**Data Analytics Dashboard**

Miten is the manager of the credit monitoring unit of Axis Bank for wholesale banking customers. These are predominantly corporate loan account holders who have to pay interest to the bank on a monthly basis. Miten has automation solution enabled at his end which auto-triggers mails to his unit’s customers before the end of every month on how much interest they will need to pay the bank on month end. The solution sends the mails every month and sends Miten an MIS summarizing the details of mails sent. Refer *loan\_acc\_details\_sample.csv*. Like any automation solution the solution does not work 100%. There are 4 reasons why mails are not sent to customer:

1. Technical glitch (Identifier: processing\_status column as Failure)
2. Valid reason: Principal payment is not due this month (principal\_payment\_due\_date column is empty)
3. Valid reason: Normal interest is zero or customer has no interest due (normal\_interest column is empty or has value zero)
4. Customer data missing: Customer email id is not present in bank system (processing\_status mentions “Cust\_Email\_Is\_Blank”)

It is important for him to identify the cases with failure reason 1 as these cases need to be checked manually and customer emails need to be sent by his unit wherever required. For mail not sent valid reasons 2 and 3, Miten will need the counts of all such cases which will tell him these many customers have paid their interest in advance. Failure reason 4, Miten needs to collate the list and share to his unit so they can get the customer email id updated in system on priority. Take the sample data of ~1000 records shared and store the data file in **MongoDB**. sr\_no and acct\_name together can form the primary key. Using **Java Spring boot microservices** fetch the data from Mongodb table and create a web interface to show data visualizations for below analytics dashboards:

1. Total amount of interest payment to be received from all customers mapped to a specific CBO SRM (column name: cbo\_srm\_id)
2. Total amount of interest payment to be received from all customers mapped to a specific SOL ID (column name: sol\_id)
3. Sol id-wise count (column name: sol\_id) of number of cases marked with failure reason 1 and 4
4. CBO SRM-wise (column name: cbo\_srm\_id) count of number of cases marked with failure reason 1
5. CBO SRM-wise (column name: cbo\_srm\_id) count of number of cases marked with failure reason 4
6. CBO SRM wise list of good customers (mails not sent for valid reason 2 and 3)

(Notes: Sol id- sol\_id is identifier of a bank branch, CBO SRM id- cbo\_srm\_id is employee id of a bank employee belonging to the credit monitoring unit).

Design features to look for in the web UI: Miten should be have a dropdown available on the web page to select each of the 6 above dashboard types and clicking on ‘Generate’ button will generate the visualization you use (visualization could be a bar chart, histogram, pie chart, heat map etc. of something more advanced, upto you but should be meaningful remember you need to use 1 image to depict the count of customers belonging to a list of sols or list of SRMs). Also clicking on ‘Generate’ button should create a download link for a excel file with the list of customers listed that visualization/dashboard. Host this solution locally or using AWS and demo it for project completion. We have only given you a small dataset but understand the goal to use this dashboard for huge datasets. So pls use message queues (**Apache Kafka**) to create a **data pipeline** to connect to MongoDB.

*Ideas for add-ons:* If you have time, try to create 2 good visualization options (selectable in a 2nd dropdown). If possible, add a feature in the web UI for user to update failure cases that have later been processed by credit monitoring unit (mark processing\_status as ‘Done’ in DB).

*Data guide:* acct\_name is the corporate name or customer name but the value is encrypted by us to avoid data leakage. normal\_interest column is the interest amount due from the customer on month end. principal\_payment\_due\_date contains a date if principal payment is due for the customer this month. cbo\_srm\_id is the bank employee id /RM to whom this customer belongs to/is mapped. If you need more data to create better visualizations, pls let us know we will share.