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Question 5[50 marks]Practical

Complete the tasks in this section using Power BI. It is your responsibility to ensure that your work is saved periodically. No extra time will be given due to loss of your work.

Question 6.1[3]

Open Power BI Desktop and connect the Comma Separated Values (CSV) file called "VAT Rates.csv"[1]

- Display a preview of the data which the file contains.[1]
- Check if column headings and datatypes have been recognized.
- If the column headings and data types are not recognized, you will need to make the necessary transformations to prepare your data for analysis.
- Change the data type of CategoryID to Whole Number field, VAT to Percentage as shown below.[1]

123 CategoryID	ABC Classification	% VAT
1	1 Consumer Products	10.00%
2	2 Luxury Goods	15.00%
3	3 Consumer Products	10.00%
4	4 Basic Commodities	0.00%
5	5 Basic Commodities	0.00%
6	6 Consumer Products	10.00%
7	7 Basic Commodities	0.00%
8	8 Consumer Products	10.00%

Apply your changes

Question 6.2 [3]
Connect to the Excel file named "Employee Expenses.xlsx"[1]
- Select the table named Expenses_Table.

- Check if column headings and datatypes have been recognised.
- If the column headings and data types are not recognized, you will need to make the necessary transformations to prepare your data for analysis.
- Change the data type of Amount to Fixed Decimal Number.[1]
- Rename the query to Expenses.[1]

Question 6.3[16]
Launch SQL Server Management Studio (SSMS) and connect to your SQL Server instance. If you do not already have the Northwind database, please open the file named "NorthwindScript.sql" located in your test folder and execute the script. The script creates the Northwind database and all underlying objects.[2]

After the script has executed successfully, you may close SSMS, but take note of the server name containing your database.
Use Power BI Desktop to connect to your SQL server instance.[2]
Use the import option to load the following four (4) views in the database, into power BI.
Use Full Hierarchy.[2]
  o DimProducts
  o DimEmployees
  o DimCustomers
  o FactOrders

In the FactOrders table change the data type of AmountPaid to Fixed Decimal Number.[1]
Use DAX to create a new table **"DateTable"** and add the following columns:
  1. **Date:** (Date values spanning from the first day of the year of the earliest order date in the FactOrders table to the Last day of the year of the latest order date)[2]
  2. **Year** (extracts the year from the "Date" column in your DateTable.)[1]
  3. **Quarter:** (represents the quarter of the year for each date in the "Date" column) [1]
  4. **MonthNumber** (represents the numeric month for each date in the "Date" column) [1]

5. **Month:** (represents the full name of the month for each date in the "Date" column. Eg "January","February","March" etc)[1]
6. **DayOfWeek:** (represents the full name of the day of the week. Eg. "Monday", "Tuesday", etc) [1]

Ensure this table is a date table.[1]

Enhance your data Model by linking the DateTable to the main FactOrders table using the Date field. [1]

Please Snip and paste in word the data model that has been generated.

Question 6.4[9]

Connect the following Web data source https://www.currency-converter.org.uk/currency-exchange-rates.html to get the currency exchange rate information. [3]

• Load into Power BI, the table called "foreign currency exchange rates today...". The table contains exchange rates for converting a number of different currencies into six major currencies: GBP, EUR, USD, AUD, NZD and CAD.

• Remove columns the first two columns[1]

• Headers are included in First Row [1]

• Ensure invalid Row are removed.[1]

• Ensure we have valid decimal values for all numeric columns.[1]

• We are interested in South African Rand conversions only. Filter out all currencies in ISO column except "ZAR" only. [1]

ABC ISO	ABC GBP	ABC EUR	ABC USD	ABC AUD	ABC NZD
ZAR	0.043	0.05	0.054	0.082	0.09

• Rename the query: "Exchange Rates Today" [1]

Question 6.4[4]

While in Power Query Editor, select the Expenses query.

• Create a new column named "ISO", and make sure that the new column has the word "ZAR" in every row and apply your changes[2]

• In Model tab, check if all relationships between Expenses and Rates Today have been detected correctly.

- Add a calculated column "**ZAR Amount**" in the Expenses query using the following DAX formula:
- **ZAR Amount = ('Expenses'[Amount] * (1 + RELATED('VAT Rates'[VAT]) / 100)) / RELATED('Exchange Rates Today'[USD])** [2]

This column converts all expenses amounts from US$ to Rands. Please make sure the currency Sign is "R" for Rand.

Sample

EmployeeID	Branch	Date Claimed	Amount	Category	ISO	ZAR Amount
8	London	Tuesday, June 26, 2012	$28.71	Online expenses	ZAR	R503.68
8	London	Friday, March 2, 2012	$298.64	Travel	ZAR	R5,239.30
8	London	Sunday, January 15, 2012	$132.84	Accommodation	ZAR	R2,330.53
8	London	Sunday, January 5, 2014	$235.13	Accommodation	ZAR	R4,125.09
8	London	Monday, April 27, 2015	$21.58	Bank charges	ZAR	R378.60
8	London	Wednesday, July 29, 2015	$50.4	Office equipment	ZAR	R884.21
8	London	Thursday, December 26, 2013	$27.64	Vehicle mileage	ZAR	R484.91
8	London	Saturday, July 12, 2014	$170.98	Miscellaneous	ZAR	R2,999.65
8	London	Thursday, September 13, 2012	$28.51	Miscellaneous	ZAR	R500.18

Question 6.5[15]
Your data model is now complete and you will proceed to create visualizations.
• Add a Text Box named Northwind Traders Financial Report and change the Text Size to 18 pt and Font family to Segoe UI Bold. [1]
• Create the Slicer, Pie Chart, Stacked Column Chart, Table and Treemap visuals as shown below.
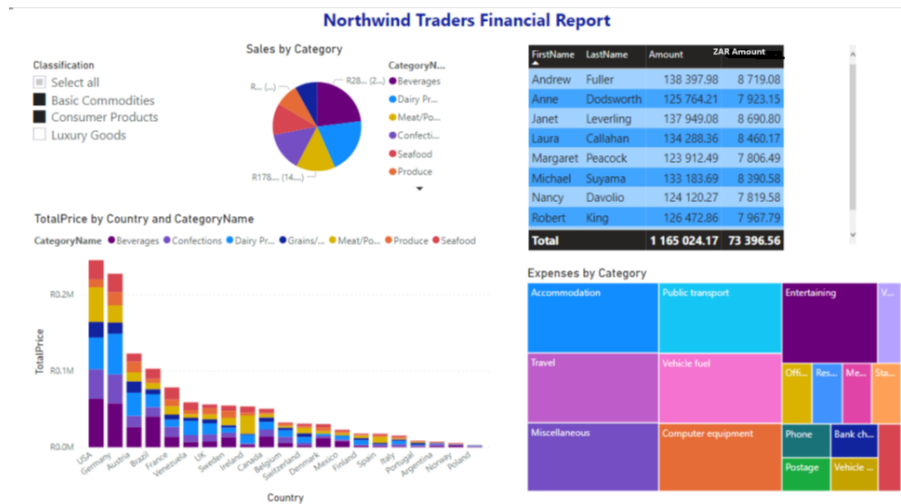
- The Slicer visual shows the product classifications from the Vat Rates query.
- Enable Multiple Selection and "Select All" using Format options. [2]
- Change font sizes as necessary to improve the readability of text. [1]
- The Pie Chart visual uses the CategoryName from the DimProducts as the Legend and and TotalPrice from FactOrders as the Values. [2]
- Rename the title using Format options. [1]
- The Stacked Column Chart visual uses Country from DimCustomers as Axis, CategoryName from the DimProducts as the Legend and and TotalPrice from FactOrders as the Values. [2]
- The Table visual uses FirstName and LastName from DimEmployees, and Amount and ZAR Amount from Expenses as values. [2]
- Change font sizes as necessary to improve the readability of text. [1]
- The Treemap visual uses Category as Group and Amount as Values. Both are in the Expenses query. [2]
- Rename the title using Format options. [1]
- Save the Power BI project in the format StudentName_Traders_ST.pbix and upload it on AssessmentQ.