1. Jupyter Notebook (AI_Engineer_Challenge_ThaoNguyen.ipynb):

- This notebook documents the process of loading the dataset, preparing the data, training models (Linear Regression, Decision Tree, Random Forest), and visualizing data for both all categories and specifically for the alcohol accidents category.
- Create an application that forecasts the values for (Category: “Alkoholunfälle”, Type: “insgesamt”, Year: “2021”, Month: “01”)
- Compute the error between your prediction values and the actual numbers (ground truth data)

2. GitHub Repository:

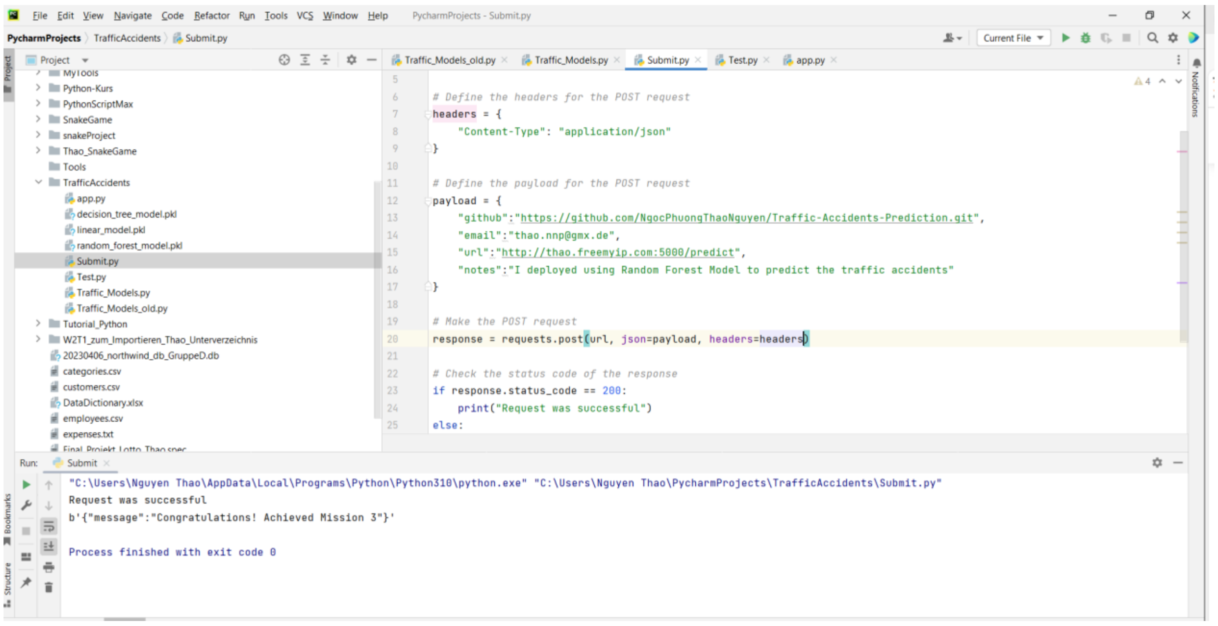
- The repository includes:
  - ***AI_Engineer_Challenge_ThaoNguyen.ipynb***: Published Jupyter Notebook with detailed explanations and code.
  - ***Traffic_Models*.py**: Training and Predict Models to create pickle file ***random_forest_model.pkl*** (optional: linear_model.pkl, decision_tree_model.pkl)
  - ***app.py***: Flask application for model deployment.
  - Images of Visualization Charts (***All_Categories_Accidents, Alcohol Related, Hit and Run and Traffic)***

3. Deployment with Flask Application:

- The Flask application (app.py) serves as an API endpoint for predictions.
- It loads the trained models and exposes an endpoint (POST /predict) to accept JSON data for prediction.
- Local testing was conducted to ensure the endpoint functions correctly.

4. Submission URL:

- Submitted GitHub Repository URL for the AI Engineer Challenge approval process.



```python

# Define the headers for the POST request
headers = {
    "Content-Type": "application/json"
}

# Define the payload for the POST request
payload = {
    "github":"https://github.com/NgocPhuongThaoNguyen/Traffic-Accidents-Prediction.git",
    "email":"thao.nnp@gmx.de",
    "url":"http://thao.freemyip.com:5000/predict",
    "notes":"I deployed using Random Forest Model to predict the traffic accidents"
}

# Make the POST request
response = requests.post(url, json=payload, headers=headers)

# Check the status code of the response
if response.status_code == 200:
    print("Request was successful")
else:
```

```
"C:\Users\Nguyen Thao\AppData\Local\Programs\Python\Python310\python.exe" "C:\Users\Nguyen Thao\PycharmProjects\TrafficAccidents\Submit.py"
Request was successful
b'{"message":"Congratulations! Achieved Mission 3"}'

Process finished with exit code 0
```