Analytical SQL Case Study

Background:

Customers has daily or monthly purchasing transaction that we shall be monitoring to get intuition behind each customer behavior to target the customers in the most efficient and proactive way, to keep the revenue stream as is or even increase it by upselling customers. You will be given a dataset for each of the below business questions, and you will be required to answer using SQL Analytical functions you have learnt in the course.

1- You are required to implement a Monetary model for customers behavior for product purchasing and segment each customer according to central limit theory

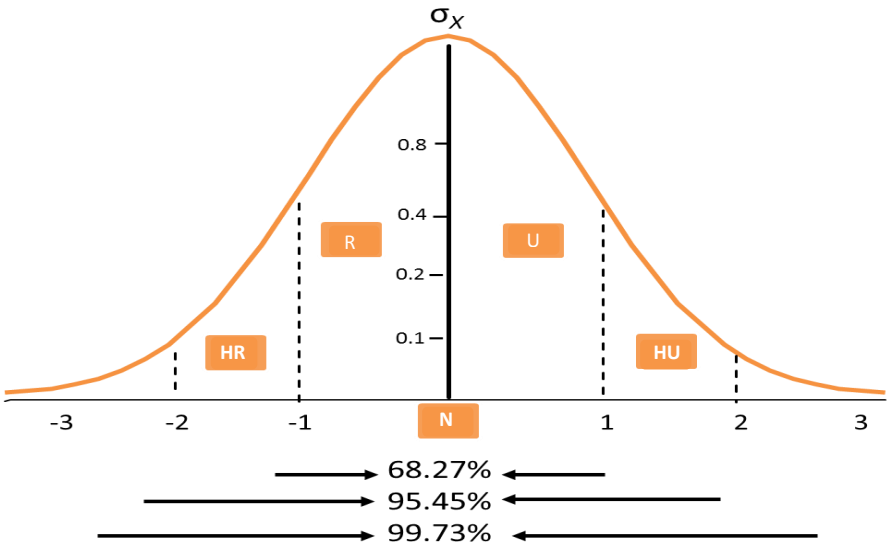
a. High Up-normal
b. Up-normal
c. Normal
d. Risk
e. High Risk

Monitoring_Dt	Cust_Id	Purchase_Dt	Purchase_Amt
3/31/2019	181	1/17/2019	5
3/31/2019	181	1/25/2019	5
3/31/2019	181	2/5/2019	5
3/31/2019	181	3/4/2019	5
3/31/2019	181	3/16/2019	6
3/31/2019	181	3/25/2019	5

You are given a data set as the above,

Using SQL window functions, get the current daily revenue* (the money that the customer is ingesting into our company) in the monitoring date, and compare it with the previous daily revenue that will indicate the customer purchasing behavior to get the segment of the customer (from the above 5 segments).

***Hint:** the daily revenue is the money assumed to be spent daily between a purchasing date and the next one.



Expected Output

Monitoring_Dt	Cust_Id	MVM_Status
3/31/2019	181	[HU]

2- IBRO segments

You are given the below dataset,

you have the customer purchasing behavior below on monthly basis, and a flag to say if the customer purchased in that month or not (YES,NULL).

Cust_Id	Month_Start_Dt	Purchase_Flag
102119	01/2/2019	
102119	01/3/2019	
102119	01/4/2019	YES
102119	01/5/2019	
102119	01/6/2019	
102119	01/7/2019	
102119	01/8/2019	
102119	01/9/2019	
102119	01/10/2019	YES
102119	01/11/2019	
102119	01/12/2019	YES
102119	01/01/2020	YES

You are required to segment the customer according to the below 4 segments in each month,

- **I**nflows (New to product “First time purchase”)
- **B**ase (used last month and used current month)
- **R**eactivation (used before but didn't use previous month)
- **O**utflows (Used before in the prev. months but didn't use the monitored month)

***Hint:** Forward null values filling techniques.

Expected Output

Cust_Id	Month_Start_Dt	Purchase_Flag	IBRO_Segment
102119	01/2/2019		
102119	01/3/2019		
102119	01/4/2019	YES	I
102119	01/5/2019		O
102119	01/6/2019		
102119	01/7/2019		
102119	01/8/2019		
102119	01/9/2019		
102119	01/10/2019	YES	R
102119	01/11/2019		O
102119	01/12/2019	YES	R
102119	01/01/2020	YES	B

3- You are given the below dataset,
Which is the daily purchasing transactions for customers.

Cust_Id	Date	Amount
145272	11/5/2019	1.59
145272	11/6/2019	2.98
145272	11/7/2019	2.19
145272	11/8/2019	8.74
1026223	11/3/2019	2
1026223	11/7/2019	33
1026223	11/8/2019	25.5
1767267	11/1/2019	132.69
1767267	11/2/2019	18.64
1767267	11/3/2019	0.4
1767267	11/4/2019	126.33
1767267	11/6/2019	1.92
1767267	11/7/2019	10.07

You are required to answer two questions:

a- What is the maximum number of consecutive days a customer made purchases to gamify his/her buying habits ?

Expected Output

Cust_Id	Max_Consecutive_Days
145272	4
1026223	2
1767267	4

b- How many days/transactions does it take a customer to reach a spent threshold of 250 L.E (Choose the point of centricity of your choice avg./median/mode and explain why) ?

Individuals/Teams: Individual
Delivery format: File/s (.txt, .sql, .docx) contain your answers written in a well-formatted manner
Delivery date: Thursday, 7-Jan-2021, 9:00PM **Sharp** **"Late deliveries will be discarded"**
Delivery address: nada.fathalla@gmail.com

Good Luck