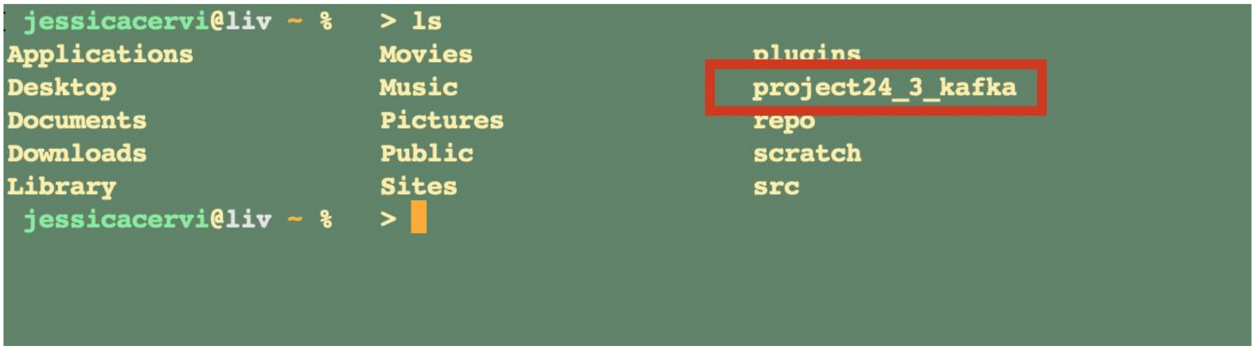
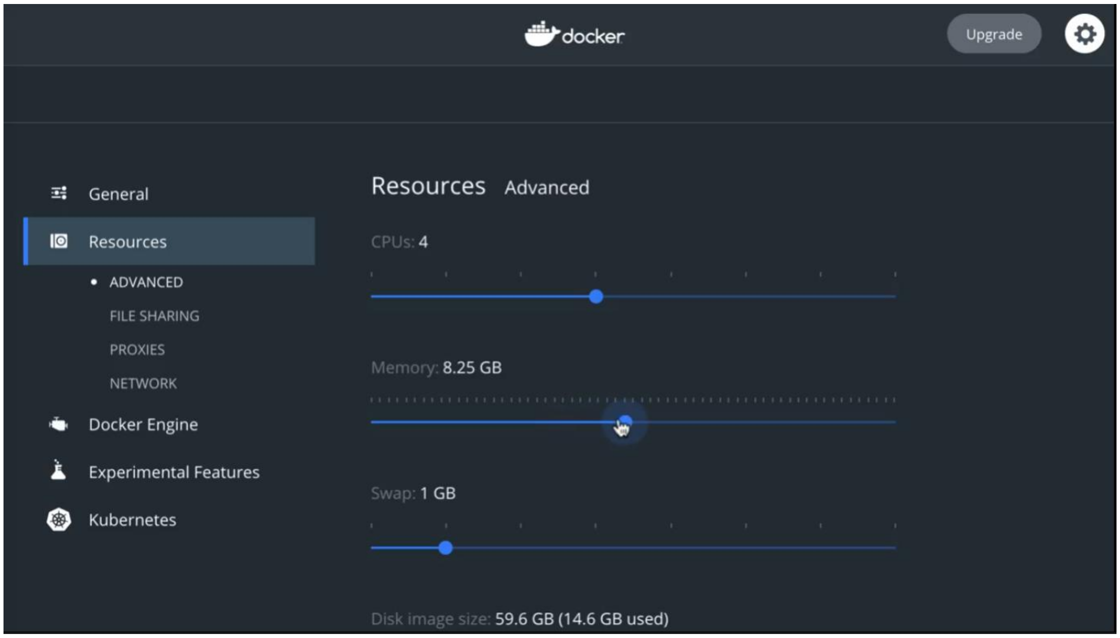
Project 24.3: Constructing a Web *Server* Using Kafka Solution

1.



```
 jessicacervi@liv ~ %   > ls
Applications            Movies                  plugins
Desktop                 Music                   project24_3_kafka
Documents               Pictures                repo
Downloads               Public                  scratch
Library                 Sites                   src
 jessicacervi@liv ~ %   > 
```

2.



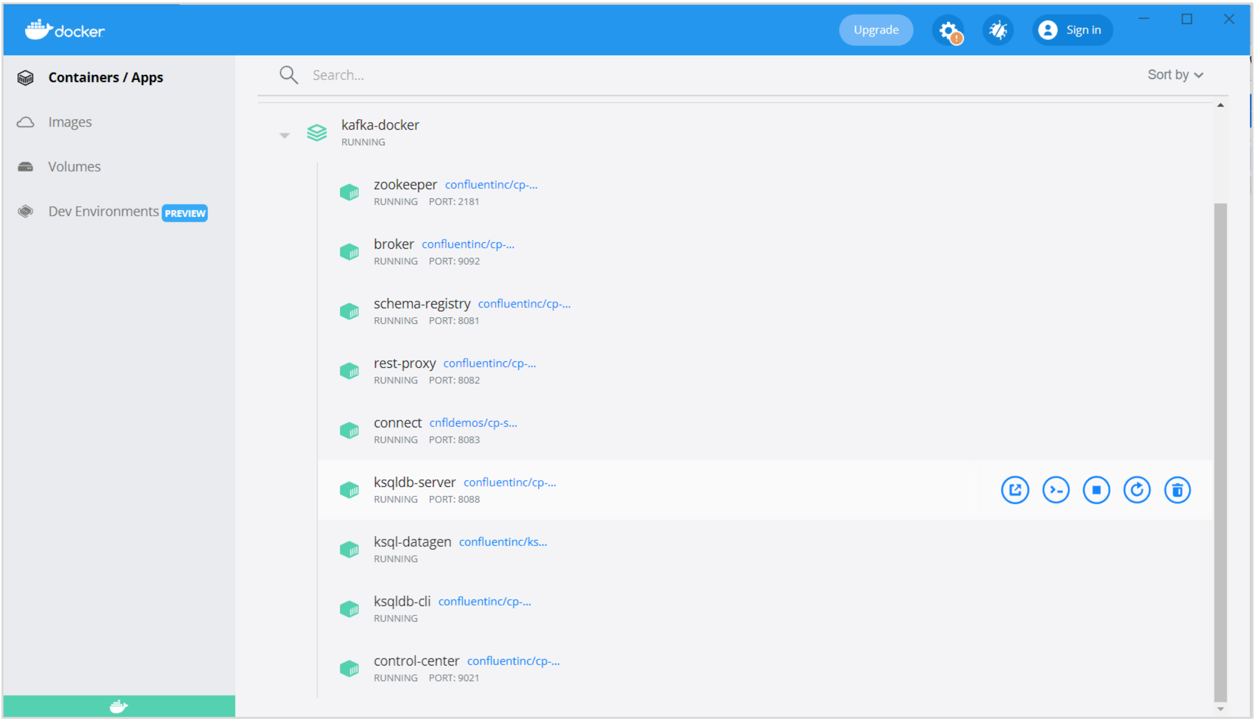
CPUs: 4

Memory: 8.25 GB

Swap: 1 GB

Disk image size: 59.6 GB (14.6 GB used)

3.



kafka-docker
RUNNING

zookeeper confluentinc/cp-...
RUNNING PORT: 2181

broker confluentinc/cp-...
RUNNING PORT: 9092

schema-registry confluentinc/cp-...
RUNNING PORT: 8081

rest-proxy confluentinc/cp-...
RUNNING PORT: 8082

connect cnfldemos/cp-s...
RUNNING PORT: 8083

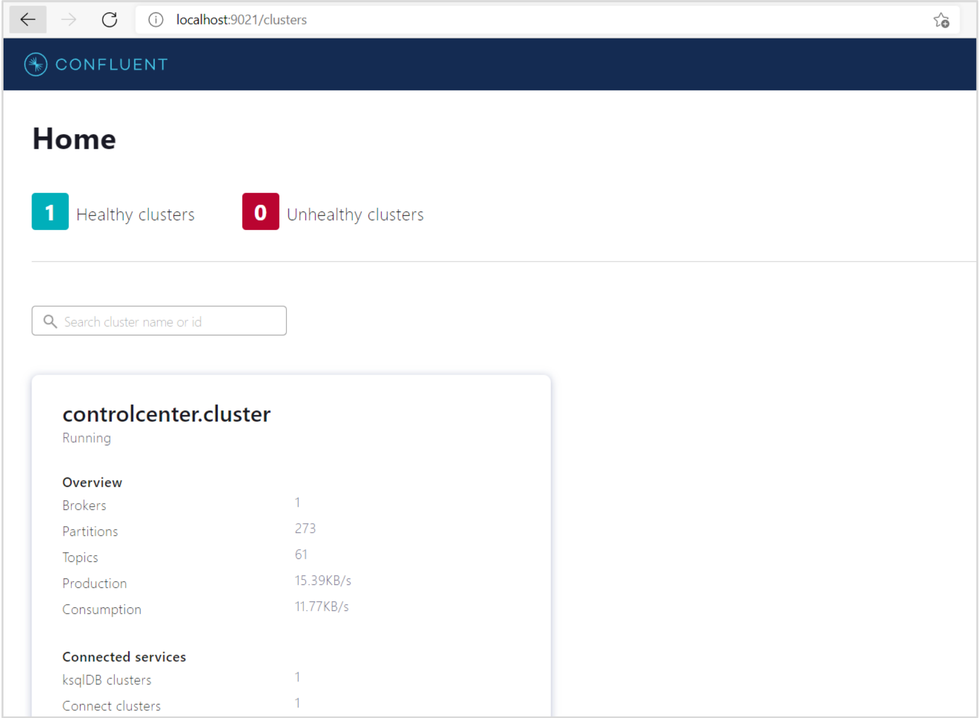
ksqldb-server confluentinc/cp-...
RUNNING PORT: 8088

ksql-datagen confluentinc/ks...
RUNNING

ksqldb-cli confluentinc/cp-...
RUNNING

control-center confluentinc/cp-...
RUNNING PORT: 9021

4.



Home

1 Healthy clusters

0 Unhealthy clusters

controlcenter.cluster
Running

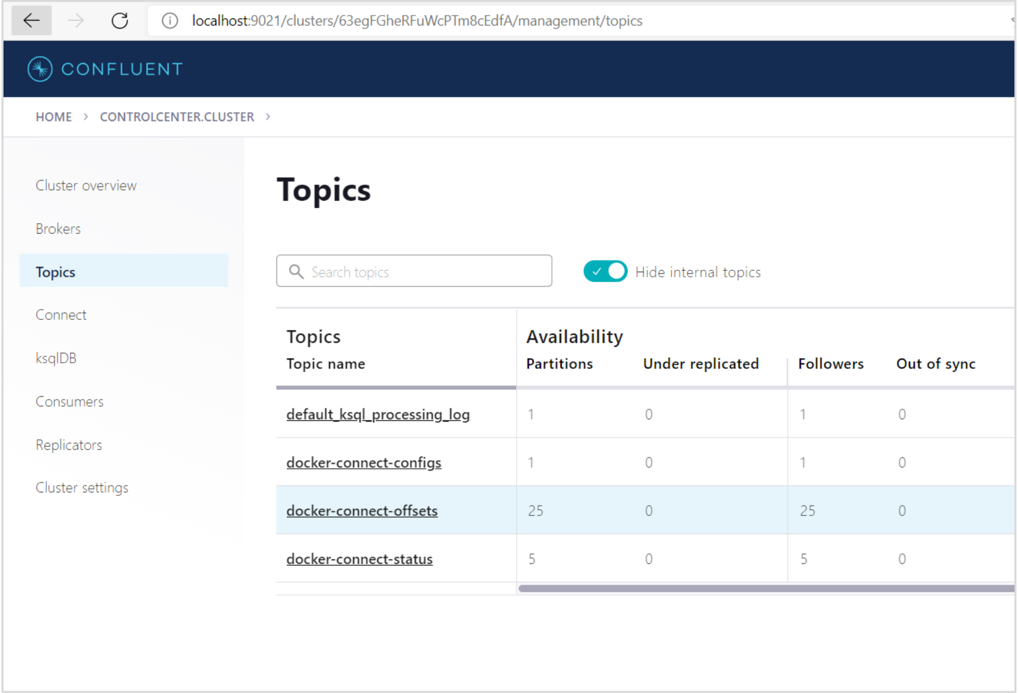
Overview

Brokers	1
Partitions	273
Topics	61
Production	15.39KB/s
Consumption	11.77KB/s

Connected services

ksqlDB clusters	1
Connect clusters	1

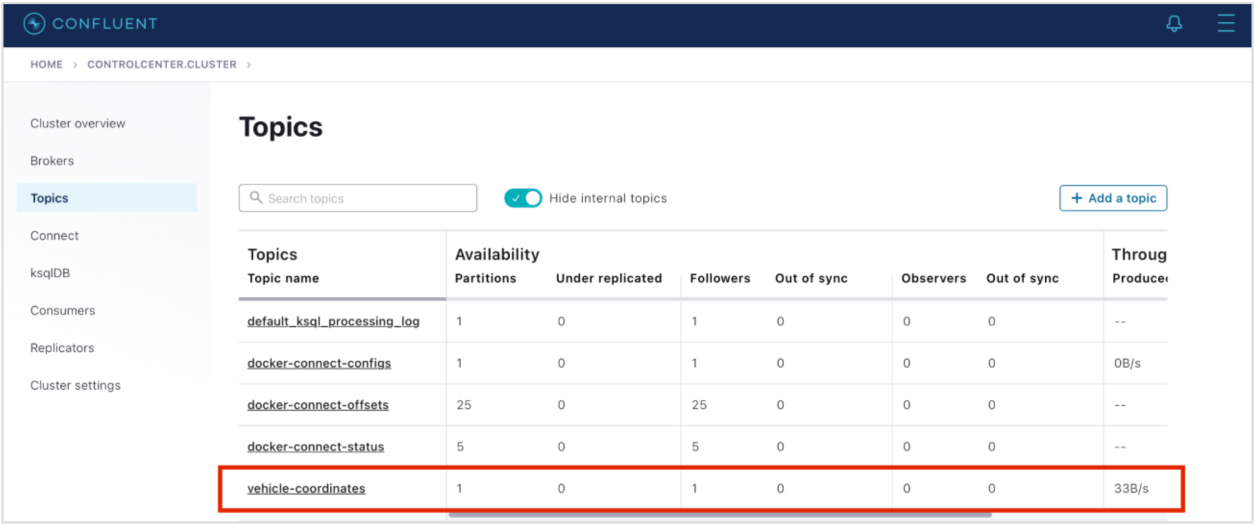
5.



Topics

Topics	Availability			
Topic name	Partitions	Under replicated	Followers	Out of sync
default_ksql_processing_log	1	0	1	0
docker-connect-configs	1	0	1	0
docker-connect-offsets	25	0	25	0
docker-connect-status	5	0	5	0

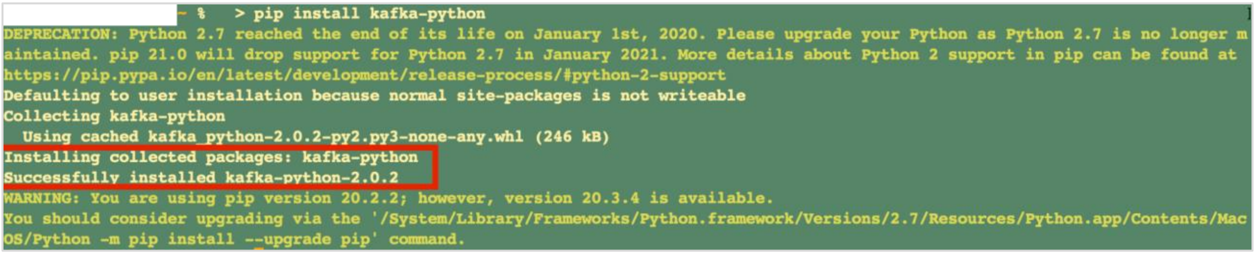
6.



Topics

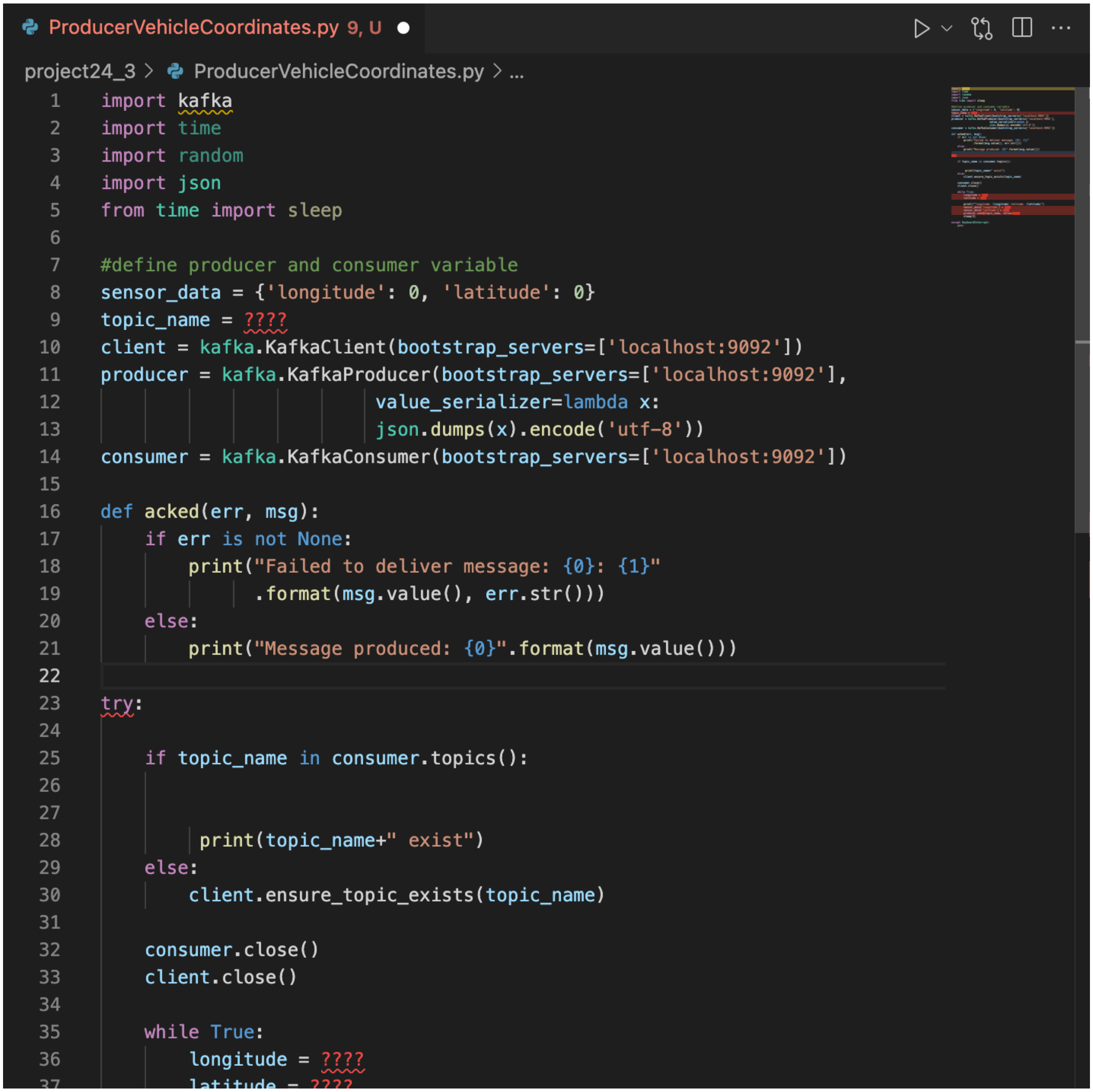
Topics	Availability						Throug
Topic name	Partitions	Under replicated	Followers	Out of sync	Observers	Out of sync	Produce
default_ksql_processing_log	1	0	1	0	0	0	--
docker-connect-configs	1	0	1	0	0	0	0B/s
docker-connect-offsets	25	0	25	0	0	0	--
docker-connect-status	5	0	5	0	0	0	--
vehicle-coordinates	1	0	1	0	0	0	33B/s

7.



```
[redacted] ~ %   > pip install kafka-python
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your Python as Python 2.7 is no longer m
aintained. pip 21.0 will drop support for Python 2.7 in January 2021. More details about Python 2 support in pip can be found at
https://pip.pypa.io/en/latest/development/release-process/#python-2-support
Defaulting to user installation because normal site-packages is not writeable
Collecting kafka-python
  Using cached kafka_python-2.0.2-py2.py3-none-any.whl (246 kB)
Installing collected packages: kafka-python
Successfully installed kafka-python-2.0.2
WARNING: You are using pip version 20.2.2; however, version 20.3.4 is available.
You should consider upgrading via the '/System/Library/Frameworks/Python.framework/Versions/2.7/Resources/Python.app/Contents/Mac
OS/Python -m pip install --upgrade pip' command.
```

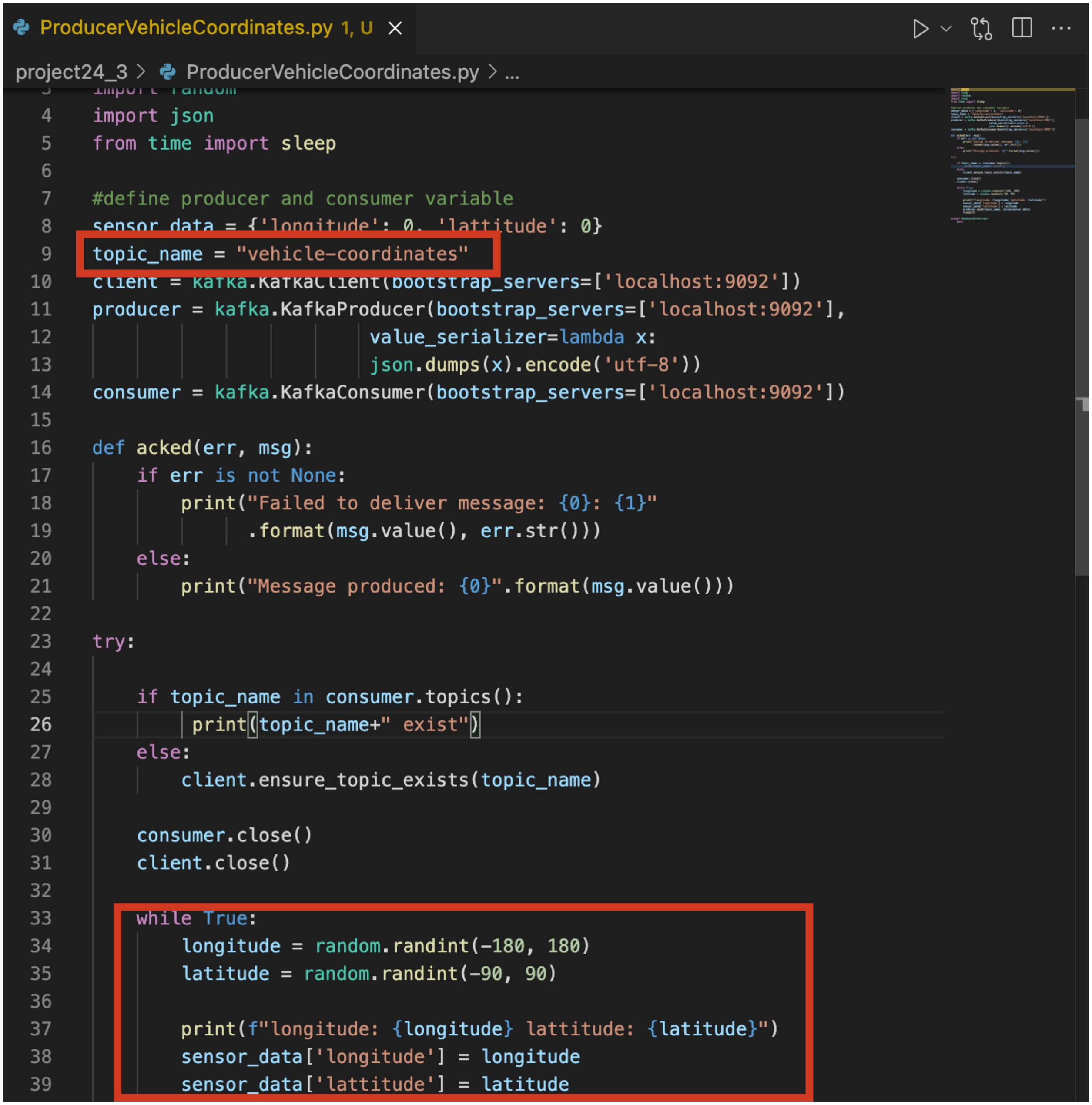
8.



ProducerVehicleCoordinates.py 9, U ●
project24_3 > ProducerVehicleCoordinates.py > ...

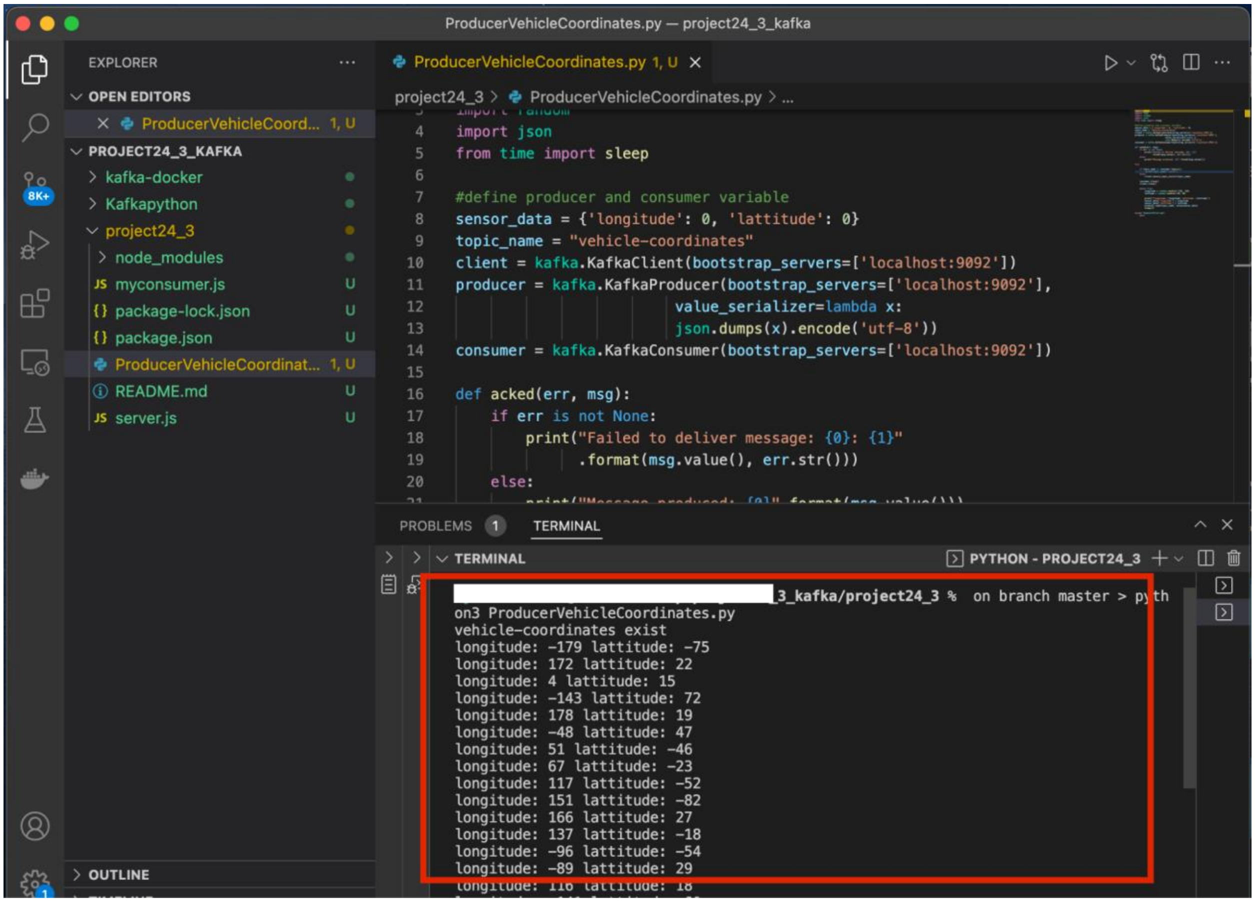
```python
import kafka
import time
import random
import json
from time import sleep

#define producer and consumer variable
sensor_data = {'longitude': 0, 'latitude': 0}
topic_name = ????
client = kafka.KafkaClient(bootstrap_servers=['localhost:9092'])
producer = kafka.KafkaProducer(bootstrap_servers=['localhost:9092'],
                                value_serializer=lambda x:
                                json.dumps(x).encode('utf-8'))
consumer = kafka.KafkaConsumer(bootstrap_servers=['localhost:9092'])

def acked(err, msg):
    if err is not None:
        print("Failed to deliver message: {0}: {1}"
              .format(msg.value(), err.str()))
    else:
        print("Message produced: {0}".format(msg.value()))

try:

    if topic_name in consumer.topics():


         print(topic_name+" exist")
    else:
        client.ensure_topic_exists(topic_name)

    consumer.close()
    client.close()

    while True:
        longitude = ????
        latitude = ????
```

9.


ProducerVehicleCoordinates.py 1, U
project24_3 > ProducerVehicleCoordinates.py > ...

```python
import random
import json
from time import sleep

#define producer and consumer variable
sensor_data = {'longitude': 0, 'lattitude': 0}
topic_name = "vehicle-coordinates"
client = kafka.KafkaClient(bootstrap_servers=['localhost:9092'])
producer = kafka.KafkaProducer(bootstrap_servers=['localhost:9092'],
                         value_serializer=lambda x:
                         json.dumps(x).encode('utf-8'))
consumer = kafka.KafkaConsumer(bootstrap_servers=['localhost:9092'])

def acked(err, msg):
    if err is not None:
        print("Failed to deliver message: {0}: {1}"
              .format(msg.value(), err.str()))
    else:
        print("Message produced: {0}".format(msg.value()))

try:

    if topic_name in consumer.topics():
        print(topic_name+" exist")
    else:
        client.ensure_topic_exists(topic_name)

    consumer.close()
    client.close()

    while True:
        longitude = random.randint(-180, 180)
        latitude = random.randint(-90, 90)

        print(f"longitude: {longitude} lattitude: {latitude}")
        sensor_data['longitude'] = longitude
        sensor_data['lattitude'] = latitude
```

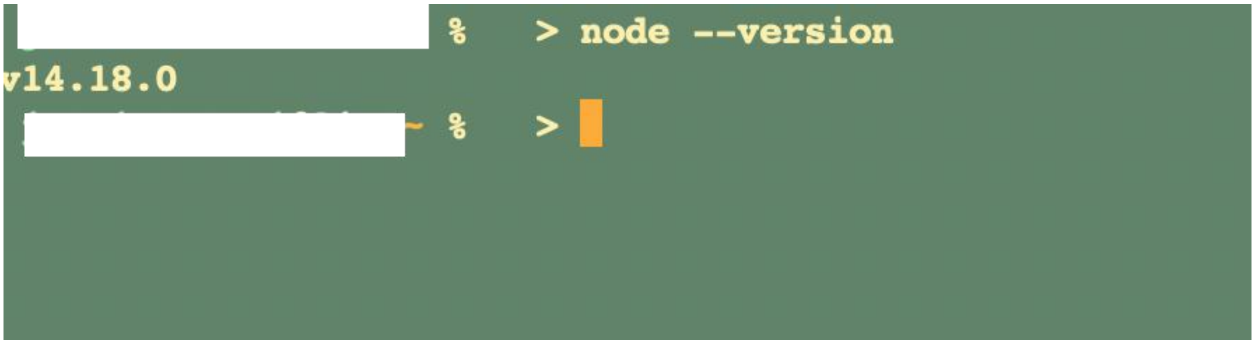
10.



```python
import random
import json
from time import sleep

#define producer and consumer variable
sensor_data = {'longitude': 0, 'lattitude': 0}
topic_name = "vehicle-coordinates"
client = kafka.KafkaClient(bootstrap_servers=['localhost:9092'])
producer = kafka.KafkaProducer(bootstrap_servers=['localhost:9092'],
                               value_serializer=lambda x:
                               json.dumps(x).encode('utf-8'))
consumer = kafka.KafkaConsumer(bootstrap_servers=['localhost:9092'])

def acked(err, msg):
    if err is not None:
        print("Failed to deliver message: {0}: {1}"
              .format(msg.value(), err.str()))
    else:
        print("Message produced: {0}".format(msg.value()))
```

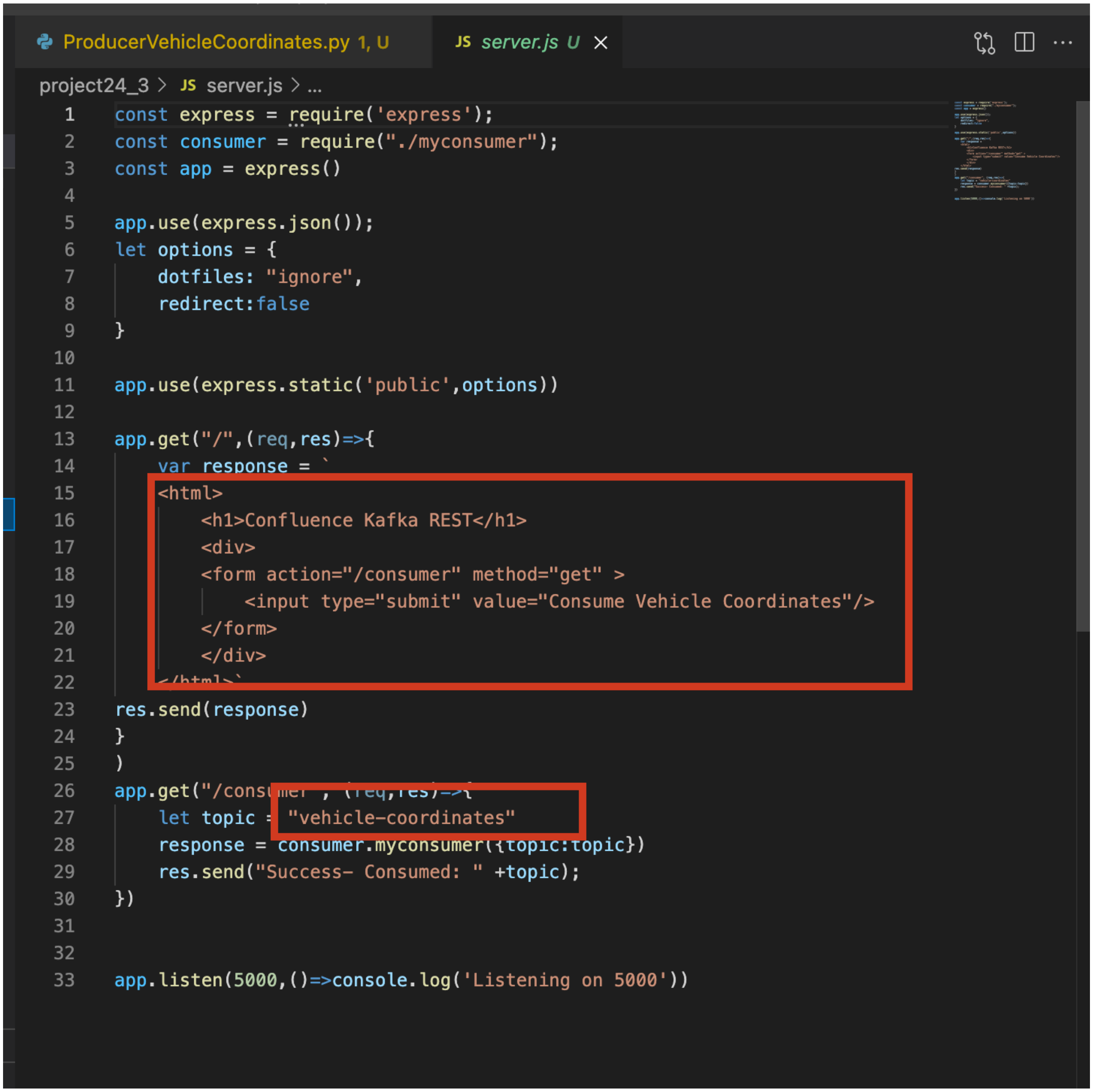
```
[redacted]3_kafka/project24_3 %  on branch master > pyth
on3 ProducerVehicleCoordinates.py
vehicle-coordinates exist
longitude: -179 lattitude: -75
longitude: 172 lattitude: 22
longitude: 4 lattitude: 15
longitude: -143 lattitude: 72
longitude: 178 lattitude: 19
longitude: -48 lattitude: 47
longitude: 51 lattitude: -46
longitude: 67 lattitude: -23
longitude: 117 lattitude: -52
longitude: 151 lattitude: -82
longitude: 166 lattitude: 27
longitude: 137 lattitude: -18
longitude: -96 lattitude: -54
longitude: -89 lattitude: 29
longitude: 116 lattitude: 18
```

11.



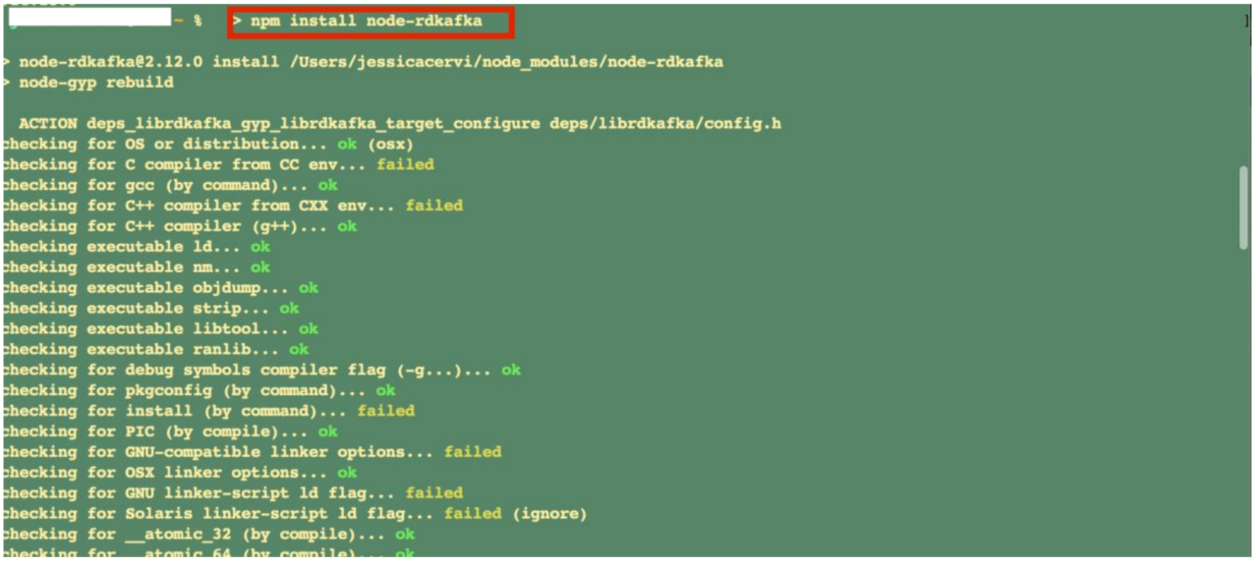
```
[redacted] %   > node --version
v14.18.0
[redacted]~ %   > 
```

12.


ProducerVehicleCoordinates.py 1, U
JS server.js U ×
project24_3 > JS server.js > ...

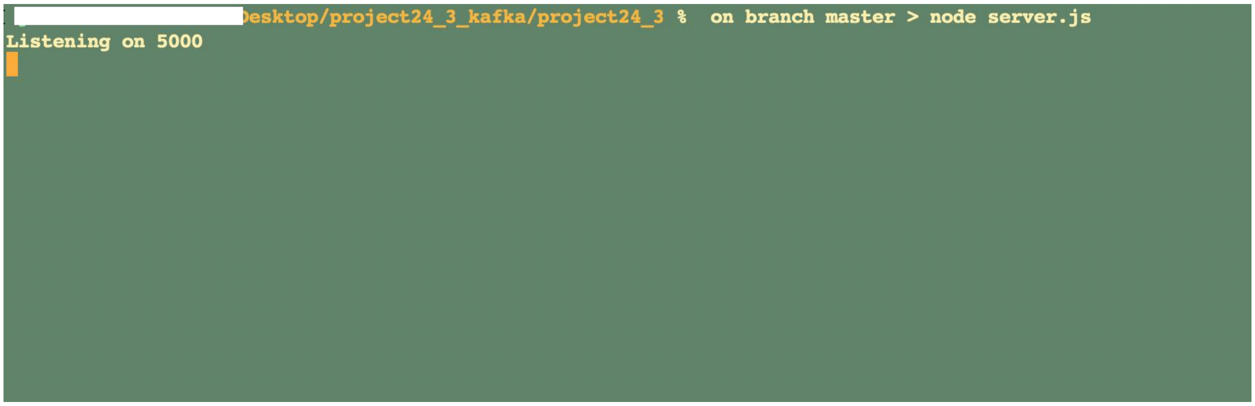
```
const express = require('express');
const consumer = require("./myconsumer");
const app = express()

app.use(express.json());
let options = {
    dotfiles: "ignore",
    redirect:false
}

app.use(express.static('public',options))

app.get("/",(req,res)=>{
    var response = `
    <html>
        <h1>Confluence Kafka REST</h1>
        <div>
        <form action="/consumer" method="get" >
            <input type="submit" value="Consume Vehicle Coordinates"/>
        </form>
        </div>
    </html>`
res.send(response)
}
)
app.get("/consumer", (req,res)=>{
    let topic = "vehicle-coordinates"
    response = consumer.myconsumer({topic:topic})
    res.send("Success- Consumed: " +topic);
})


app.listen(5000,()=>console.log('Listening on 5000'))
```

13.



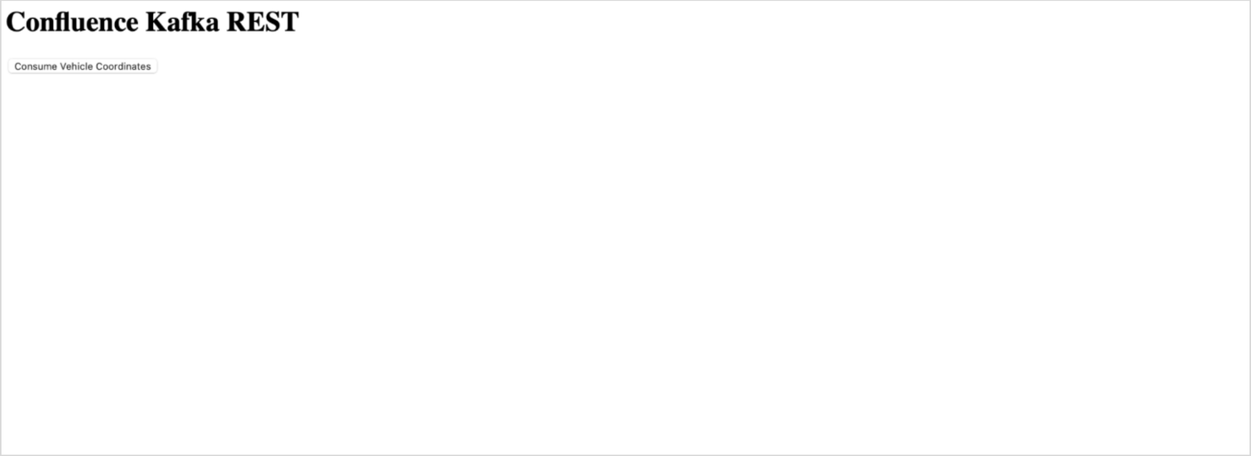
```
[redacted] ~ %  > npm install node-rdkafka

> node-rdkafka@2.12.0 install /Users/jessicacervi/node_modules/node-rdkafka
> node-gyp rebuild

  ACTION deps_librdkafka_gyp_librdkafka_target_configure deps/librdkafka/config.h
checking for OS or distribution... ok (osx)
checking for C compiler from CC env... failed
checking for gcc (by command)... ok
checking for C++ compiler from CXX env... failed
checking for C++ compiler (g++)... ok
checking executable ld... ok
checking executable nm... ok
checking executable objdump... ok
checking executable strip... ok
checking executable libtool... ok
checking executable ranlib... ok
checking for debug symbols compiler flag (-g...)... ok
checking for pkgconfig (by command)... ok
checking for install (by command)... failed
checking for PIC (by compile)... ok
checking for GNU-compatible linker options... failed
checking for OSX linker options... ok
checking for GNU linker-script ld flag... failed
checking for Solaris linker-script ld flag... failed (ignore)
checking for __atomic_32 (by compile)... ok
checking for __atomic_64 (by compile)... ok
```

14.



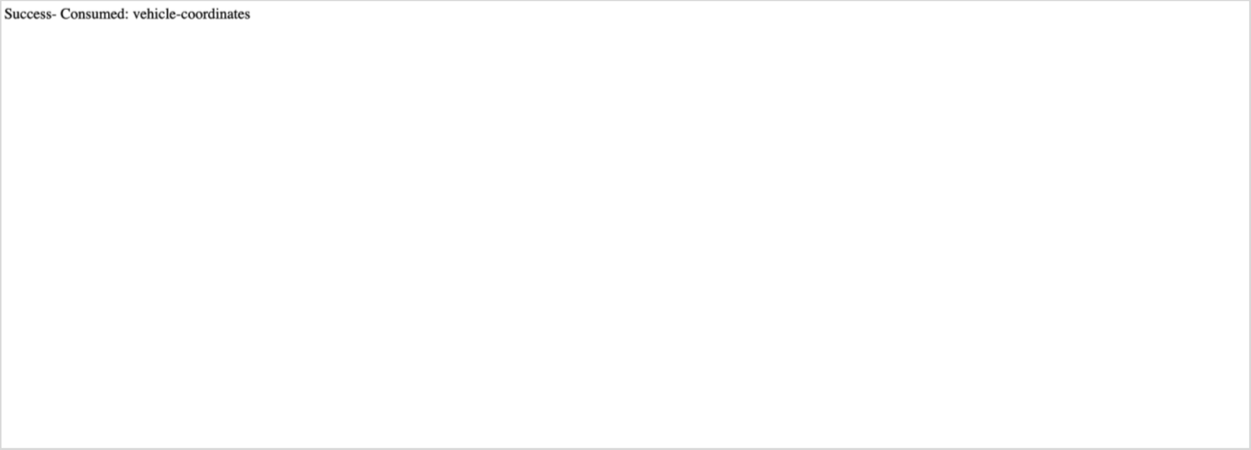
```
[redacted]esktop/project24_3_kafka/project24_3 %  on branch master > node server.js
Listening on 5000
```

15.



Confluence Kafka REST

16.



Success- Consumed: vehicle-coordinates