Takehome assignment (SQL)

Background

Imagine we are receiving data from the POS machine at a retail store everyday.

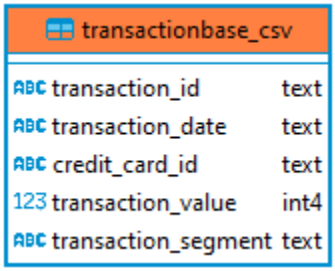
This data has been ingested into our data warehouse so that we can perform analysis and create datamarts to calculate reporting measures.

We are given a task to analyse and gain some insights of the customer purchase data.

Table Schemas

Transactions Data:

1. **Table name:** sys_pos.transactionbase_csv
2. **Description**: This file has transaction information done on credit cards for the year 2016.
3. **Table schema:**

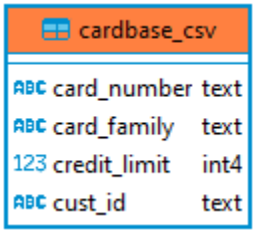


4. **Table Data** (First 5 records):

transaction_id (PK)	transaction_date	credit_card_id	transaction_value	transaction_segment
CTID28830551	24-Apr-16	1629-9566-3285-2123	23,649	SEG25
CTID45504917	11-Feb-16	3697-6001-4909-5350	26,726	SEG16
CTID47312290	1-Nov-16	5864-4475-3659-1440	22,012	SEG14
CTID25637718	28-Jan-16	5991-4421-8476-3804	37,637	SEG17
CTID66743960	17-Mar-16	1893-8853-9900-8478	5,113	SEG14

Credit Cards Data:

1. **Table name:** sys_pos.cardbase_csv
2. **Description**: This table has credit card level information.
3. **Table Schema**:



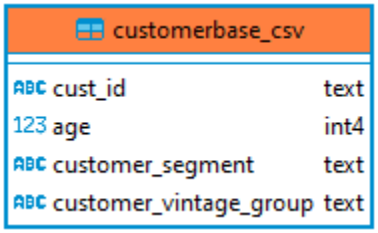
4. **Table Data** (First 5 records)**:**

card_number (PK)	card_family	credit_limit	cust_id
8638-5407-3631-8196	Premium	530,000	CC67088
7106-4239-7093-1515	Gold	18,000	CC12076
6492-5655-8241-3530	Premium	596,000	CC97173
2868-5606-5152-5706	Gold	27,000	CC55858

1438-6906-2509-8219	Platinum	142,000	CC90518

Customer Data:

1. **Table name:** sys_pos.customerbase_csv
2. **Description**: This table has customer information.
3. **Table Schema**:



4. **Table Data** (First 5 records):

cust_id (PK)	age	customer_segment	customer_vintage_group
CC25034	35	Diamond	VG1
CC59625	22	Diamond	VG1
CC69314	33	Diamond	VG1
CC67036	46	Diamond	VG1
CC25597	44	Diamond	VG1

Requirement

- Using the above table definitions answer the below:
  - Write a query to determine total credit card transaction value by *Customer_Segment* for customers between the age group 30 - 40.
  - Write a query to determine top 5 customers who have made the most credit card transaction spend.
  - Write a query to determine list of customers who have spent more than their credit limit before June 2016.
  - Write a query to determine minimum, maximum and average credit card transaction value by *Card_Family*.
  - Write a query to determine total credit card transaction value by month, percentage growth from previous month and Year to date transaction value.
    Note:
    - Year to date (YTD) transaction value = Transaction value between the beginning of the year and the current month.

Instruction

Please follow the below instructions and submit your completed task back to us.

1. Work on the above requirements using SQL and document the queries.
2. Feel free to add any recommendation on how you can improve query performance keeping in mind the above requirements or a data model to answer them efficiently.
3. Once completed, email the documentation file back to us.
4. Come prepared to talk about your code and possible extensions or modifications.

Expectation

1. Documentation specifying the queries to answer the above requirements, and assumptions if any.