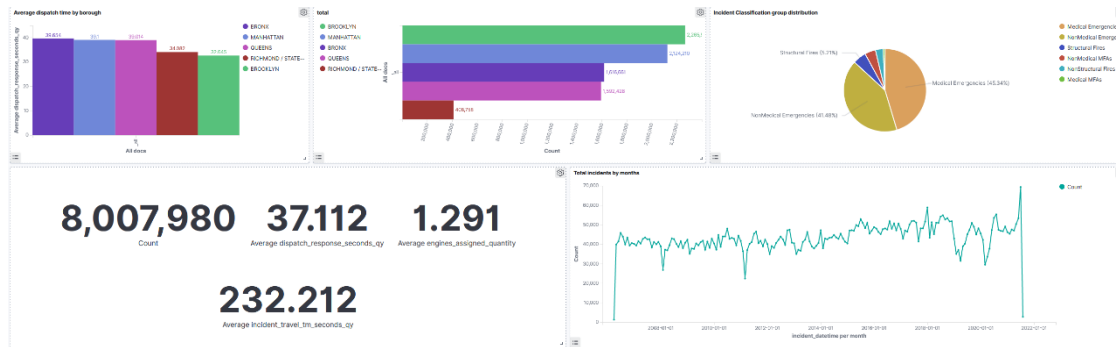# NYC Fire Incident Dispatch Data Analysis and Visualization

Description

In this project, I will load and analyze the fire incident dispatch dataset powered by NYC Open Data. This dataset has 8.69 million rows and 29 columns. The fields include the incident borough, the incident time, dispatch response seconds, incident classification and other fire incident dispatch information. I wrote the python script that runs in docker to extract data from the Socrata Open Data API and then upload that data into an Elasticsearch provisioned via AWS. After loading the data on OpenSearch, I visualized and analyzed the data with Kibana.

File structure

```
project01/
+-- Dockerfile
+-- requirements.txt
+-- src/
+-- +-- main.py
+-- assets/
+-- +-- gauge.png
+-- +-- visual01.png
+-- +-- visual02.png
+-- +-- visual03.png
+-- +-- visual04.png
+-- README
```

Technologies Used

Docker, Elasticsearch, Kibana
Python package: sodapy, requests, json, argparse, sys, os, time

Usage

Step 1: Enter into project01 folder

```
cd project01
```

Step 2: Build the docker image

```
docker build -t bigdataproject1:1.0 .
```

Step 3: Run the docker container

```
docker run \
 -e DATASET_ID="8m42-w767" \
-e APP_TOKEN="" \
-e ES_HOST="" \
-e ES_USERNAME="" \
-e ES_PASSWORD="" \
-e INDEX_NAME="fire" \
bigdataproject1:1.0 --page_size=500 --num_pages=2
```

API introduction

[Fire Incident Dispatch Data](#)

Visualization

What is the average dispatch response per borough?

Visual 01 shows:
Bronx's average dispatch response is 39.654 seconds
Manhattan's average dispatch response is 39.1 seconds
Queens's average dispatch response is 39.014 seconds
Richmond /Staten island's average dispatch response is 34.082 seconds
Brooklyn's average dispatch response is 32.645 seconds

What's the total number of fire incidents per borough?

Visual 02 shows:
Brooklyn has about 2.27 million fire incidents
Manhattan has about 2.12 million fire incidents
The Bronx has about 1.62 million fire incidents
Queens has about 1.59 million fire incidents
Richmond /Staten island has about 409 thousand fire incidents.

Which month has the most fire incidents from data ?

Visual 03 shows July 2021 has the most number of fire incidents

What's the percentage of the Top 3 incident classification group among fire incidents?

Visual 04 shows:
Medical emergencies take 45.34%
Non Medical emergencies take 41.48%
Structure fires take 5.21%