,Gender,Age,Tenure,Balance,NumOfProducts,HasCrCard,IsActiveMember,EstimatedSalary,Exited	
2		619,0,0,42.0,2,0.0,1,1.0,1.0,101348.88,1	
3		608,2,0,41.0,1,83807.86,1,0.0,1.0,112542.58,0	
4		502,0,0,42.0,8,159660.8,3,1.0,0.0,113931.57,1	
5		645,0,0,39.0,1,0.0,2,0.0,0.0,93826.63,0	
6		645,2,1,44.0,8,113755.78,2,1.0,0.0,149756.71,1	
7		822,0,1,50.0,7,0.0,2,1.0,1.0,10062.8,0	
8		376,1,0,29.0,4,115046.74,4,1.0,0.0,119346.88,1	
9		501,0,1,44.0,4,142051.07,2,0.0,1.0,74940.5,0	
10		528,0,1,31.0,6,102016.72,2,0.0,0.0,80181.12,0	

POST http://127.0.0.1:5000/pre + ...

HTTP http://127.0.0.1:5000/predict Save </>

POST http://127.0.0.1:5000/predict Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies

none form-data x-www-form-urlencoded raw binary JSON Beautify

```
1 2
2 --"CreditScore": 645,
3 --"Geography": 2,
4 --"Gender": 1,
5 --"Age": 44,
6 --"Tenure": 8,
7 --"Balance": 113755.78,
8 --"NumOfProducts": 2,
9 --"HasCrCard": 1.0,
10 --"IsActiveMember": 0.0,
11 --"EstimatedSalary": 149756.71
12 2
```

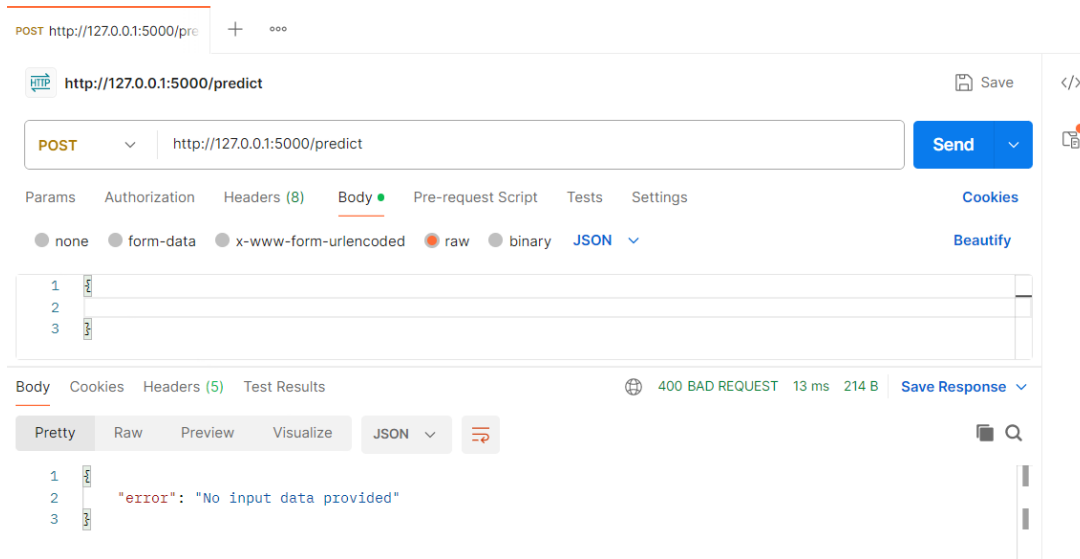
Body Cookies Headers (5) Test Results 200 OK 102 ms 187 B Save Response

Pretty Raw Preview Visualize JSON

```
1 2
2 "prediction": 1
3 2
```

? Error Handling:

- Returns meaningful error messages if the input is missing or malformed.



Name	Status	Date modified	Type	Size
random_forest_model_.pkl		12.11.2024 20:28	PKL File	23.536 KB

```
7
8 # Load the trained model
9 try:
10     model = joblib.load("../models/random_forest_model.pkl")
11 except FileNotFoundError:
12     raise Exception("Model file not found. Ensure the path to 'random_forest_model.pkl' is correct.")
13
```

```
(base) PS D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy> python API.py
Traceback (most recent call last):
  File "D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy\API.py", line 10, in <module>
    model = joblib.load("../models/random_forest_model.pkl")
    ~~~~~^
  File "C:\Users\denis\miniconda3\Lib\site-packages\joblib\numpy_pickle.py", line 650, in load
    with open(filename, 'rb') as f:
    ~~~~~^
FileNotFoundError: [Errno 2] No such file or directory: '../models/random_forest_model.pkl'

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy\API.py", line 12, in <module>
    raise Exception("Model file not found. Ensure the path to 'random_forest_model.pkl' is correct.")
Exception: Model file not found. Ensure the path to 'random_forest_model.pkl' is correct.
(base) PS D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy>
```

After correction models name – work normal!

```
(base) PS D:\OneDrive\App\Bank_Customer_Churn_Prediction\Customer_Churn_Prediction\deploy> python API.py
* Serving Flask app 'API'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://192.168.100.17:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 385-434-846
```