NEST HACKATHON

Submitted By

CARBON TEAM

ANOOP P M

JOHN CHRISTO

MANU FASIL M

Abstract

This Application is used for transfer money from one account to another accounts using mt103 parse method. When the user send a transfer request this application convert into MT103 Message Then Convert to MX message.

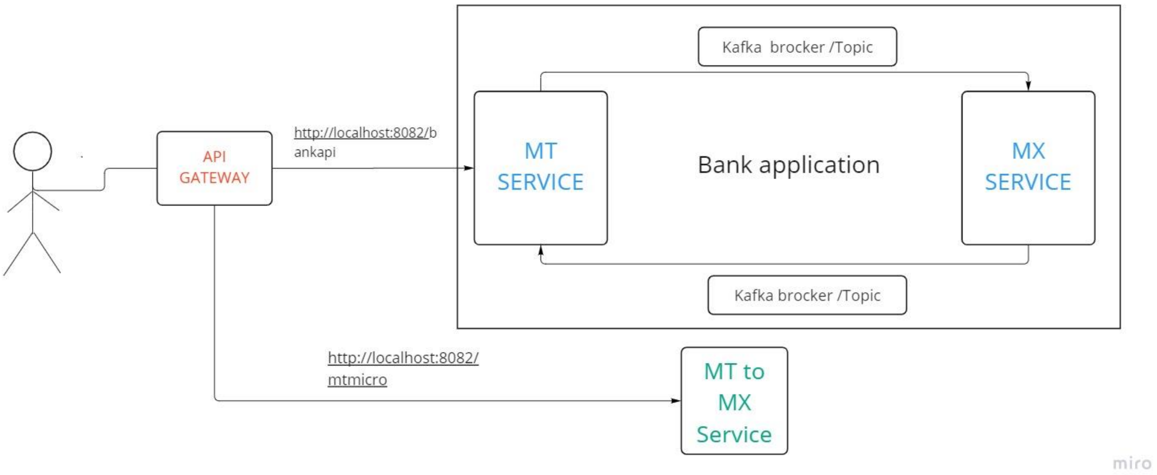
Used Technologies

- Java 8
- Spring boot
- Docker
- Kafka
- Mysql
- Swagger

Used Tools

- Docker Desktop
- Mysql Workbench
- Jmeter
- Spring tool
- Postman

ARCHITECTURE



Project Setup

- Install Java 8
- Set up Kafka Using Docker ,Docker compose file attached in project folder
- Create Kafka topic

  ```
  kafka-topics.sh --create --topic mtmessage --bootstrap-server localhost:9092

  kafka-topics.sh --create --topic mxmessage --bootstrap-server localhost:9092

  ## Listen Kafka Messages

  kafka-console-consumer.sh --topic mtmessage  --from-beginning --bootstrap-server localhost:9092
  kafka-console-consumer.sh --topic mxmessage  --from-beginning --bootstrap-server localhost:9092
  ```

- Install mysql and give password as root (password = root) and create Database mtbank(DB = mtbank)
- Then Run the 4 Spring boot applications using spring or other tools

Hackathon API Request Examples

Make sure all four API are running successfully

1. Create User

   URI = http://localhost:8082/bankapi/usercreate   (post method)

   Json Request body =

   ```
   {
     "accountnumber": "1720364789995555",
     "username": "Ajay"
   }
   ```

2. Create Receivers bank details

   URI = http://localhost:8082/bankapi/addreceiveraccount (post method)

Json Request body =

```
{
  "accountnumber": "11225546165620",
  "bankName": "SBI",
  "ifsccode": "SBIN112445",
  "receivername": "Arshad"
}
```

3. User Deposit

   URI = http://localhost:8082/bankapi/deposit   (put method)
   Json Request body =

```
{
  "accountnumber": "1720364789995555"
}
```

4. Transfer amount :this api take user data and create mt103 then send the mt103 message

   URI = http://localhost:8082/bankapi/transfermessage (post method)

   Json Request body =

```
{

  "accountnumber": "790773028412345",
  "address": "SBI",
  "amount": "100",
  "bankname": "SBI",
  "currency": "INR",
  "receiver": "ENF43332",
  "receiverAccountNo": "9539931867123",
  "refernce": "CRED",
  "sender": "ENFEESS123 }
```

5. User Balance

   URI =http://localhost:8082/bankapi/userbalance (Get Method)

   Json request body:

```
{
  "accountnumber": "1720364789995555"
}
```

6. Receiver Balance

   URI =http://localhost:8082/bankapi/receiverbalance (Get Method)

   Json request body:
   ```
   {
     "accountnumber": "1244"
   }
   ```

7. MT to MX Converter

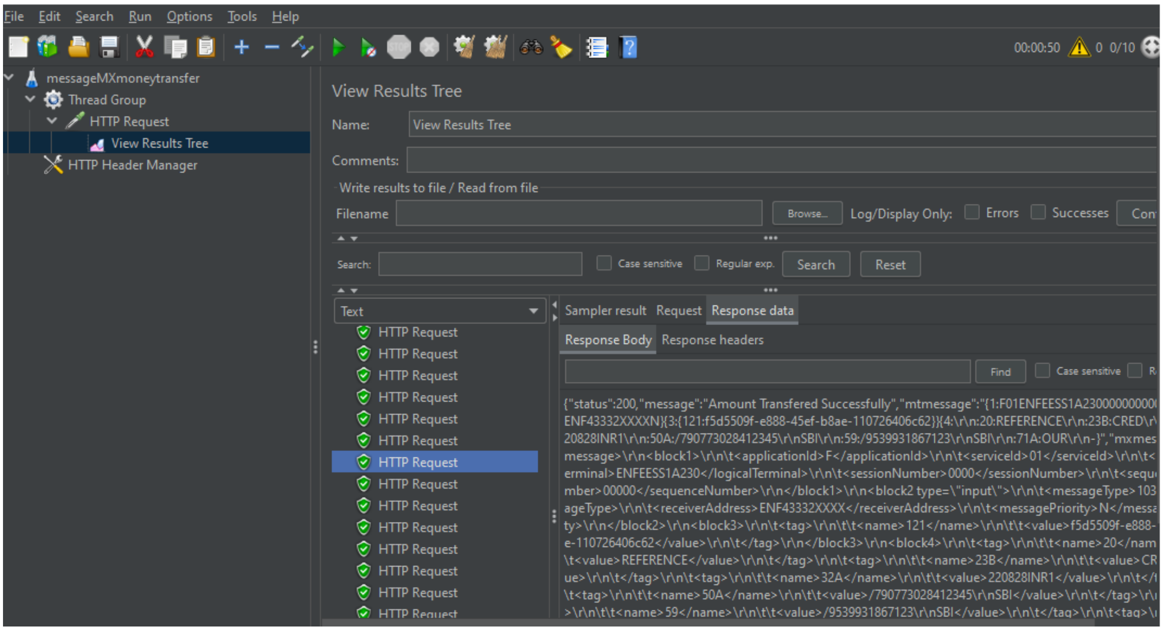
   URI = http://localhost:8082/mtmicro/mttovalue (Get Method)

   Json request body: This message takes from given 103.txt file

```
{
    "message":"{1:F01BICFOOYYAXXX8683497519}{2:O1031535051028ESPBESMMAXXX5423752247
0510281535N}{3:{113:ROMF}{108:0510280182794665}{119:STP}}{4:\r\n:20:006135011308990
8\r\n:13C:/RNCTIME/1534+0000\r\n:23B:CRED\r\n:23E:SDVA\r\n:32A:061028EUR100000,\r\n
:33A:081029EUR120000,\r\n:33B:EUR100000,\r\n:50K:/12345678\r\nAGENTES DE BOLSA FOO
AGENCIA\r\nAV XXXXX 123 BIS 9 PL\r\n12345 BARCELONA\r\n:52A:/2337\r\nFOOAESMMXXX\r\
n:53A:FOOAESMMXXX\r\n:57A:BICFOOYYXXX\r\n:59:/ES0123456789012345671234\r\nFOO AGENT
ES DE BOLSA ASOC\r\n:71A:OUR\r\n:72:/BNF/TRANSF. BCO. FOO\r\n-
}{5:{MAC:88B4F929}{CHK:22EF370A4073}}"
}
```

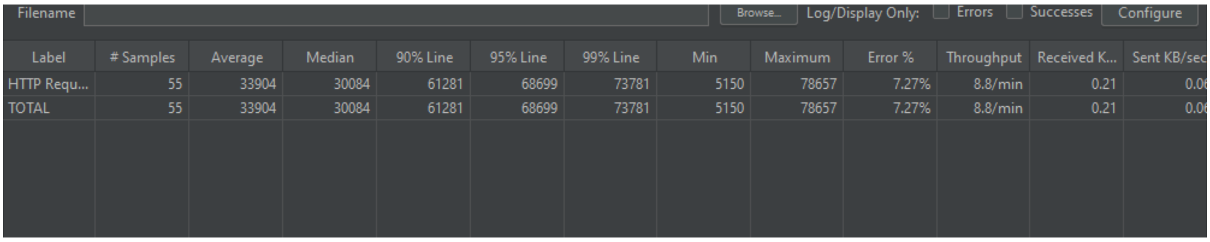
Project Performance

Using JMETER



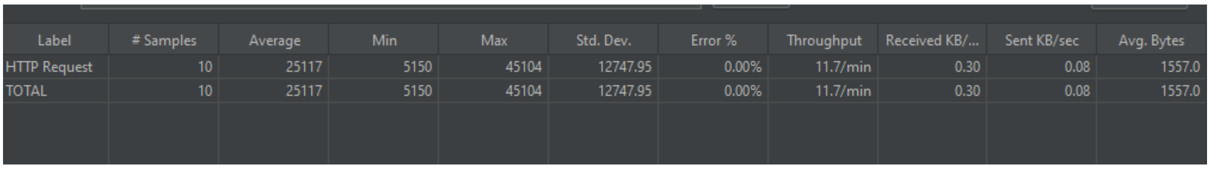
```
{"status":200,"message":"Amount Transfered Successfully","mtmessage":"{1:F01ENFEESS1A23000000000
ENF43332XXXXN}{3:{121:f5d5509f-e888-45ef-b8ae-110726406c62}}{4:\r\n:20:REFERENCE\r\n:23B:CRED\r\
20828INR1\r\n:50A:/790773028412345\r\nSBI\r\n:59:/9539931867123\r\nSBI\r\n:71A:OUR\r\n-}","mxmes
message>\r\n<block1>\r\n\t<applicationId>F</applicationId>\r\n\t<serviceId>01</serviceId>\r\n\t<
erminal>ENFEESS1A230</logicalTerminal>\r\n\t<sessionNumber>0000</sessionNumber>\r\n\t<sequ
mber>00000</sequenceNumber>\r\n</block1>\r\n<block2 type=\"input\">\r\n\t<messageType>103
ageType>\r\n\t<receiverAddress>ENF43332XXXX</receiverAddress>\r\n\t<messagePriority>N</messa
ty>\r\n</block2>\r\n<block3>\r\n\t<tag>\r\n\t\t<name>121</name>\r\n\t\t<value>f5d5509f-e888-
e-110726406c62</value>\r\n\t</tag>\r\n</block3>\r\n<block4>\r\n\t<tag>\r\n\t\t<name>20</nam
\t<value>REFERENCE</value>\r\n\t</tag>\r\n\t<tag>\r\n\t\t<name>23B</name>\r\n\t\t<value>CR
ue>\r\n\t</tag>\r\n\t<tag>\r\n\t\t<name>32A</name>\r\n\t\t<value>220828INR1</value>\r\n\t</
\t<tag>\r\n\t\t<name>50A</name>\r\n\t\t<value>/790773028412345\r\nSBI</value>\r\n\t</tag>\r\
>\r\n\t\t<name>59</name>\r\n\t\t<value>/9539931867123\r\nSBI</value>\r\n\t</tag>\r\n\t<tag>\
```

AGGREGATE REPORT



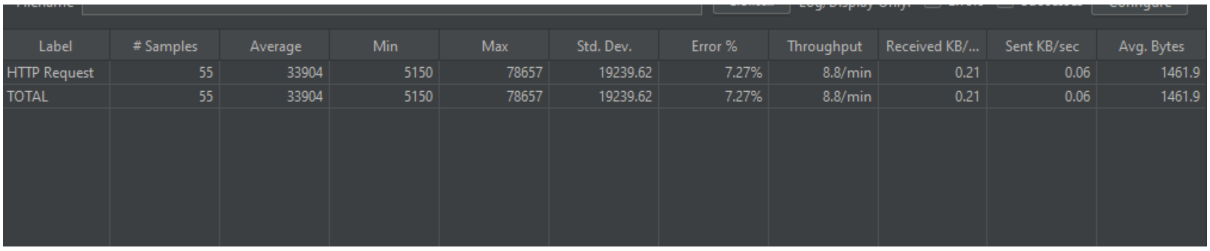
Filename Browse... Log/Display Only: □ Errors □ Successes Configure

Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughput	Received K...	Sent KB/sec
HTTP Requ...	55	33904	30084	61281	68699	73781	5150	78657	7.27%	8.8/min	0.21	0.0
TOTAL	55	33904	30084	61281	68699	73781	5150	78657	7.27%	8.8/min	0.21	0.0



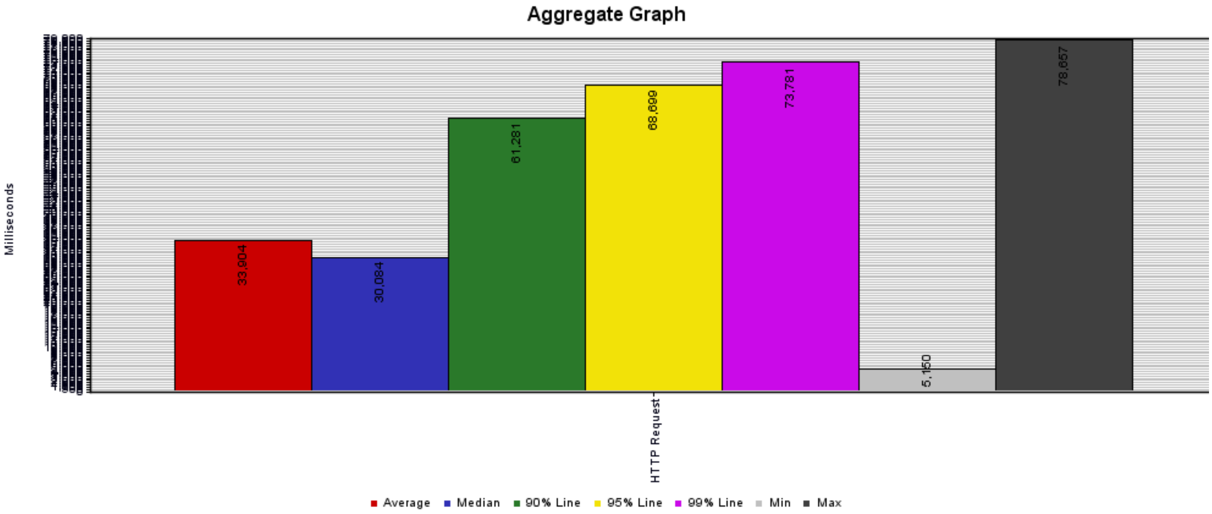
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/...	Sent KB/sec	Avg. Bytes
HTTP Request	10	25117	5150	45104	12747.95	0.00%	11.7/min	0.30	0.08	1557.0
TOTAL	10	25117	5150	45104	12747.95	0.00%	11.7/min	0.30	0.08	1557.0

AGGREGATE Summary



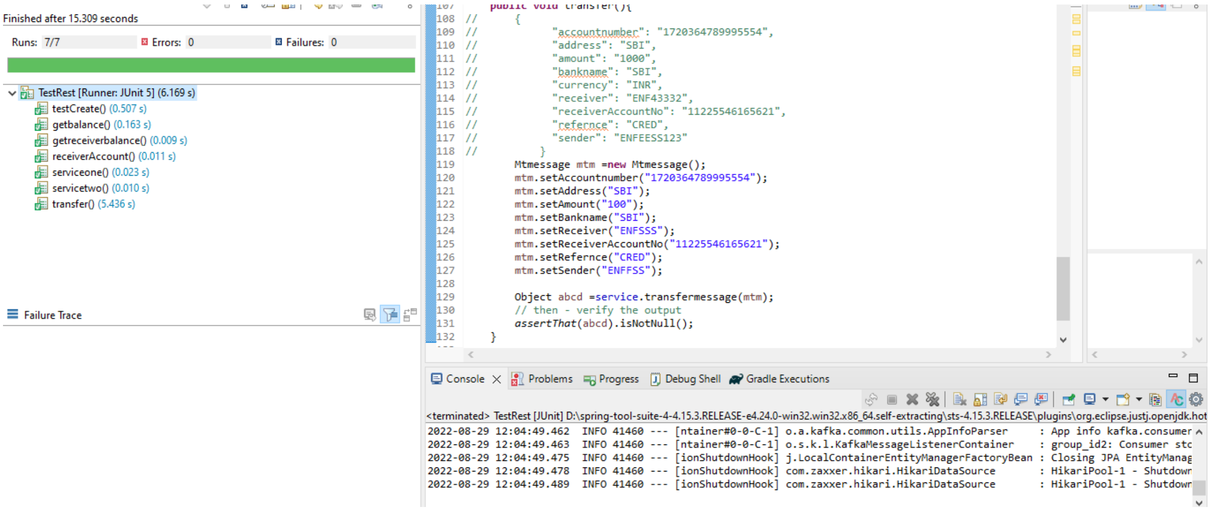
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/...	Sent KB/sec	Avg. Bytes
HTTP Request	55	33904	5150	78657	19239.62	7.27%	8.8/min	0.21	0.06	1461.9
TOTAL	55	33904	5150	78657	19239.62	7.27%	8.8/min	0.21	0.06	1461.9

Graph



JUNIT TESTING

Junit test for 7 modules



Finished after 15.309 seconds

Runs: 7/7 Errors: 0 Failures: 0

- TestRest [Runner: JUnit 5] (6.169 s)
  - testCreate() (0.507 s)
  - getbalance() (0.163 s)
  - getreceiverbalance() (0.009 s)
  - receiverAccount() (0.011 s)
  - serviceone() (0.023 s)
  - servicetwo() (0.010 s)
  - transfer() (5.436 s)

Failure Trace

```
    public void transfer(){
//        {
//              "accountnumber": "1720364789995554",
//              "address": "SBI",
//              "amount": "1000",
//              "bankname": "SBI",
//              "currency": "INR",
//              "receiver": "ENF43332",
//              "receiverAccountNo": "11225546165621",
//              "refernce": "CRED",
//              "sender": "ENFEESS123"
//            }
        Mtmessage mtm =new Mtmessage();
        mtm.setAccountnumber("1720364789995554");
        mtm.setAddress("SBI");
        mtm.setAmount("100");
        mtm.setBankname("SBI");
        mtm.setReceiver("ENFSSS");
        mtm.setReceiverAccountNo("11225546165621");
        mtm.setRefernce("CRED");
        mtm.setSender("ENFFSS");

        Object abcd =service.transfermessage(mtm);
        // then - verify the output
        assertThat(abcd).isNotNull();
    }
```

```
<terminated> TestRest [JUnit] D:\spring-tool-suite-4-4.15.3.RELEASE-e4.24.0-win32.win32.x86_64.self-extracting\sts-4.15.3.RELEASE\plugins\org.eclipse.justj.openjdk.hot
2022-08-29 12:04:49.462  INFO 41460 --- [ntainer#0-0-C-1] o.a.kafka.common.utils.AppInfoParser     : App info kafka.consumer
2022-08-29 12:04:49.463  INFO 41460 --- [ntainer#0-0-C-1] o.s.k.l.KafkaMessageListenerContainer    : group_id2: Consumer stc
2022-08-29 12:04:49.475  INFO 41460 --- [ionShutdownHook] j.LocalContainerEntityManagerFactoryBean : Closing JPA EntityManag
2022-08-29 12:04:49.478  INFO 41460 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Shutdowr
2022-08-29 12:04:49.489  INFO 41460 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Shutdowr
```