Introduction:

The application is divided into 3 parts.

**ms-mercedes-fuelservicemocker ->** It’s a mock API whose sole purpose is to expose cities with furrent fuel price.

**ms-mercedes-fuleeventdriverservice->** A Event driven service which triggers fuel lid to open or close, Initially when appliation is started, The lid is closed and A scheduled method is used to publish random City with its price. Message Mroker used is RabbitMQ.

When lid status is namually made to true, it means fuel lid is open and it triggers an event with currentCity, Lid Status, current timestamp and publishes to the MQ.

**ms-mercedes-fueleventlistenerservice ->** It’s a listner service which listens to the RabbitMQ. Once it gets the lidStatus as true, It mocks a fuel filling sleep method and after the sleep cycle is over, it calsulated the total lid open time, total volume of fuel filled and then calculated the total cost considering 1L is filled every 30 seconds.

## Features implemented

Message Broker-> RabbitMQ

Spring Security -> Basic Auth

Docker

Scheduler

Restful Webservices

3rd party API call Mocker

H2 database

## How to run the project in local

Step 1: Run 3rd party API mocker service (**ms-mercedes-fuelservicemocker )** as spring boot application

Step 2 : Run ms-mercedes-fuleeventdriverservice as Spring boot application, This will start sending messages to RabbitMQ every 2 minutes as it has scheduled job.

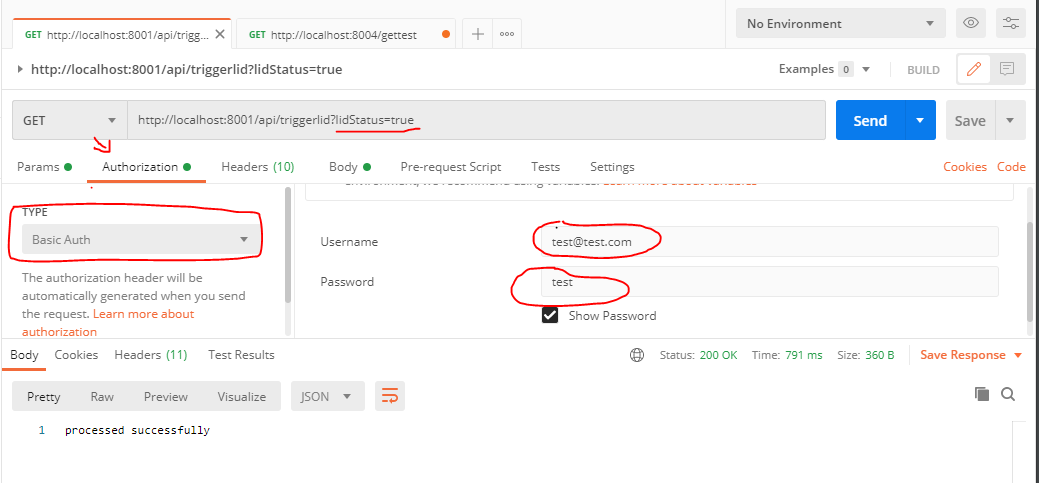
Note: Make sure RabbitMQ is installed in system and server is started

Step 3: Run ms-mercedes-fueleventlistenerservice as Spring boot application and once it starts, it will start consuming the messages in the queue.

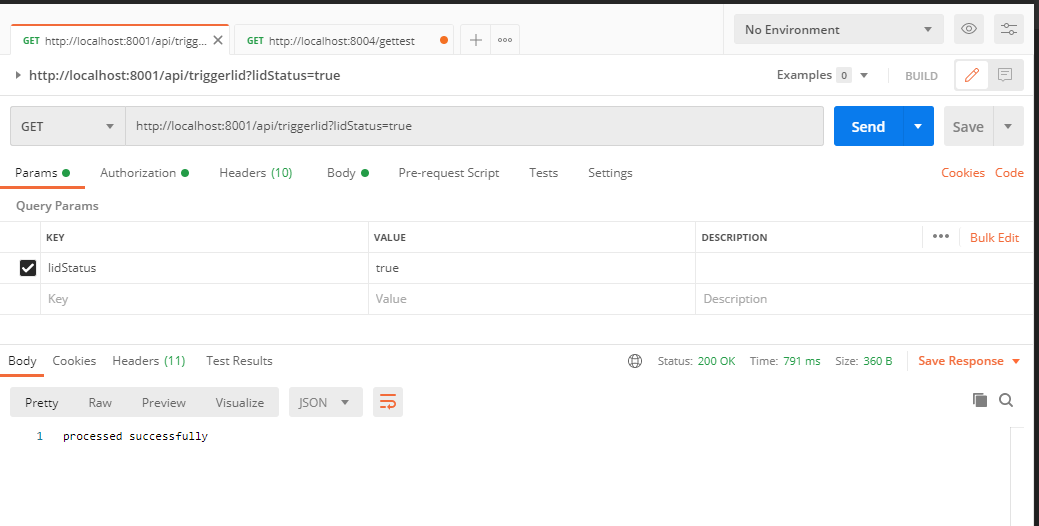
Step 4: For opening the fuel lid open Postman client and use the below curl

|  |
| --- |
| curl --location --request GET 'http://localhost:8001/api/triggerlid?lidStatus=true' \  --header 'Authorization: Basic dGVzdEB0ZXN0LmNvbTp0ZXN0' \  --header 'Content-Type: application/json' \  --data-raw '{      "lidStatus" : true  }' |

We are using Spring Security basic auth so it will ask for credentials. use the below given credentials from screenshot.



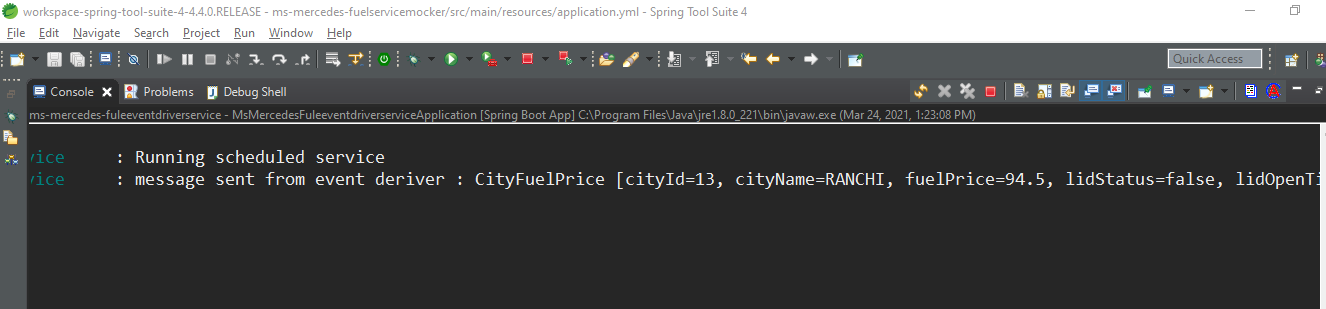
Step 5: send the request via postman. Refer Screenshot



## Output:

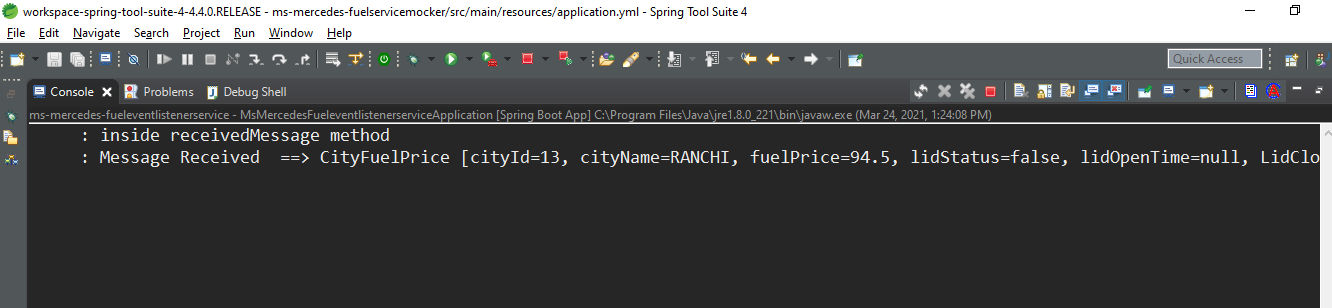
When the Driver service starts it starts sending event every 2 minutes. Initially Fuel Lid status is closed as shown in the logs below.

**Event Driver Logs**



|  |
| --- |
| 2021-03-24 14:15:22.166 INFO 2396 --- [ scheduling-1] c.m.f.service.FuelPriceSenderService : Running scheduled service  2021-03-24 14:15:22.185 INFO 2396 --- [ scheduling-1] c.m.f.service.FuelPriceSenderService : message sent from event deriver : CityFuelPrice [cityId=13, cityName=RANCHI, fuelPrice=94.5, lidStatus=false, lidOpenTime=null, LidCloseTime=null] |

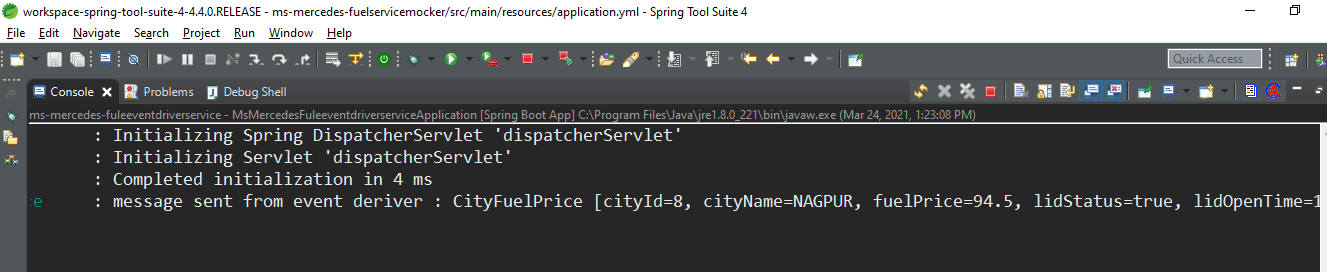
**Event Listener Log**



|  |
| --- |
| 2021-03-24 14:15:22.191 INFO 9448 --- [ntContainer#0-1] c.m.f.consumer.MessageConsumer : inside receivedMessage method  2021-03-24 14:15:22.191 INFO 9448 --- [ntContainer#0-1] c.m.f.consumer.MessageConsumer : Message Received ==> CityFuelPrice [cityId=13, cityName=RANCHI, fuelPrice=94.5, lidStatus=false, lidOpenTime=null, LidCloseTime=null] |

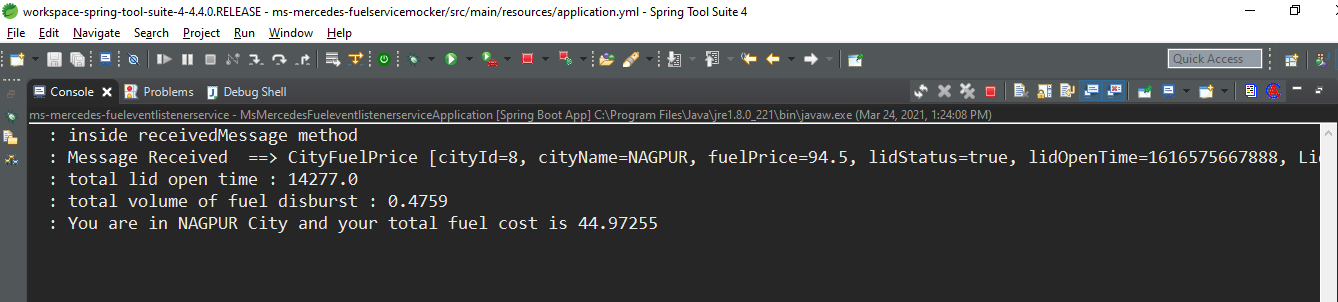
When the Postman is hit with lid status as open

**EventDriver service log:**



|  |
| --- |
| 2021-03-24 14:17:47.889 INFO 2396 --- [nio-8001-exec-2] c.m.f.service.FuelPriceSenderService : message sent from event deriver : CityFuelPrice [cityId=8, cityName=NAGPUR, fuelPrice=94.5, lidStatus=true, lidOpenTime=1616575667888, LidCloseTime=null] |

**Event Listener service logs**



|  |
| --- |
| 2021-03-24 14:17:47.897 INFO 9448 --- [ntContainer#0-1] c.m.f.consumer.MessageConsumer : inside receivedMessage method  2021-03-24 14:17:47.897 INFO 9448 --- [ntContainer#0-1] c.m.f.consumer.MessageConsumer : Message Received ==> CityFuelPrice [cityId=8, cityName=NAGPUR, fuelPrice=94.5, lidStatus=true, lidOpenTime=1616575667888, LidCloseTime=null]  2021-03-24 14:18:02.165 INFO 9448 --- [ntContainer#0-1] c.m.f.s.FuelPriceCalculationService : total lid open time : 14277.0  2021-03-24 14:18:02.165 INFO 9448 --- [ntContainer#0-1] c.m.f.s.FuelPriceCalculationService : total volume of fuel disburst : 0.4759  2021-03-24 14:18:02.165 INFO 9448 --- [ntContainer#0-1] c.m.f.s.FuelPriceCalculationService : You are in NAGPUR City and your total fuel cost is 44.97255 |

## Features not implemented as of now:

Caching of fuel price every 24 hours

Sending acknowledgement of the event to driver service

## Conclusion

All the basic working features are implemented and application is production ready. I agree that few features are not implemented which was due to time constraint.

Hoping to hear from you soon.

Thanks

Vikash Kumar