

# NEST HACKATHON

ARCHITECTURE AND DESIGN DOCUMENT

**Submitted By**

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## 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.

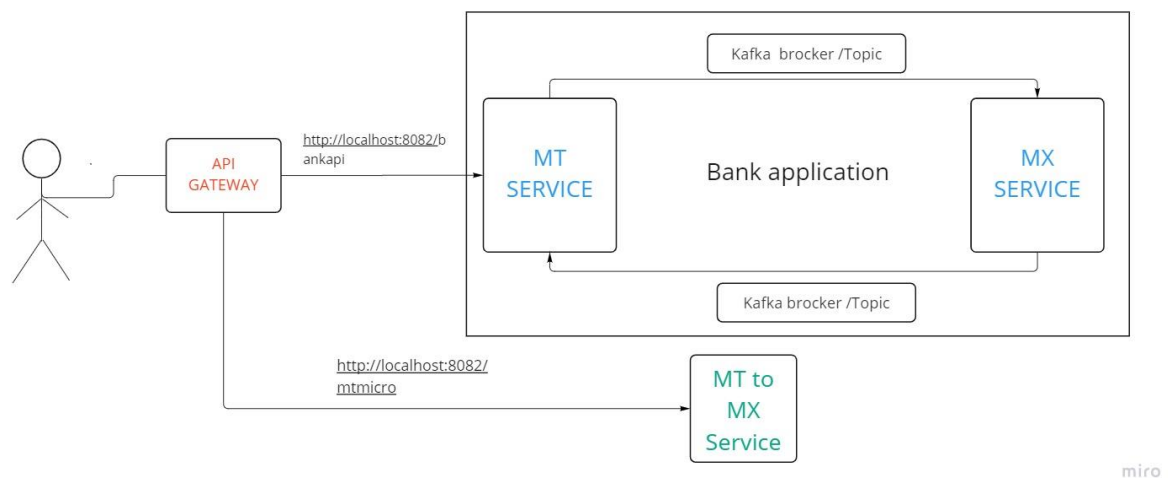
### Used Technologies

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

### Used Tools

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

## ARCHITECTURE AND DESIGN



## API GATEWAY

This Service is provides a flexible way of routing requests based on a number of criteria, as well as focuses on cross-cutting concerns such as security, resiliency, and monitoring. Spring Cloud Gateway aims to provide a simple, yet effective way to route to APIs and provide cross cutting concerns to them such as: security, monitoring/metrics, and resiliency.

Here we used to route the 2 micro services.

## MT Service

This Service is used to convert User request to MT103 messages then This application produce message to a kafka topics(mtmessage).Also listening the kafka topic and Consume the messages and give a response to user .

- Also provide user registration for creating user account.
- Store Receiver account details.
- User Deposit
- Check user balance .

When we create account it is a zero balance account . All transactions are reflected through this given datas.

## MX Service

This service is used to convert MT103 message to MX message .Using kafka consume technology for listening messages then this converted XML message produce to a kafka topics(mx message).

## MT to MX Service .

This service is used to convert MT103 message to MX message Directly .Then give a response to user

## 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
```

```
{
  "SenderAccountnumber": "790773028412345",
  "MTMessage": {
    "1: F01ENFEESS1A230000000000",
    "2: 103ENF43332XXXXN",
    "3: 121:724209c7-6d6e-4a68-becd-6c51bb0997bf",
    "4: \r\n:20:REFERENCE\r\n:23B:CRED\r\n:32A:220829INR1\r\n:50A:/790773028412345\r\nSBI\r\n:59:/9539931867123\r\nSBI\r\n:71A:OUR\r\n-",
    "time": "2022-08-29T09:50:12.369307200Z"
  }
}
```

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

```
{ "MXmessage": "<message>\r\n<block1>\r\n\t<applicationId>F</applicationId>\r\n\t<serviceld>01</serviceld>\r\n\t<logicalTerminal>0000000000</logicalTerminal>\r\n\t</block1>\r\n\t<block2  
type=\"\tinput\">\r\n\t\t<messageType>103</messageType>\r\n\t\t<receiverAddress>N</receiverAddress>\r\n\t\t</block2>\r\n\t\t<blo  
ck3>\r\n\t\t\t<tag>\r\n\t\t\t\t<name>12I</name>\r\n\t\t\t\t<value>6e7e8273-8467-4b0b-8b3a-  
0bc9a1d356a5c</value>\r\n\t\t\t\t</tag>\r\n\t\t\t</block3>\r\n\t\t\t<block4>\r\n\t\t\t\t<tag>\r\n\t\t\t\t\t<name>2O</name>\r\n\t\t\t\t\t<value>REFEREN  
CE</value>\r\n\t\t\t\t\t</tag>\r\n\t\t\t\t\t<tag>\r\n\t\t\t\t\t\t<name>23B</name>\r\n\t\t\t\t\t\t<value>CRED</value>\r\n\t\t\t\t\t\t</tag>\r\n\t\t\t\t\t\t<tag>\r\n\t\t\t\t\t\t\t<  
name>32A</name>\r\n\t\t\t\t\t\t\t<value>220829100</value>\r\n\t\t\t\t\t\t\t</tag>\r\n\t\t\t\t\t\t\t<tag>\r\n\t\t\t\t\t\t\t\t<name>5OA</name>\r\n\t\t\t\t\t\t\t\t<value>/1  
720364789995554\r\n\t\t\t\t\t\t\t\t</tag>\r\n\t\t\t\t\t\t\t\t<tag>\r\n\t\t\t\t\t\t\t\t\t<name>59</name>\r\n\t\t\t\t\t\t\t\t\t<value>/11225546165621\r\n\t\t\t\t\t\t\t\t\t</tag>\r\n\t\t\t\t\t\t\t\t\t<tag>\r\n\t\t\t\t\t\t\t\t\t\t<name>7IA</name>\r\n\t\t\t\t\t\t\t\t\t\t<value>OUR</value>\r\n\t\t\t\t\t\t\t\t\t\t</tag>\r\n\t\t\t\t\t\t\t\t\t</block4>\r\n\t\t\t\t\t\t\t\t</  
message>" }
```

- 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",
  "ifsc": "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/transferrmessage> (post method)

Json Request body =

```
{
  "accountnumber": "790773028412345",
  "address": "SBI",
  "amount": "100",
  "bankname": "SBI",
  "currency": "INR",
  "receiver": "ENF43332",
  "receiverAccountNo": "9539931867123",
  "reference": "CRED",
  "sender": "ENFEES123"
}
```

## Response

```
{
  "status": 200,
  "message": "Amount Transferred Successfully",
  "mtmessage": "{1:F01ENFEESS1A230000000000}{2:I103ENF43332XXXXN}{3:{121:eba1f58e-ad28-429d-b2ba-2576fa8e06fb}}{4:\r\n:20:ENF112344\r\n:23B:CRED\r\n:32A:220830INR1\r\n:50A:/1720364789995558\r\n\r\nSBI\r\n:59:/112255461656148\r\n\r\nSBI\r\n:71A:OUR\r\n:n-}",
  "mxmessage": "<?xml version='1.0' encoding='UTF-8' ?>\n<Document xmlns='urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08'>\r\n  <FIToFICstm\r\nCdtTrf>\r\n    <GrpHdr>\r\n      <MsgId>ENF112344</MsgId>\r\n      <CreDtTm>2022-08-30T17:32:16.773+05:30</CreDtTm>\r\n      <NbOfTx>1</NbOfTx>\r\n      <SttlmInf>\r\n        <SttlmMtd>INDA</SttlmMtd>\r\n        <SttlmAcct>\r\n          <Id>\r\n            <Othr>\r\n              <Id>00010013800002001234</Id>\r\n            </Othr>\r\n          </Id>\r\n        </SttlmAcct>\r\n        </SttlmInf>\r\n        <InstgAgt>\r\n          <FinInstnId>\r\n            <InstgAgt>\r\n              <InstdAgt>\r\n                <FinInstnId>\r\n                  <FinInstnId>\r\n                    </FinInstnId>\r\n                  </InstdAgt>\r\n                </GrpHdr>\r\n                <CdtTrfTxInf>\r\n                  <PmtId>\r\n                    <InstrId>ENF112344</InstrId>\r\n                    <EndToEndId>ENF112344</EndToEndId>\r\n                    <TxId>ENF112344</TxId>\r\n                    </PmtId>\r\n                    <IntrBkSttlmAmt Ccy='INR'>1</IntrBkSttlmAmt>\r\n                    <IntrBkSttlmDt>2022-08-30</IntrBkSttlmDt>\r\n                    <ChrgBr>DEBT</ChrgBr>\r\n                    <Dbtr>\r\n                      <Nm>JOE DOE</Nm>\r\n                      <PstlAdr>\r\n                        <AdrLine>SBI</AdrLine>\r\n                      </PstlAdr>\r\n                      </Dbtr>\r\n                    <DbtrAcct>\r\n                      <Id>\r\n                        <Othr>\r\n                          <Id>1720364789995558</Id>\r\n                        </Othr>\r\n                      </Id>\r\n                    </DbtrAcct>\r\n                    <DbtrAgt>\r\n                      <FinInstnId>\r\n                        <BICFI>FOOENXM</BICFI>\r\n                      </FinInstnId>\r\n                      </DbtrAgt>\r\n                    <CdtrAgt>\r\n                      <FinInstnId>\r\n                        <BICFI>1720364789995558 SBI</BICFI>\r\n                      </FinInstnId>\r\n                      </CdtrAgt>\r\n                    <Cdtr>\r\n                      <Nm>TEST CORP</Nm>\r\n                      <PstlAdr>\r\n                        <AdrLine>LAS SBI</AdrLine>\r\n                      </PstlAdr>\r\n                      </Cdtr>\r\n                    <CdtrAcct>\r\n                      <Id>\r\n                        <Othr>\r\n                          <Id>112255461656148</Id>\r\n                        </Othr>\r\n                      </Id>\r\n                    </CdtrAcct>\r\n                    </CdtTrfTxInf>\r\n                  </FIToFICstmCdtTrf>\r\n                </Document>\n XML : <message>\r\n<block1>\r\n  <applicationId>F</applicationId>\r\n  <serviceId>01</serviceId>\r\n  <logicalTerminal>ENFEESS1A230</logicalTerminal>\r\n  <sessionNumber>0000</sessionNumber>\r\n  <sequenceNumber>00000</sequenceNumber>\r\n</block1>\r\n<block2 type='input'>\r\n  <messageType>103</messageType>\r\n  <receiverAddress>ENF43332XXXX</receiverAddress>\r\n  <messagePriority>N</messagePriority>\r\n</block2>\r\n<block3>\r\n  <tag>\r\n    <name>121</name>\r\n    <value>eba1f58e-ad28-429d-b2ba-2576fa8e06fb</value>\r\n  </tag>\r\n</block3>\r\n<block4>\r\n  <tag>\r\n    <name>20</name>\r\n    <value>ENF112344</value>\r\n  </tag>\r\n  <tag>\r\n    <name>23B</name>\r\n    <value>CRED</value>\r\n  </tag>\r\n  <tag>\r\n    <name>32A</name>\r\n    <value>220830INR1</value>\r\n  </tag>\r\n  <tag>\r\n    <name>50A</name>\r\n    <value>/1720364789995558\r\n\r\nSBI</value>\r\n  </tag>\r\n  <tag>\r\n    <name>59</name>\r\n    <value>/112255461656148\r\n\r\nSBI</value>\r\n  </tag>\r\n  <tag>\r\n    <name>71A</name>\r\n    <value>OUR</value>\r\n  </tag>\r\n</block4>\r\n</message>"
}
```

## 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}{2:01031535051028ESPBESMMAXX5423752247  
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}}"  
}
```

### Response

```
"status": 200,  
  "message": "<message>\r\n<block1>\r\n\t<applicationId>F</applicationId>\r\n\t<serviceId>01  
</serviceId>\r\n\t<logicalTerminal>BICFOOYYAXXX</logicalTerminal>\r\n\t<sessionNumber>8683</se  
ssionNumber>\r\n\t<sequenceNumber>497519</sequenceNumber>\r\n</block1>\r\n<block2 type=\"outpu  
t\">\r\n\t<messageType>103</messageType>\r\n\t<senderInputTime>1535</senderInputTime>\r\n\t<MI  
RDate>051028</MIRDate>\r\n\t<MIRLogicalTerminal>ESPBESMMAXX</MIRLogicalTerminal>\r\n\t<MIRSe  
sionNumber>5423</MIRSessionNumber>\r\n\t<MIRSequenceNumber>752247</MIRSequenceNumber>\r\n\t<re  
ceiverOutputDate>051028</receiverOutputDate>\r\n\t<receiverOutputTime>1535</receiverOutputTime  
>\r\n\t<messagePriority>N</messagePriority>\r\n</block2>\r\n<block3>\r\n\t<tag>\r\n\t\t<name>1
```

13</name>\r\n\t\t<value>ROMF</value>\r\n\t</tag>\r\n\t<tag>\r\n\t\t<name>108</name>\r\n\t\t<value>0510280182794665</value>\r\n\t</tag>\r\n\t<tag>\r\n\t\t<name>119</name>\r\n\t\t<value>STP</value>\r\n\t</tag>\r\n\t</block3>\r\n\t<block4>\r\n\t\t<tag>\r\n\t\t\t<name>20</name>\r\n\t\t\t<value>0061350113089908</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>13C</name>\r\n\t\t\t<value>/RNCTIME/1534+0000</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>23B</name>\r\n\t\t\t<value>CRED</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>23E</name>\r\n\t\t\t<value>SDVA</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>32A</name>\r\n\t\t\t<value>061028EUR100000,</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>33A</name>\r\n\t\t\t<value>081029EUR120000,</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>33B</name>\r\n\t\t\t<value>EUR100000,</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>50K</name>\r\n\t\t\t<value>/12345678\r\nAGENTES DE BOLSA FOO AGENCIA\r\nAV XXXXX 123 BIS 9 PL\r\n12345 BARCELONA</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>52A</name>\r\n\t\t\t<value>/2337\r\nFOOAESMMXXX</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>53A</name>\r\n\t\t\t<value>FOOAESMMXXX</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>57A</name>\r\n\t\t\t<value>BICFOOYXXX</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>59</name>\r\n\t\t\t<value>/ES0123456789012345671234\r\nFOO AGENTES DE BOLSA ASOC</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>71A</name>\r\n\t\t\t<value>OUR</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>72</name>\r\n\t\t\t<value>/BNF/TRANSF. BCO. FOO</value>\r\n\t\t</tag>\r\n\t\t</block4>\r\n\t<block5>\r\n\t\t<tag>\r\n\t\t\t<name>MAC</name>\r\n\t\t\t<value>88B4F929</value>\r\n\t\t</tag>\r\n\t\t<tag>\r\n\t\t\t<name>CHK</name>\r\n\t\t\t<value>22EF370A4073</value>\r\n\t\t</tag>\r\n\t\t</block5>\r\n\t</message>",&p>

"mxMessage": "<?xml version=\"1.0\" encoding=\"UTF-8\" ?>\n<Document xmlns=\"urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08\">\r\n\t<FIToFICstmrCdtTrf>\r\n\t\t<GrpHdr>\r\n\t\t\t<MsgId>0061350113089908</MsgId>\r\n\t\t\t<CreDtTm>2022-08-30T17:34:52.522+05:30</CreDtTm>\r\n\t\t\t<NbOfTx>1</NbOfTx>\r\n\t\t\t<SttlmInf>\r\n\t\t\t\t<SttlmMtd>INDA</SttlmMtd>\r\n\t\t\t\t<SttlmAcct>\r\n\t\t\t\t\t<Id>\r\n\t\t\t\t\t\t<Othr>\r\n\t\t\t\t\t\t\t<Id>00010013800002001234</Id>\r\n\t\t\t\t\t\t</Othr>\r\n\t\t\t\t\t\t</Id>\r\n\t\t\t\t\t</SttlmAcct>\r\n\t\t\t\t\t<SttlmInf>\r\n\t\t\t\t\t\t<InstgAgt>\r\n\t\t\t\t\t\t\t<FinInstnId>\r\n\t\t\t\t\t\t\t\t<BICFI>FOOAESMMXXX</BICFI>\r\n\t\t\t\t\t\t\t\t</FinInstnId>\r\n\t\t\t\t\t\t\t</InstgAgt>\r\n\t\t\t\t\t\t\t<InstdAgt>\r\n\t\t\t\t\t\t\t\t<FinInstnId>\r\n\t\t\t\t\t\t\t\t\t<BICFI>BICFOOYXXX</BICFI>\r\n\t\t\t\t\t\t\t\t\t</FinInstnId>\r\n\t\t\t\t\t\t\t\t</InstdAgt>\r\n\t\t\t\t\t\t\t</GrpHdr>\r\n\t\t\t\t\t\t\t<CdtTrfTxInf>\r\n\t\t\t\t\t\t\t\t<PmtId>\r\n\t\t\t\t\t\t\t\t\t<InstrId>0061350113089908</InstrId>\r\n\t\t\t\t\t\t\t\t\t<EndToEndId>0061350113089908</EndToEndId>\r\n\t\t\t\t\t\t\t\t\t\t<TxId>0061350113089908</TxId>\r\n\t\t\t\t\t\t\t\t\t\t<PmtId>\r\n\t\t\t\t\t\t\t\t\t\t\t<IntrBkSttlmAmt Ccy=\"EUR\">100</IntrBkSttlmAmt>\r\n\t\t\t\t\t\t\t\t\t\t\t<IntrBkSttlmDt>2022-08-30</IntrBkSttlmDt>\r\n\t\t\t\t\t\t\t\t\t\t\t\t<ChrgBr>DEBT</ChrgBr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t<Dbtr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t<Nm>JOE DOE</Nm>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t<PstlAdr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t<AdrLine>BARCELONA</AdrLine>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t</PstlAdr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t</Dbtr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t<DbtrAcct>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<Id>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<Othr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<Id>12345678</Id>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</Othr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</Id>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</DbtrAcct>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t<DbtrAgt>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<FinInstnId>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<BICFI>FOOAESMMXXX</BICFI>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</FinInstnId>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</DbtrAgt>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<CdtrAgt>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<FinInstnId>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<BICFI>BICFOOYXXX</BICFI>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t</FinInstnId>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<Cdtr>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<Nm>TEST CORP</Nm>>\r\n\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t\t<PstlAdr>\r\n\t<AdrLine>LAS ASOC</AdrLine>\r\n\t</PstlAdr>\r\n\t</Cdtr>\r\n\t<CdtrAcct>\r\n\t<Id>\r\n\t<Othr>\r\n\t<Id>ES0123456789012345671234</Id>\r\n\t</Othr>\r\n\t</Id>\r\n\t</CdtrAcct>\r\n\t</CdtrTrfTxInf>\r\n\t</FIToFICstmrCdtTrf>\r\n\t</Document>\n"

}



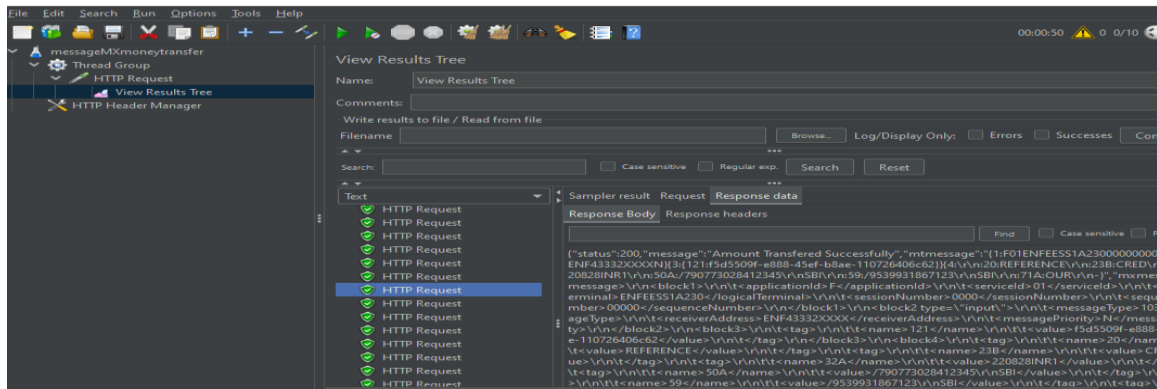
# Project Performance Test

## Using JMETER

Here we give 2 threads and 100 loops in one second ramp period so we get zero Error%.

When we give 10 thread with 50 loops the error percentage is 5% .

Here only showing our major rest api call for Transfer money .



## AGGREGATE REPORT

Aggregate Report													
Name: Aggregate Report													
Comments:													
Write results to file / Read from file													
Filename: Browse...													
Log/Display Only: Errors Successes Configure													
Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughput	Received KB...	Sent KB/sec	
HTTP Reque...	210	11127	10279	10304	10315	41308	5157	51395	0.00%	11.3/min	0.29	0.08	
TOTAL	210	11127	10279	10304	10315	41308	5157	51395	0.00%	11.3/min	0.29	0.08	

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

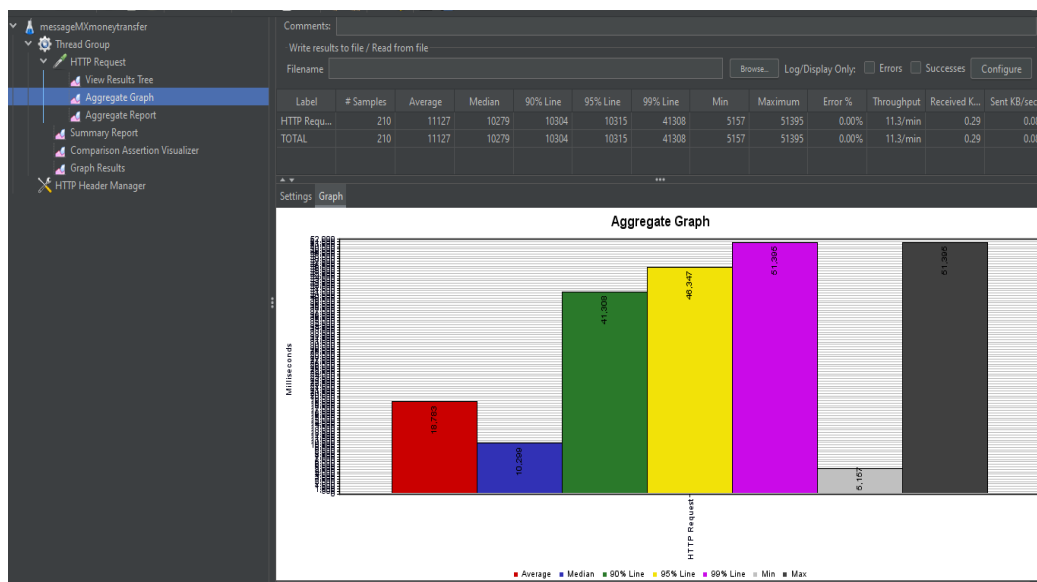
## AGGREGATE Summary

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	210	11127	5157	51395	5055.50	0.00%	11.3/min	0.29	0.08	1551.9
TOTAL	210	11127	5157	51395	5055.50	0.00%	11.3/min	0.29	0.08	1551.9

## AGGREGATE Summary

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received ...	Sent KB/sec	Avg. Bytes
HTTP Request	100	32433	128	81374	20437.87	5.00%	8.5/min	0.21	0.06	1489.3
TOTAL	100	32433	128	81374	20437.87	5.00%	8.5/min	0.21	0.06	1489.3

## AGGREGATE Graph



messageMxmoneytransfer

- Thread Group
  - HTTP Request
    - View Results Tree
    - Aggregate Graph
    - Aggregate Report
    - Summary Report
    - Comparison Assertion Visualizer
    - Graph Results**
  - HTTP Header Manager

### Graph Results

Name:

Comments:

Write results to file / Read from file

Filename:   Log/Display Only: ☒ Errors ☐ Successes

Graphs to Display: ☒ Data ☒ Average ☒ Median ☒ Deviation ☒ Throughput

10933 ms

0 ms

JUnit test for 7 modules

Finished after 13.022 seconds

Runs: 8/8    Errors: 0    Failures: 0

TestRest [Runner: JUnit 5] (6.013 s)

- testCreate() (0.345 s)
- getbalance() (0.170 s)
- getreceiverbalance() (0.010 s)
- receiverAccount() (0.009 s)
- serviceone() (0.019 s)
- servicetwo() (0.009 s)
- transfer() (5.399 s)
- receiverbankService() (0.042 s)

Failure Trace

```

109 //      "accountnumber": "1720364789995554",
110 //      "address": "SBI",
111 //      "amount": "1000",
112 //      "bankname": "SBI",
113 //      "currency": "INR",
114 //      "receiver": "ENF43332",
115 //      "receiverAccountNo": "11225546165621",
116 //      "reference": "CRED",
117 //      "sender": "ENFE55123"
118 //    }
119     Mtmessage mtm =new Mtmessage();
120     mtm.setAccountnumber("1720364789995554");
121     mtm.setAddress("SBI");
122     mtm.setAmount("100");
123     mtm.setBankname("SBI");
124     mtm.setReceiver("ENF555");
125     mtm.setReceiverAccountNo("11225546165621");
126     mtm.setReference("CRED");
127     mtm.setSender("ENFF55");
128
129     Object abcd =service.transfermessage(mtm);
130     // then - verify the output
131     assertThat(abcd).isNotNull();
132 }
133
134 @Test
135 @Order(8)
136 public void receiverbankService() {
137     ReceiverBank p = new ReceiverBank();
138     p.setId(1L);
139     p.setAccountbalance(0);
140     p.setAccountnumber("11111");
141     p.setBankName("sbi");
142     p.setIfscode("sbinss");

```

## SWAGGER IMPLIMENTATION

We use the swagger for the rest control testing and documentation.

**Bank Solution** 1.0.0  
[ Base URL: localhost:8080 / ]  
<http://localhost:8080/v2/api-docs>  
"Transfer money from one Account to Another Account"  
[Anoop P.M. - Website](#)  
[Send email to Anoop P.M](#)  
[Apache License Version 2.0](#)

message-controller Message Controller

POST

/bankapi/addreceiveraccount

Register A Receiver User

PUT

/bankapi/deposit

Deposit to user account

GET

/bankapi/receiverbalance

Register A User

POST

/bankapi/transfermessage

Transfer amount

GET

/bankapi/userbalance

Check user account balance

POST

/bankapi/usercreate

Register A User