Case Expressions

ISM 6218

Due on October 8th

The Avengers Team

"We will avenge every problem on our way"

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Business Process Supported

We created a simple **Restaurant** Table which consists of the columns - RestaurantId,

RestaurantName, Restaurant_Rating, Res_location, Res_Type, Monthly_Income,

Established_Year of the different restaurants in the Tampa Location.

Requirements

Create a case expression to evaluate a range of values and produce a summary table.

Case expression should support a user story for producing a report of a query for a question the user wants to answer.
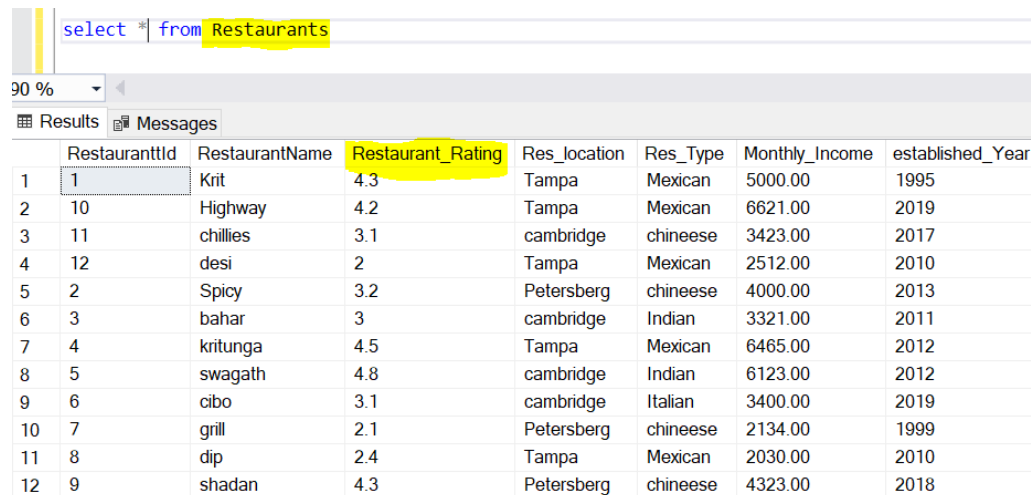
You may want to base this exercise on the Subway Receipt.

User Story:

We want to produce a summary table, which gives information about the number of restaurants in the Tampa location having the food **Rating Category** as Great, Average, Poor using the Case Expression.

We have taken a simple table, which consists of the 12 restaurants data. We have taken the rating information about the restaurant from the Zomato food delivery app. Below is the Restaurant table we have chosen.

The table consists of the **RestaurantId, RestaurantName,** rating column, which is given by the users (on a scale of 1 to 5) from their experience, monthly income in dollars ranging between 2000 $ to 7000 $, restaurant's established year, 4 different types of the style namely Mexican, Italian, Chinese and Indian and Location as shown in below screenshot.

```
select * from Restaurants
```

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Results | Messages

	RestauranttId	RestaurantName	Restaurant_Rating	Res_location	Res_Type	Monthly_Income	established_Year
1	1	Krit	4.3	Tampa	Mexican	5000.00	1995
2	10	Highway	4.2	Tampa	Mexican	6621.00	2019
3	11	chillies	3.1	cambridge	chineese	3423.00	2017
4	12	desi	2	Tampa	Mexican	2512.00	2010
5	2	Spicy	3.2	Petersberg	chineese	4000.00	2013
6	3	bahar	3	cambridge	Indian	3321.00	2011
7	4	kritunga	4.5	Tampa	Mexican	6465.00	2012
8	5	swagath	4.8	cambridge	Indian	6123.00	2012
9	6	cibo	3.1	cambridge	Italian	3400.00	2019
10	7	grill	2.1	Petersberg	chineese	2134.00	1999
11	8	dip	2.4	Tampa	Mexican	2030.00	2010
12	9	shadan	4.3	Petersberg	chineese	4323.00	2018

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Multiple Conditions in CASE Statement:

Now, we have be used the Case expression to evaluate multiple condition i.e. created a **[Rating Category]** column depending on the **Restaurant_Rating**.

We have set the value of the Rating Category to "**Great**" if the Restaurant Rating is between 4 to 5, to "**Average**", if the Restaurant rating is between 3 to 4 and if the restaurant rating is below 3 then Rating Category column is set to be "**Poor**" as shown in below snapshot.

```sql
Select RestaurantName,Restaurant_Rating,
  CASE
 WHEN Restaurant_Rating >=4 AND Restaurant_Rating <=5 THEN 'Great'
 WHEN Restaurant_Rating >=3 AND Restaurant_Rating <4 THEN 'Average'
 Else 'Poor'
END AS [Rating Category]
 from Restaurants;
```

90 %

⊞ Results ⊠ Messages

	RestaurantName	Restaurant_Rating	Rating Category
1	Krit	4.3	Great
2	Highway	4.2	Great
3	chillies	3.1	Average
4	desi	2	Poor
5	Spicy	3.2	Average
6	bahar	3	Average
7	kritunga	4.5	Great
8	swagath	4.8	Great
9	cibo	3.1	Average
10	grill	2.1	Poor
11	dip	2.4	Poor
12	shadan	4.3	Great

In the above query, if we see for the Kritunga restaurant,the Restaurant Rating is 4.5 which is above 4, so it falls in to the 'Great' Rating Category for the Restaurants in Tampa Area. Similiarly, we can explain about the other resaturants. To conclude, we have produced a new column 'Rating Category' based on the 'Restaurant rating' range of values.
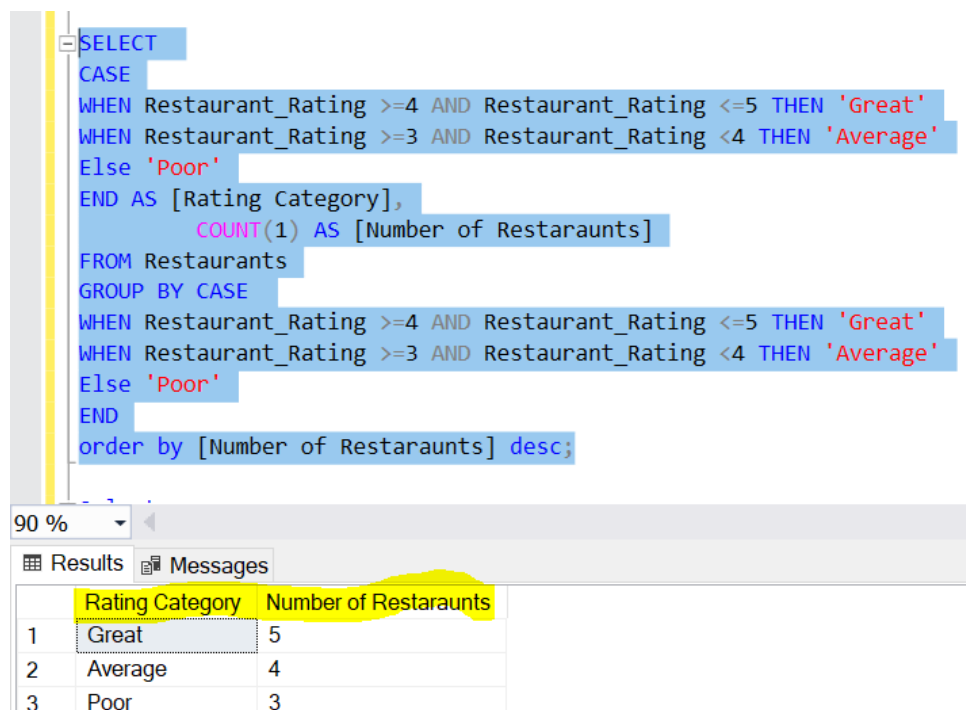
User's Summary table:

In this particular example, we decided to create 2 user stories so as to practice and experiment more.

User story #1:

Now, we want to get the number of restaurants in the Tampa location having the Rating Category as Great, Average, Poor.

So, we have used SQL Server CASE statement to set the value of the Rating Category column to 'Great', 'Average', 'Poor'. Inside the GROUP BY clause, we specified the corresponding Count to be increased by 1, whenever it encounters the respective 'Restaurant Rating' column value. So, we have used the **Count()** aggregate function to return the number of restaurants having the Rating category as Great, Average and Poor as shown in below screenshot

```sql
SELECT
CASE
WHEN Restaurant_Rating >=4 AND Restaurant_Rating <=5 THEN 'Great'
WHEN Restaurant_Rating >=3 AND Restaurant_Rating <4 THEN 'Average'
Else 'Poor'
END AS [Rating Category],
        COUNT(1) AS [Number of Restaraunts]
FROM Restaurants
GROUP BY CASE
WHEN Restaurant_Rating >=4 AND Restaurant_Rating <=5 THEN 'Great'
WHEN Restaurant_Rating >=3 AND Restaurant_Rating <4 THEN 'Average'
Else 'Poor'
END
order by [Number of Restaraunts] desc;
```
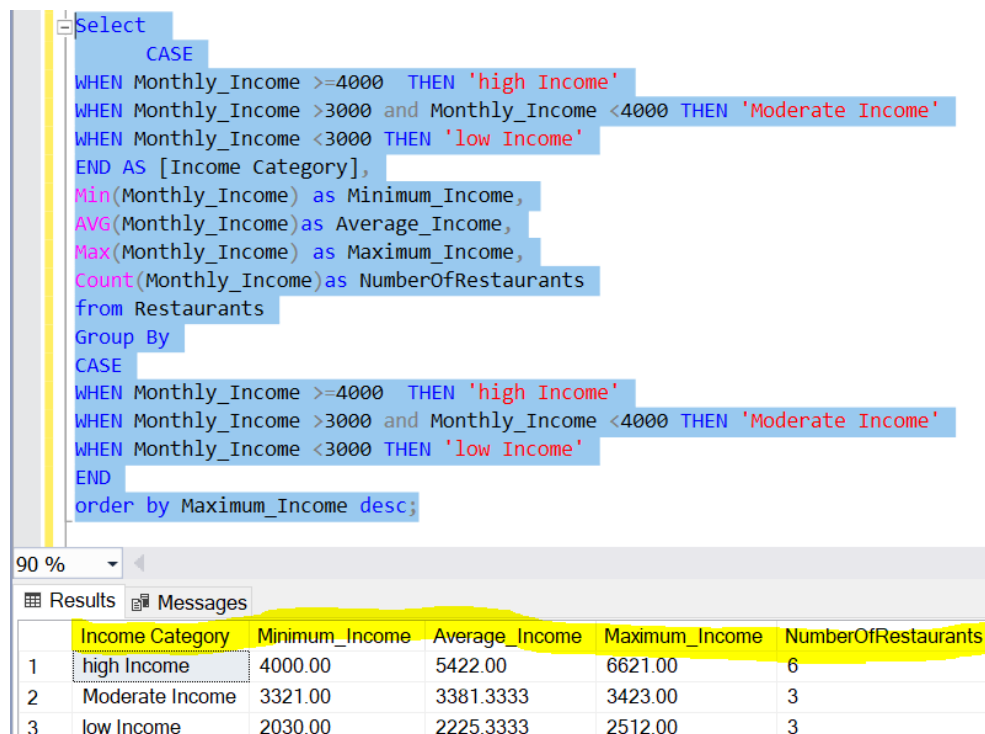
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⊞ Results ⊞ Messages

	Rating Category	Number of Restaraunts
1	Great	5
2	Average	4
3	Poor	3

To conclude, the number of restaurants in Tampa location having the 'Rating Category' as Great is '5', while the Average Rating Category is '4' and Poor Category is '3'.

User Story #2 - Financial Information of Restaurants:

To evaluate the Financial information of the Restaurants using the monthly income of the restaurants.

In the below script, we have used the Case statement to group Restaurants based on their Monthly income. We calculated the minimum, maximum, Average income for a range i.e. above 4000$ as 'High Income', between 3000 and 4000 as 'Moderate Income' ones and below 3000 as 'low Income' restaurants using the **Max(), Min(),Avg()** aggregate functions. Also, we calculated the number of restaurants having the corresponding Income Category using the Count() function which can be seen in below screenshot.

```sql
Select
        CASE
WHEN Monthly_Income >=4000  THEN 'high Income'
WHEN Monthly_Income >3000 and Monthly_Income <4000 THEN 'Moderate Income'
WHEN Monthly_Income <3000 THEN 'low Income'
END AS [Income Category],
Min(Monthly_Income) as Minimum_Income,
AVG(Monthly_Income)as Average_Income,
Max(Monthly_Income) as Maximum_Income,
Count(Monthly_Income)as NumberOfRestaurants
from Restaurants
Group By
CASE
WHEN Monthly_Income >=4000  THEN 'high Income'
WHEN Monthly_Income >3000 and Monthly_Income <4000 THEN 'Moderate Income'
WHEN Monthly_Income <3000 THEN 'low Income'
END
order by Maximum_Income desc;
```

90 %

Results | Messages

	Income Category	Minimum_Income	Average_Income	Maximum_Income	NumberOfRestaurants
1	high Income	4000.00	5422.00	6621.00	6
2	Moderate Income	3321.00	3381.3333	3423.00	3
3	low Income	2030.00	2225.3333	2512.00	3

In the above query, For 'High income' Category - Minimum, Average and maximum income is 4000 $, 5422$, 6621$ respectively. In similar way, we can interpret for Moderate and Low income category. Also, in Tampa region we have 6 restaurants that have 'high income', while 3 restaurants have 'moderate income' and another 3 restaurants all in to 'low income' category.