

## Part A

### Data Analysis

Context :

A chit fund has 25 members. Each month they contribute Rs 2000 each. End of the month, the person who bids the lowest for the corpus, gets his bid. The group organizer gets paid a fixed commission of Rs 2500 each month (5% of  $25 \times 2000$ ). It is deducted from the bid winner's corpus. The remaining amount is distributed among all the 25 customers equally. **Enclosed excel has the table with cashflows for each month.**

Task :

- What is the Annualized Return of the person who bids in the last month ?
- What is the Annualized Return of the person who bids in the first month ?
- Write an R/Python script which calculates the annualized return of chit fund participant ?- Show the Return % for each month's bid winner.

Document your assumptions. Note: Please google about how chitfund works, incase if you are not familiar with the mechanism!

## Part B

### SQL TEST:

Background: schema, datatypes, and schema relationships:

Assume any database (MySQL/PostgreSQL/MSSQL), server timezone is IST.

Table Name: Mutual\_Fund\_Transaction\_Table

| Column Name        | Datatype                             |
|--------------------|--------------------------------------|
| Transaction_Id     | Integer                              |
| Customer_id        | Integer                              |
| Transaction_Type   | Enum( 'Purchase','Sale')             |
| NAV Value          | Integer                              |
| No_of_Units        | Integer                              |
| Transaction_Time   | Timestamp                            |
| Transaction_Status | Enum ( 'Success','Failed','Pending') |

Table Name : Customer\_Details

| Column Name        | Datatype              |
|--------------------|-----------------------|
| Customer_Id        | Integer               |
| Customer_Name      | Character Varying     |
| Customer_PAN       | AlphaNumeric          |
| Banned             | Boolean (Banned = 1)  |
| Customer_Join_Time | Timestamp             |
| Gender             | Enum('Male','Female') |

## Problem Statement:

It's common at Kaleidofin to want to know various business metrics about recent transactions. Given the above subset of Kaleidofin's schema, write executable SQL queries to answer the following questions:

1. Find the customer with the highest transaction value as of today.

Consider :

- Transaction\_Status = 'Success'
  - Transaction\_Type = 'Purchase'
  - Transaction\_Value = NAV\_Value \* No\_of\_Units
2. Count of successful transactions in the month of April - 2019
  3. Number of new customers in the month of Jan – 2019, who are not banned as of now and have made more than 4 purchases
  4. First 5 Rows of top paying Male & Female customers

5. Given the Mutal\_Fund\_Transaction\_Table a SQL Query to create a GMV Retention plot. Month Start is the 1st Month of 2019 in which the Customer\_id placed a successful order, GMV-Month 0 is the Sum of order Total of User ids who placed their 1st Order in Month 0. Out of those User ids, GMV-Month 1 is the Sum of order Total of users who placed an order in 1st Month + 1, Then GMV-Month 2 is 1st Month + 2 and so on till GMV-Month\_6 (June-2019).