DEBT MANAGEMENT SERVICE

OUTLINE:

- Problem Statement
- Challenges
- Technologies
- Diagrams and Explanations
- Future goals
- Demo
- Q & A

PROBLEM STATEMENT:

- Design and implement a service (microservice)
  - Be able to receive a rest service to receive user account records and be able to output to reporting system.
  - Be able to process via File from FTP
  - Be able to output record and upload to SFTP server.

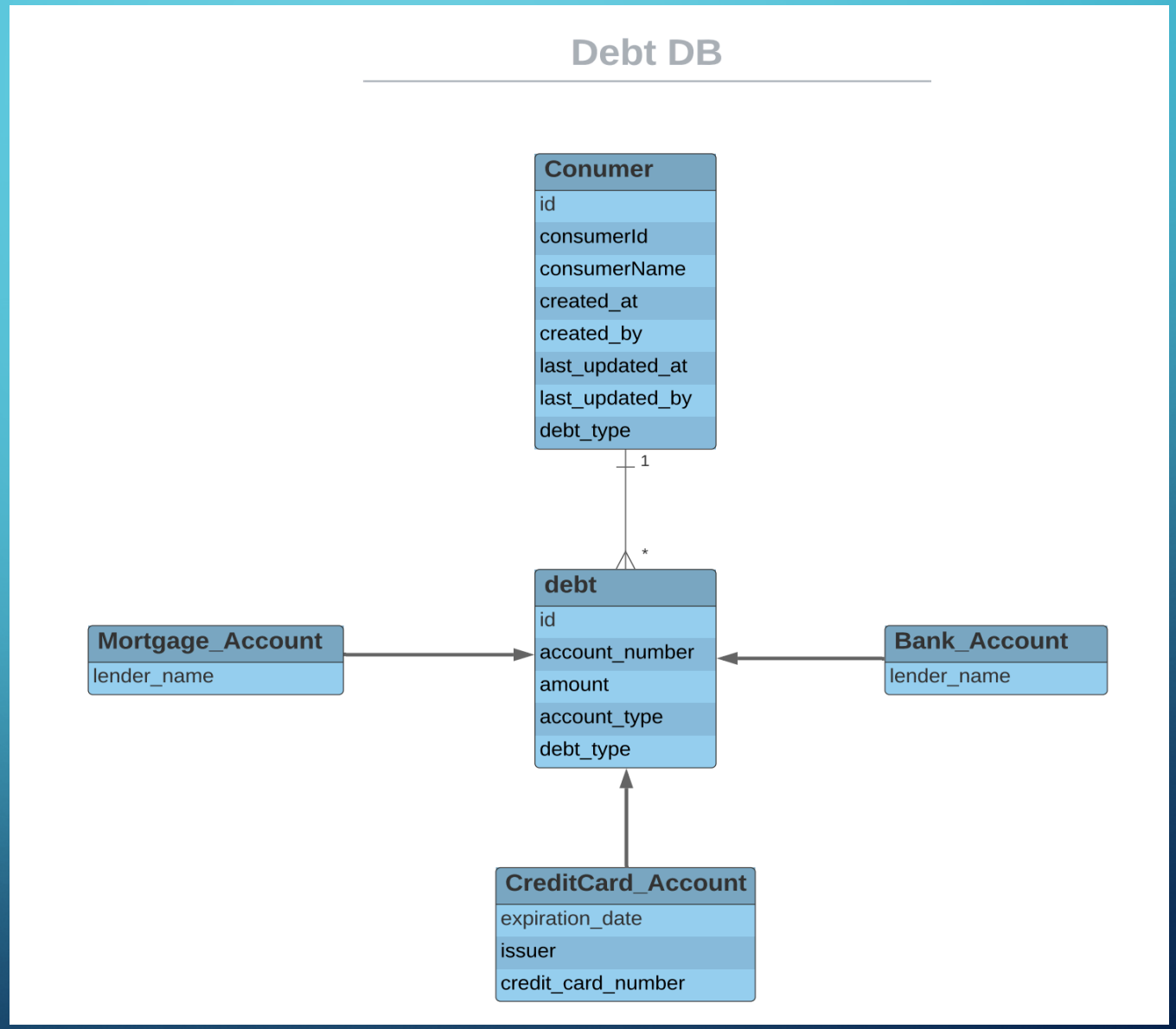
CHALLENGES:

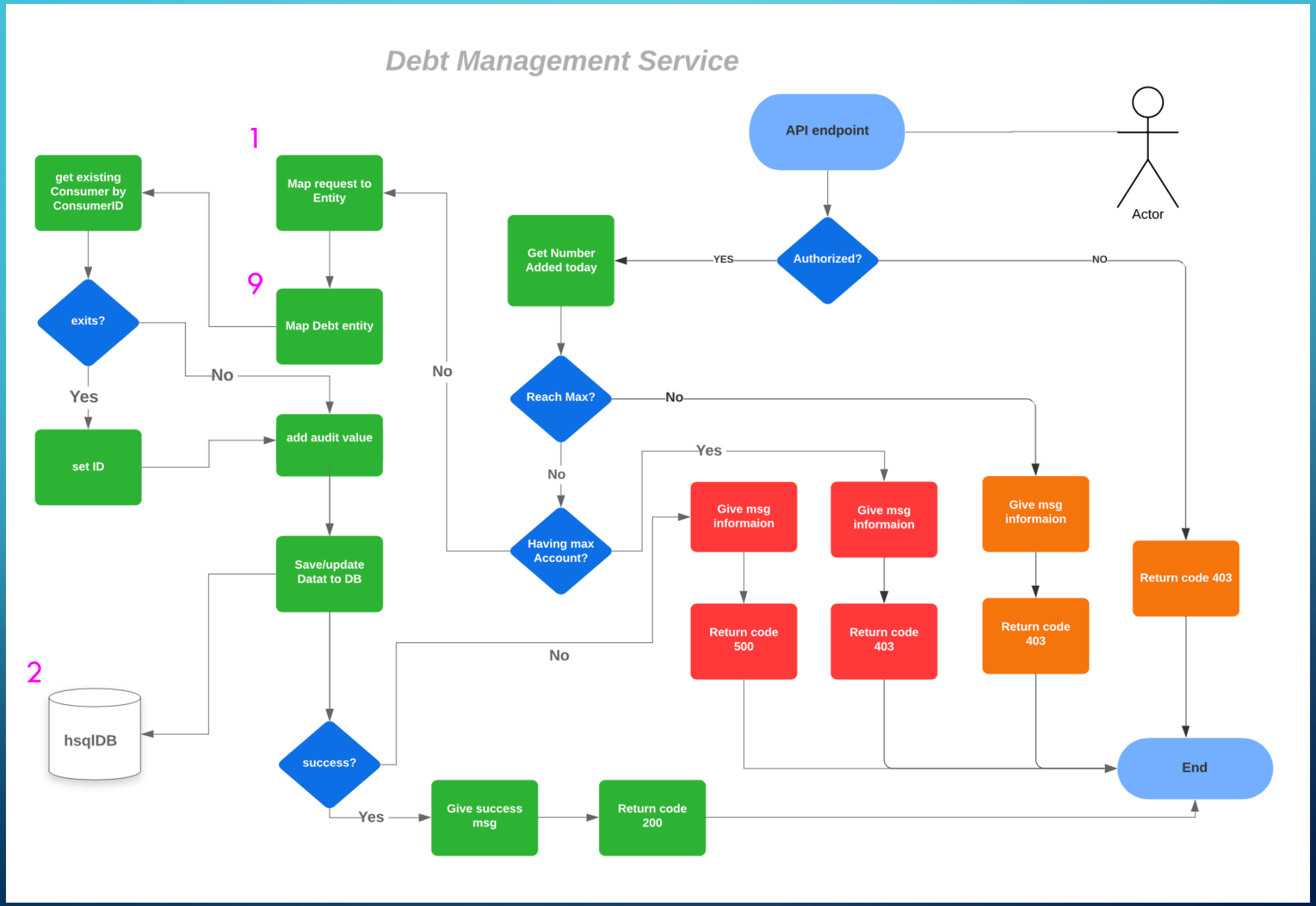
- Structure of records
- Time
- Developing resource

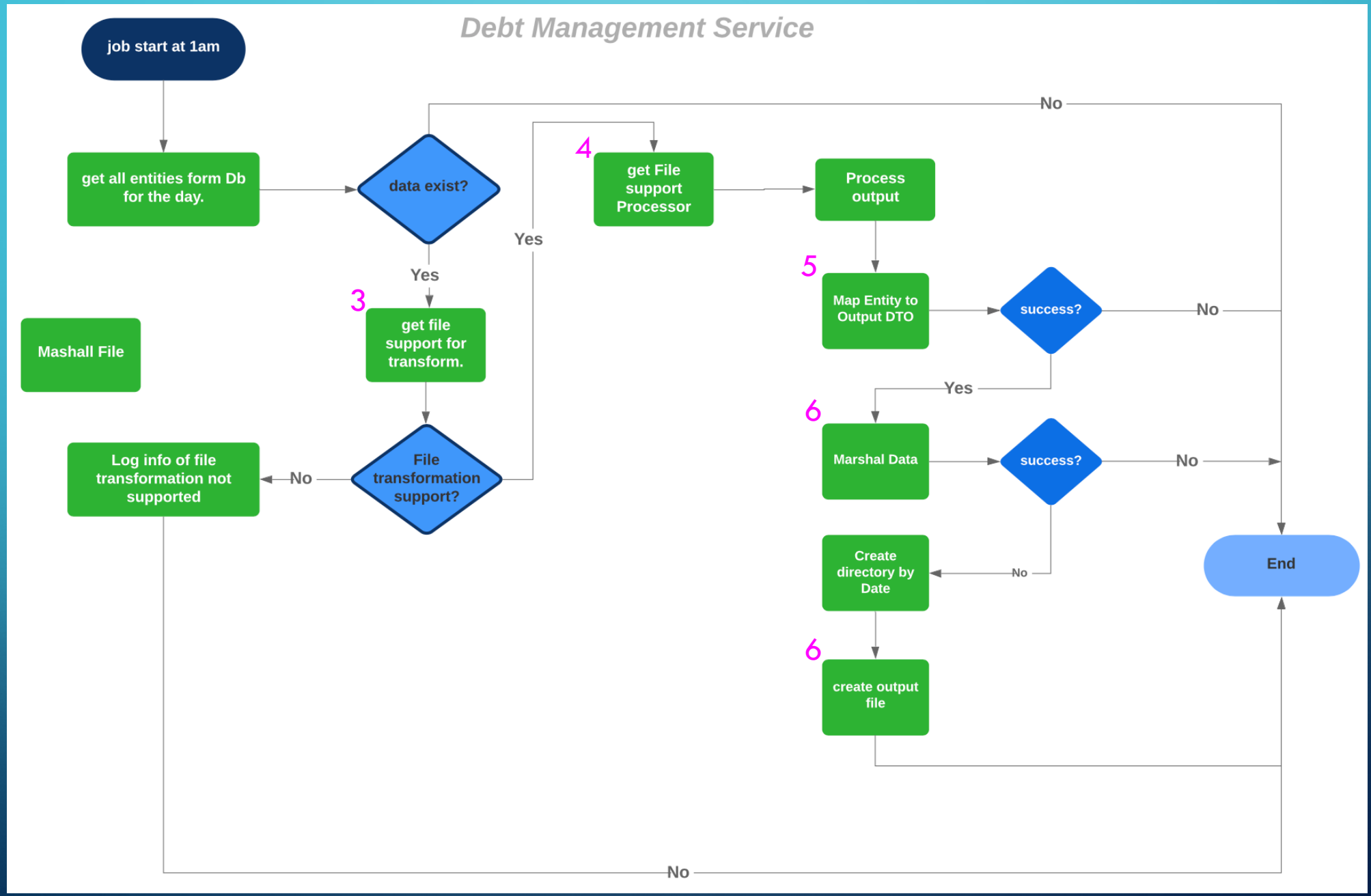
TECHNOLOGIES:

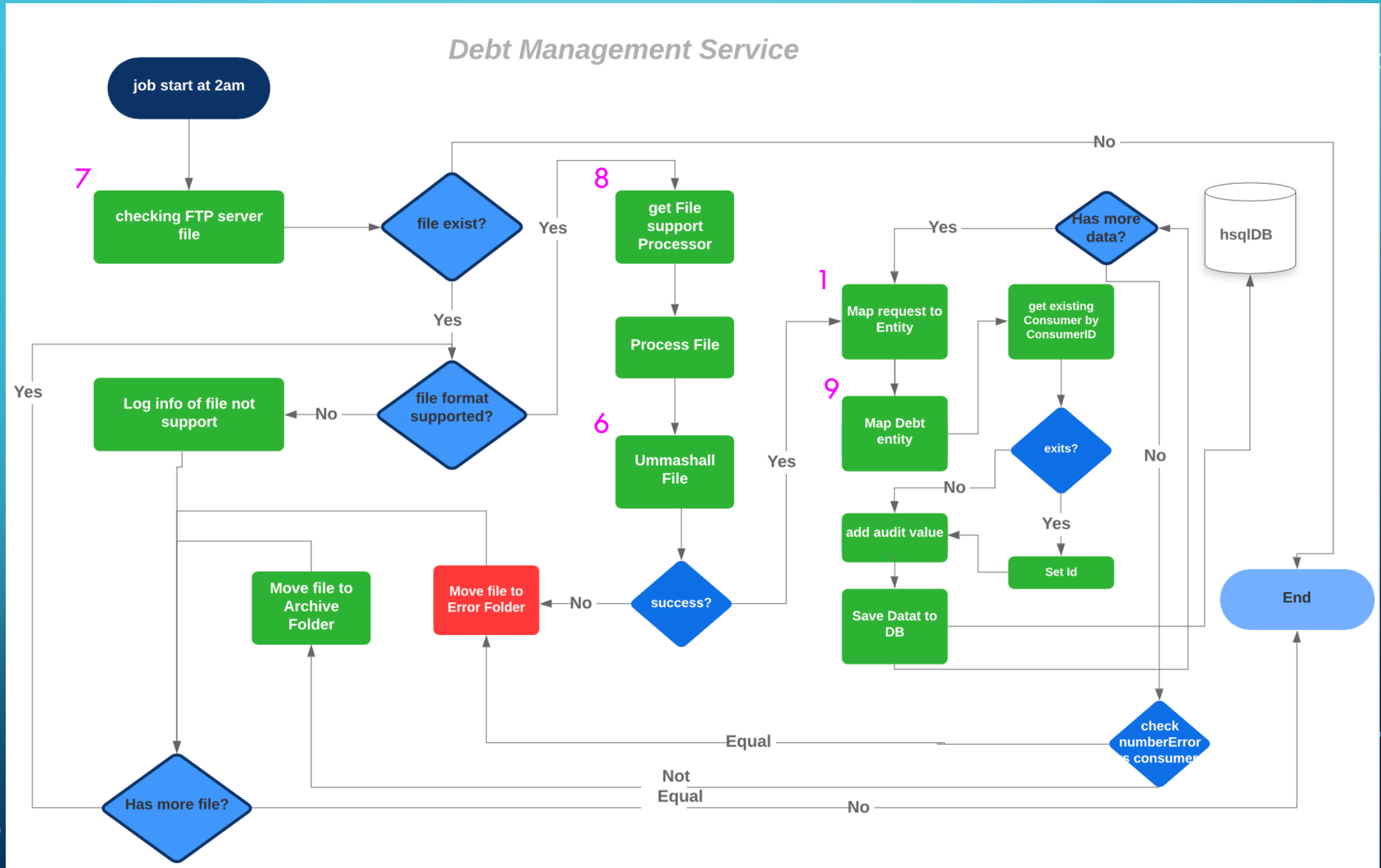
- SpringBoot
- Rest
- Spring-Scheduling
- hsqlDB
- Jaxb
- Orika
- Jsch
- Commont-net
- GoF
- Karate Automation test
- etc...

DIAGRAMS


Debt DB
Conumer
id
consumerId
consumerName
created_at
created_by
last_updated_at
last_updated_by
debt_type
1
*
debt
id
account_number
amount
account_type
debt_type
Mortgage_Account
lender_name
Bank_Account
lender_name
CreditCard_Account
expiration_date
issuer
credit_card_number


Debt Management Service
API endpoint
Actor
Authorized?
YES
NO
Get Number Added today
Reach Max?
No
Yes
No
Having max Account?
Yes
No
Give msg informaion
Give msg informaion
Give msg informaion
Return code 500
Return code 403
Return code 403
Return code 403
End
1
Map request to Entity
9
Map Debt entity
get existing Consumer by ConsumerID
exits?
No
Yes
set ID
add audit value
Save/update Datat to DB
2
hsqlDB
success?
Yes
Give success msg
Return code 200


Debt Management Service
job start at 1am
get all entities form Db for the day.
data exist?
No
Yes
4
get File support Processor
Process output
5
Map Entity to Output DTO
success?
No
Yes
3
get file support for transform.
Mashall File
6
Marshal Data
success?
No
Log info of file transformation not supported
No
File transformation support?
Yes
Create directory by Date
No
End
6
create output file
No


Debt Management Service
job start at 2am
7
checking FTP server file
file exist?
No
Yes
8
get File support Processor
Process File
6
Ummashall File
success?
No
Move file to Error Folder
Move file to Archive Folder
Yes
file format supported?
No
Log info of file not support
Yes
Has more file?
Not Equal
No
Equal
check numberError
Yes
Has more data?
No
hsqlDB
1
Map request to Entity
9
Map Debt entity
get existing Consumer by ConsumerID
exits?
No
Yes
add audit value
Set Id
Save Datat to DB
End

EXPLANATIONS

- Debt DB: As the debt can be BankAccount, CreditCardAccount, MortgageAccount and others(in the future); So, I am in "**debt**" I am using discriminatorColumn to distinguist those types.
- To avoid another join I decided to put all the fields of Description tags from input into "debt" as fields of Description will be dynamic according to Debt Type.

EXPLANATIONS (CONT)

- (1) : For mapping I am using ”Orika” for data Mapping from Entity to DTO and vice versa.
- (2) : Since, I don’t have any Database server installed, I am using hsqlDB which is a memory DB
- (3) , (4) & (8) : I am Strategy Processor, where checking the supported file that is configurable in the properties. In the future, if another file is needed we can always update supported file and created new processor to process the output which is flexible enough.
- (5) : Similar to (1) using “Orika” for data mapping from DTO back to Entity.

EXPLANATIONS (CONT)

- (6) : marshalling and unmashalling according to file support. For now it's XMl so I am using JAXB for transformation. We can use Gson for example for JSON file in the future. After creating file I am using "JSCH" for uploading to SFTP server.
- (7) : Reading files from FTP using "common-net" library.
- (9) : For mapping debt entity to DTO and vice versa, Builder patter to build the DebtType (BankAccount, CreditCardAccount, MortgageAccount) according to according to the DebtType of the data. So, in case there another debt type coming soon we can always easy build that object.

FUTURE GOALS:

- Add more unit tests to cover all the code at least 85% in order to pass the maven build using JACOCO
- Find another better way to to check the type of debt from input (RequestBody as well as input files.)
- Update DB using DB server

DEMO

QUESTION AND ANSWER

&

THANKS FOR YOUR TIME