**Questions and Answers**

* **Question 01:** Using the customer table or tab, please write an SQL query that shows Title, First Name and Last Name and Date of Birth for each of the customers.

**SELECT Title, First\_Name, Last\_Name, Date\_of\_Birth**

**FROM Customer;**

* **Question 02:** Using customer table or tab, please write an SQL query that shows the number of customers in each customer group (Bronze, Silver & Gold). I can see visually that there are 4 Bronze, 3 Silver and 3 Gold but if there were a million customers how would I do this in Excel?

**SELECT Customer\_Group, COUNT(\*) AS Number\_of\_Customers**

**FROM Customer**

**GROUP BY Customer\_Group;**

* **Question 03:** The CRM manager has asked me to provide a complete list of all data for those customers in the customer table but I need to add the currencycode of each player so she will be able to send the right offer in the right currency. Note that the currencycode does not exist in the customer table but in the account table. Please write the SQL that would facilitate this. **BONUS:** How would I do this in Excel if I had a much larger data set?

**SELECT C.\*, A.CurrencyCode**

**FROM Customer C**

**JOIN Account A ON C.Customer\_ID = A.Customer\_ID;**

**BONUS ANSWER:** In Excel, we could use **VLOOKUP** or **XLOOKUP** to join the tables, searching for the **CurrencyCode** in the Account table and adding it to the Customer table.

* **Question 04:** Now I need to provide a product manager with a summary report that shows, by product and by day how much money has been bet on a particular product. PLEASE note that the transactions are stored in the betting table and there is a product code in that table that is required to be looked up (classid & categortyid) to determine which product family this belongs to. Please write the SQL that would provide the report. **BONUS:** If you imagine that this was a much larger data set in Excel, how would you provide this report in Excel?

**SELECT P.Product\_Name, B.Bet\_Date, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Betting B**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**GROUP BY P.Product\_Name, B.Bet\_Date;**

**BONUS ANSWER**: We can use pivot tables in Excel to summarize bets by product and day.

* **Question 05:** You’ve just provided the report from question 4 to the product manager, now he has emailed me and wants it changed. Can you please amend the summary report so that it only summarizes transactions that occurred on or after 1st November and he only wants to see Sportsbook transactions. Again, please write the SQL below that will do this. **BONUS:** If I were delivering this via Excel, how would I do this?

**SELECT P.Product\_Name, B.Bet\_Date, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Betting B**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**WHERE B.Bet\_Date >= '2023-11-01' AND P.Product\_Type = 'Sportsbook'**

**GROUP BY P.Product\_Name, B.Bet\_Date;**

**BONUS ANSWER:** In Excel, we could filter data by date and product type in a pivot table.

* **Question 06:** As often happens, the product manager has shown his new report to his director and now he also wants different version of this report. This time, he wants the all of the products but split by the currencycode and customergroup of the customer, rather than by day and product. He would also only like transactions that occurred after 1st December. Please write the SQL code that will do this.

**SELECT P.Product\_Name, A.CurrencyCode, C.Customer\_Group, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Betting B**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**JOIN Account A ON B.Account\_ID = A.Account\_ID**

**JOIN Customer C ON A.Customer\_ID = C.Customer\_ID**

**WHERE B.Bet\_Date >= '2023-12-01'**

**GROUP BY P.Product\_Name, A.CurrencyCode, C.Customer\_Group;**

* **Question 07:** Our VIP team have asked to see a report of all players regardless of whether they have done anything in the complete timeframe or not. In our example, it is possible that not all of the players have been active. Please write an SQL query that shows all players Title, First Name and Last Name and a summary of their bet amount for the complete period of November.

**SELECT C.Title, C.First\_Name, C.Last\_Name, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Customer C**

**LEFT JOIN Account A ON C.Customer\_ID = A.Customer\_ID**

**LEFT JOIN Betting B ON A.Account\_ID = B.Account\_ID AND B.Bet\_Date BETWEEN '2023-11-01' AND '2023-11-30'**

**GROUP BY C.Title, C.First\_Name, C.Last\_Name;**

* **Question 08:** Our marketing and CRM teams want to measure the number of players who play more than one product. Can you please write 2 queries, one that shows the number of products per player and another that shows players who play both Sportsbook and Vegas.

**Query 1:** Show the number of products played by each player.

**SELECT C.Customer\_ID, COUNT(DISTINCT B.Product\_Code) AS Number\_of\_Products**

**FROM Customer C**

**JOIN Account A ON C.Customer\_ID = A.Customer\_ID**

**JOIN Betting B ON A.Account\_ID = B.Account\_ID**

**GROUP BY C.Customer\_ID;**

**Query 2:** Show players who play both Sportsbook and Vegas.

**SELECT C.Customer\_ID**

**FROM Customer C**

**JOIN Account A ON C.Customer\_ID = A.Customer\_ID**

**JOIN Betting B ON A.Account\_ID = B.Account\_ID**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**WHERE P.Product\_Type IN ('Sportsbook', 'Vegas')**

**GROUP BY C.Customer\_ID**

**HAVING COUNT(DISTINCT P.Product\_Type) = 2;**

* **Question 09:** Now our CRM team want to look at players who only play one product, please write SQL code that shows the players who only play at sportsbook, use the bet\_amt > 0 as the key. Show each player and the sum of their bets for both products.

**SELECT C.Customer\_ID, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Customer C**

**JOIN Account A ON C.Customer\_ID = A.Customer\_ID**

**JOIN Betting B ON A.Account\_ID = B.Account\_ID**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**WHERE P.Product\_Type = 'Sportsbook' AND B.Bet\_Amount > 0**

**GROUP BY C.Customer\_ID**

**HAVING COUNT(DISTINCT P.Product\_Type) = 1;**

* **Question 10:** The last question requires us to calculate and determine a player’s favorite product. This can be determined by the most money staked. Please write a query that will show each players favorite product.

**WITH Player\_Bets AS (**

**SELECT C.Customer\_ID, P.Product\_Name, SUM(B.Bet\_Amount) AS Total\_Bet\_Amount**

**FROM Customer C**

**JOIN Account A ON C.Customer\_ID = A.Customer\_ID**

**JOIN Betting B ON A.Account\_ID = B.Account\_ID**

**JOIN Product P ON B.Product\_Code = P.Product\_Code**

**GROUP BY C.Customer\_ID, P.Product\_Name**

**)**

**SELECT Customer\_ID, Product\_Name**

**FROM Player\_Bets**

**WHERE (Customer\_ID, Total\_Bet\_Amount) IN (**

**SELECT Customer\_ID, MAX(Total\_Bet\_Amount)**

**FROM Player\_Bets**

**GROUP BY Customer\_ID**

**);**

Looking at the abstract data on the "Student\_School" tab into the Excel spreadsheet, please answer the below questions:

* **Question 11:** Write a query that returns the top 5 students based on GPA.

**SELECT Student\_Name, GPA**

**FROM Student\_School**

**ORDER BY GPA DESC**

**LIMIT 5;**

* **Question 12:** Write a query that returns the number of students in each school. (a school should be in the output even if it has no students!).

**SELECT School\_Name, COUNT(Student\_ID) AS Number\_of\_Students**

**FROM School S**

**LEFT JOIN Student\_School SS ON S.School\_ID = SS.School\_ID**

**GROUP BY S.School\_Name;**

* **Question 13:** Write a query that returns the top 3 GPA students' name from each university.

**WITH Ranked\_Students AS (**

**SELECT SS.Student\_Name, SS.GPA, S.School\_Name,**

**ROW\_NUMBER() OVER (PARTITION BY S.School\_ID ORDER BY SS.GPA DESC) AS Rank**

**FROM Student\_School SS**

**JOIN School S ON SS.School\_ID = S.School\_ID**

**)**

**SELECT Student\_Name, GPA, School\_Name**

**FROM Ranked\_Students**

**WHERE Rank <= 3;**