AWS IoT Analytics | Notebook

When loading data from IoT Analytics datasets, the client should be initialized first:

In [13]:
```
import boto3

# create IoT Analytics client
client = boto3.client('iotanalytics')
```

Now we can get the data location (URL) for the given dataset and start working with the data (In order to need to perform get_dataset_content, you need to grant iot analytics corresponding IAM permission):

In [14]:
```
dataset = "iot_lab4_analytics_dataset"
dataset_url = client.get_dataset_content(datasetName = dataset)['entries'][0]['dataURI']
print(dataset_url)
# start working with the data
```

```
https://aws-iot-analytics-dataset-84472bbe-0f7c-4181-9118-14d00ac7f1ea.s3.us-east-2.amazonaws.com/results/242b
1bb0-d953-4538-984d-e49b33899a5c.csv?X-Amz-Security-Token=IQoJb3JpZ2luX2VjEIb%2F%2F%2F%2F%2F%2F%2F%2F%2FwEa
CXVzLWVhc3QtMiJIMEYCIQD%2FaerNSZg0ZFJY9acK6QOLtvXrp7wM4FOgCHmXgYfTAgIhAKTeu2CdiwzjnkyKUWYvTNNTmKyl8lCt5l6uYuRL
CLq4Kt8CCO%2F%2F%2F%2F%2F%2F%2F%2F%2F%2FwEQABoMMDI5NzIzMTMxNjg1IgzupSrgHPp9%2Fg95Q%2BUqswJYjW3NiCWc8olO6UA5
YGa7outdAU768sN9WHjMagXXVUIOUXLSgqHOlyWPTCXGUpoiRTsECuZo6dnByrNtIBNsjyJS%2BhnB7T2bY30DjaQF6PbmoGWI8g5%2Bht9KzX
5pTEmrKOSMuEhYznJ2pHf7pQIJuL%2FsBHDGqyw50jP0U3I0Wiecjmsjr0bCoM%2B348e4w4mIrzOKbGWpowIsYi4nqZCscOxa2zTIGClxrzDC
bG3KH7VEsnxRL%2BxSjfd4QjXR8JeFK%2Frt8lc%2B2TXV%2FHEyv8QjM8Sey0IY3LDcc8bvd9EOy1%2FMsCqBcLzNnshL23gRekTHkQpSnwc8
ud%2B6%2FhuPxLTCoDuNYq9NVisKfVb64hkB2RAiOOAZ3n3w%2BV7F42UI72i1B2qaNf%2BJ43HoJhAvNKSO8af8MK3QkIQGOr4Bvi4kS%2BTb
eKkOi4T47%2Bz6zQQnas46q3EJ1uV2qcn4kdx6cIrqkh%2FlXJjoVZAILXonT%2BJDuhmasvTlL9iULFNyQwNAfJrsmDGUPNKVlBb3BRt8YwNK
qh7iX3IB70MJdpUOoWRpnPQ6uLCZW3AxnMoXczdL%2Bm7eUKXI8iKj0Nw0mFy%2FdhPhNICHijGHGZzgFIMdq%2BPSfW2EOG%2F2o9ZJ50bNVj
eQfddIBVIhs0%2FUFQCoX8nfEDF%2FWZ7nhfUUxjWuoA%3D%3D&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Date=20210424T141713
Z&X-Amz-SignedHeaders=host&X-Amz-Expires=7200&X-Amz-Credential=ASIAQN25C74STIQSF67L%2F20210424%2Fus-east-2%2Fs
3%2Faws4_request&X-Amz-Signature=ed3d398c2a72e372643277220262aca98514291d0eaa261e16cb7600d2340695 (https://aws
-iot-analytics-dataset-84472bbe-0f7c-4181-9118-14d00ac7f1ea.s3.us-east-2.amazonaws.com/results/242b1bb0-d953-4
538-984d-e49b33899a5c.csv?X-Amz-Security-Token=IQoJb3JpZ2luX2VjEIb%2F%2F%2F%2F%2F%2F%2F%2F%2FwEaCXVzLWVhc3Q
tMiJIMEYCIQD%2FaerNSZg0ZFJY9acK6QOLtvXrp7wM4FOgCHmXgYfTAgIhAKTeu2CdiwzjnkyKUWYvTNNTmKyl8lCt5l6uYuRLCLq4Kt8CCO%
2F%2F%2F%2F%2F%2F%2F%2F%2F%2FwEQABoMMDI5NzIzMTMxNjg1IgzupSrgHPp9%2Fg95Q%2BUqswJYjW3NiCWc8olO6UA5YGa7outdAU7
68sN9WHjMagXXVUIOUXLSgqHOlyWPTCXGUpoiRTsECuZo6dnByrNtIBNsjyJS%2BhnB7T2bY30DjaQF6PbmoGWI8g5%2Bht9KzX5pTEmrKOSMu
EhYznJ2pHf7pQIJuL%2FsBHDGqyw50jP0U3I0Wiecjmsjr0bCoM%2B348e4w4mIrzOKbGWpowIsYi4nqZCscOxa2zTIGClxrzDCbG3KH7VEsnx
RL%2BxSjfd4QjXR8JeFK%2Frt8lc%2B2TXV%2FHEyv8QjM8Sey0IY3LDcc8bvd9EOy1%2FMsCqBcLzNnshL23gRekTHkQpSnwc8ud%2B6%2Fhu
PxLTCoDuNYq9NVisKfVb64hkB2RAiOOAZ3n3w%2BV7F42UI72i1B2qaNf%2BJ43HoJhAvNKSO8af8MK3QkIQGOr4Bvi4kS%2BTbeKkOi4T47%2
Bz6zQQnas46q3EJ1uV2qcn4kdx6cIrqkh%2FlXJjoVZAILXonT%2BJDuhmasvTlL9iULFNyQwNAfJrsmDGUPNKVlBb3BRt8YwNKqh7iX3IB70M
JdpUOoWRpnPQ6uLCZW3AxnMoXczdL%2Bm7eUKXI8iKj0Nw0mFy%2FdhPhNICHijGHGZzgFIMdq%2BPSfW2EOG%2F2o9ZJ50bNVjeQfddIBVIhs
0%2FUFQCoX8nfEDF%2FWZ7nhfUUxjWuoA%3D%3D&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Date=20210424T141713Z&X-Amz-Sig
nedHeaders=host&X-Amz-Expires=7200&X-Amz-Credential=ASIAQN25C74STIQSF67L%2F20210424%2Fus-east-2%2Fs3%2Faws4_re
quest&X-Amz-Signature=ed3d398c2a72e372643277220262aca98514291d0eaa261e16cb7600d2340695)
```

In [15]:
```
import pandas as pd
```

In [16]:
```
dataset_url = client.get_dataset_content(datasetName = dataset)['entries'][0]['dataURI']
data = pd.read_csv(dataset_url)
```

In [17]:
```
data
```

Out[17]:

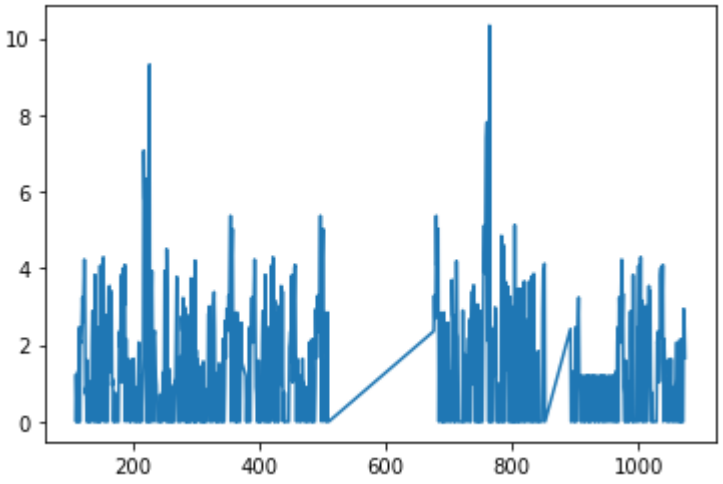
ɔ_time	vehicle_co	vehicle_co2	vehicle_hc	vehicle_nox	vehicle_pmx	...	vehicle_x	vehicle_y	notify_topic_arn	message	device_id	state
NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	Hello from AWS IoT console	NaN	NaN
NaN	NaN	2416.04	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
NaN	NaN	999.00	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
NaN	NaN	999.00	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
0.0	0.00	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...
225.0	0.00	0.00	0.0	0.00	0.00	...	18379.41	27793.25	NaN	NaN	NaN	0.0
224.0	0.00	0.00	0.0	0.00	0.00	...	18382.60	27788.48	NaN	NaN	NaN	0.0
115.0	0.00	0.00	0.0	0.00	0.00	...	26409.19	26013.59	NaN	NaN	NaN	3.0
227.0	0.00	0.00	0.0	0.00	0.00	...	18380.31	27803.61	NaN	NaN	NaN	0.0
226.0	74.02	2700.56	0.4	1.07	0.04	...	18377.08	27798.75	NaN	NaN	NaN	0.0

In [18]:
```
data2 = data[data["row"] >= 0]
```

In [27]:
```
data3 = data2[["vehicle_nox", "vehicle_co2", "vehicle_x"]]
```

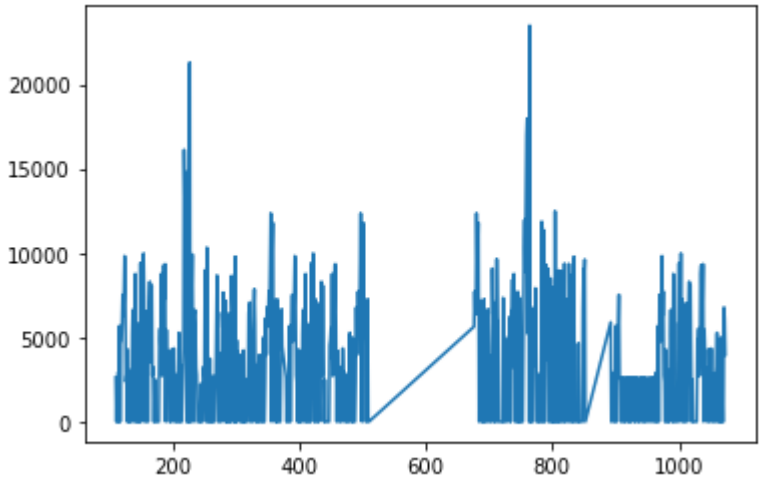
In [28]:
```
data3["vehicle_nox"].plot()
```

Out[28]: <AxesSubplot:>



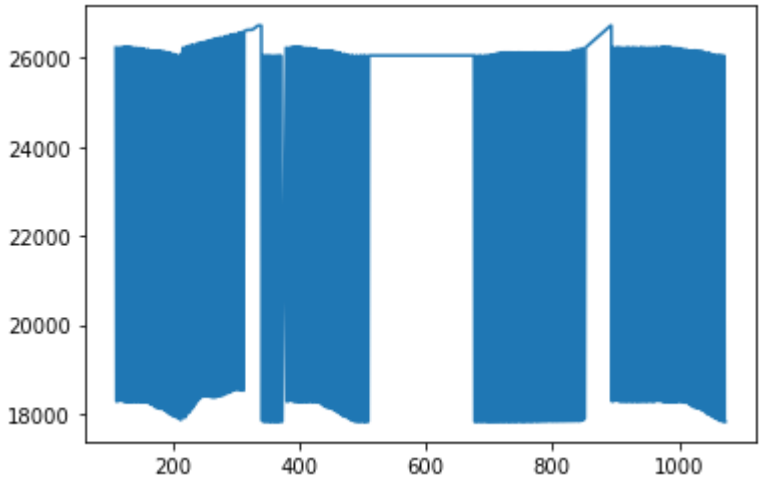
In [29]:
```
data3["vehicle_co2"].plot()
```

Out[29]: <AxesSubplot:>



In [31]:
```
data3["vehicle_x"].plot()
```

Out[31]: <AxesSubplot:>



In [ ]: