Graphical user interface

Description automatically generated

Transformation, M coding and DAX (10 Marks)

**Part 1:** Power BI Transformation and M-Code

1. Capture the current datatime in Power Query using Power BI M-Code.

A picture containing table

Description automatically generated

1. Create ID1, ID2, and ID3 columns against Full Name as shown in the table below and populate the required value in Power Query using M-Code.
   1. ID1: Value starts from 0 and increments by 1.
   2. ID2: Value starts from 1 and increments by 1.
   3. ID3: Value starts from 0 and increments by 5.

**Note:** Create a column using “Enter Data” option and populate the value mentioned in the table. Once the “Full Name” column is created add the other columns (ID1, ID2, and ID3) based on the above condition.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID1** | **ID2** | **ID3** | **Full Name** |
| 0 | 1 | 0 | Reily, Nicole, Abbatiello |
| 1 | 2 | 5 | Micaela, Elizabeth, Abbott |
| 2 | 3 | 10 | Breonia, Bryce, Abbott |
| 3 | 4 | 15 | Miranda, Daniela, Abella |
| 4 | 5 | 20 | Madelyn, Jacob, Abraham |
| 5 | 6 | 25 | Lyla, Nicholas, Acevedo |
| 6 | 7 | 30 | Kylia, Zoe, Acevedo |
| 7 | 8 | 35 | Jase, Marie, Adam |
| 8 | 9 | 40 | Jessica, June, Adam |
| 9 | 10 | 45 | Xaivore, Ann, Adams |

1. Extract First Name, Middle Name, and Last Name from the “Full Name” column as mentioned below using Power Query. [Use Enter data to create the below table with a “Full Name” column].

**Note:** Full Name is a combination of “First Name, Middle Name, Last Name”.

|  |
| --- |
| **Full Name** |
| Reily, Nicole, Abbatiello |
| Micaela, Elizabeth, Abbott |
| Breonia, Bryce, Abbott |
| Miranda, Daniela, Abella |
| Madelyn, Jacob, Abraham |
| Lyla, Nicholas, Acevedo |
| Kylia, Zoe, Acevedo |
| Jase, Marie, Adam |
| Jessica, June, Adam |
| Xaivore, Ann, Adams |

1. Extract Date from DateKey column present in the table below using Power Query.

|  |
| --- |
| **DateKey(yyyyMMdd)** |
| 20220101 |
| 20220102 |
| 20220103 |
| 20220104 |
| 20220105 |
| 20220106 |
| 20220107 |
| 20220608 |
| 20220109 |
| 20220110 |

**Note:** Use “Enter Data” option to create the above table in Power BI.

1. Create two parameters to input the Server and Database name and import a Product table using Power Query.

Use the following configuration for the parameters-

* Parameter1: Servername

Local server as Localhost & 127.0.0.1

* Parameter2: Database

Database as “AdventureWorks2014” & “AdventureWorks2012”

Once the parameter is created, import the mentioned table using MS SQL Server connector.

**Note:** Before performing the above exercise make sure you have restored the mentioned database.

Refer to the below URL to download the database backup file, after downloading the .bak file restore to the local SQL Server database.

* [AdventureWorks2014](https://github.com/Microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorks2014.bak): <https://github.com/Microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorks2014.bak>
* AdventureWorks2012: <https://github.com/Microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorks2012.bak>

1. Convert the below table to matrix structure (Expected output) using Power Query.

Table

Description automatically generatedInput Dataset: Expected Output:

|  |  |  |
| --- | --- | --- |
| **Year** | **Month** | **Sales** |
| 2021 | Jan | 520 |
| 2021 | Feb | 360 |
| 2021 | Mar | 210 |
| 2021 | Apr | 320 |
| 2020 | May | 160 |
| 2020 | Jun | 963 |
| 2020 | Jul | 201 |
| 2020 | Jan | 302 |
| 2020 | Feb | 500 |
| 2020 | Mar | 450 |

**Note:** Use “Enter Data” option to create the above table in Power BI.

1. Combine all the records from “StudentFromLocationA” table with “StudentFromLocationB” table using Power Query. You can use Append Query to combine these two tables.

**Note:** Use “Enter Data” option to create the below tables in Power BI.

StudentFromLocationA:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **First Name** | **Last Name** | **DOB** | **Department** |
| 1 | Reily | Abbatiello | 20-06-2000 | IT |
| 2 | Micaela | Abbott | 15-08-1995 | MCA |
| 3 | Breonia | Abbott | 18-02-1998 | ME |
| 4 | Miranda | Abella | 20-03-1999 | ECE |
| 5 | Madelyn | Abraham | 30-12-2000 | CSE |

StudentFromLocationB:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **First Name** | **Last Name** | **DOB** | **Department** |
| 8 | Jackson | Adcock | 15-02-2000 | ME |
| 9 | Kara | Adeeb | 21-08-1995 | CSE |
| 10 | Brittany | Adkins | 18-02-1996 | MCA |
| 11 | Julia | Agan | 23-05-1994 | IT |
| 12 | Anyssa | Aguilar | 15-09-2000 | ECE |

1. Merge all the records from the “Student” table with “Department” using Power Query. You can use Merge Query to combine these two tables. Here DepartmentID is a key column in both the tables.

**Note:** Use “Enter Data” option to create the below tables in Power BI.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Student | |  |  |  |
| **ID** | **First Name** | **Last Name** | **DOB** | **DepartmentID** |
| 1 | Kara | Adams | 20-06-2000 | 1 |
| 2 | Brittany | Adcock | 15-08-1995 | 2 |
| 3 | Brian | Adeeb | 18-02-1998 | 3 |
| 4 | Julia | Adkins | 20-03-1999 | 1 |
| 5 | Tea | Agan | 30-12-2000 | 2 |

|  |  |  |
| --- | --- | --- |
| Department | |  |
| **DepartmentID** | **Department Code** | **Department Name** |
| 1 | IT | Information Technology |
| 2 | ME | Mechenical Engineering |
| 3 | CSE | Computer Science Engineering |

1. Download “2020-monthly-visitor-statistics.xlsx” file from the link given below. After downloading the file, load the “Days by Island” sheet in Power BI Desktop and apply Power Query transformation to extract a part of the data (highlighted in the dataset snapshot).

**Note:** Download “2020-monthly-visitor-statistics.xlsx” file from the below URL:

<https://www.hawaiitourismauthority.org/media/7901/2020-monthly-visitor-statistics.xlsx>

Input Dataset: -

Table

Description automatically generated

Expected Output: -

Table

Description automatically generated

1. Transform the below dataset using Power Query transformation.

Input Dataset: -

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Col1 | Col2 | Col3 | Col4 | Col5 | Col6 | Col7 |
|  | **2020** | | | **2021** | | |
| **Technology** | **Office Supplies** | **Furniture** | **Technology** | **Office Supplies** | **Furniture** |
| Jan | 433.2 | 255.4 | 2.6 | 4.7 | 93.9 | 122.8 |
| Feb | 435.0 | 229.1 | 2.1 | 5.7 | 83.4 | 97.4 |
| Mar | 409.3 | 230.7 | 1.9 | 6.3 | 74.2 | 89.2 |
| Apr | 377.6 | 209.2 | 2.0 | 4.4 | 87.9 | 86.4 |
| May | 403.4 | 226.0 | 1.2 | 5.8 | 86.3 | 83.4 |
| Jun | 471.8 | 260.0 | 2.2 | 3.8 | 106.5 | 121.9 |
| Jul | 540.5 | 272.1 | 2.4 | 3.4 | 106.5 | 116.5 |
| Aug | 485.5 | 243.6 | 2.4 | 3.4 | 100.3 | 120.3 |
| Sep | 432.8 | 183.4 | 1.7 | 3.3 | 83.7 | 95.6 |
| Oct | 442.7 | 234.1 | 2.3 | 4.6 | 88.1 | 108.9 |
| Nov | 419.6 | 197.8 | 2.1 | 4.8 | 80.9 | 116.5 |
| Dec | 532.8 | 260.0 | 2.5 | 6.4 | 96.2 | 133.5 |

**Note:** Use “Enter Data” option to create the above table in Power BI.

Table

Description automatically generatedExpected Output: -

**Part 1:** DAX

1. Sort the month name as shown in the snapshot using Power BI DAX. [Use Q1 sheet from DAX\_Data.xlsx file].

Chart, bar chart

Description automatically generated

1. Capture the Values selected from the slicer, if nothing is selected then show “All”. Use card visuals to display the value. [Use Q2 sheet from DAX\_Data.xlsx].

Graphical user interface, text, application, chat or text message

Description automatically generated

1. Use the DAX function to extract the Item name, Item ID, and Price from the “Item Description” column (which contains a combination of Item Name, Item ID, and price). [Use Q3 sheet from DAX\_Data.xlsx].

Table

Description automatically generated

1. Write a DAX function to calculate sum of Budget cost where [Type] = Capex and [Period] = Total. [Use Q4 sheet from DAX\_Data.xlsx].

Text

Description automatically generated

1. Calculate the MAX of the number after multiplying with a constant value and put this into a column say as MAX\_Value, use the formula for the calculation as shown below-

MAX\_Value = MAXX([M] \* 1750, [W]\* 1, [V] \* 330)

**Note:** S, M, W, and V are the column name. [Use Q5 sheet from DAX\_Data.xlsx].

Table

Description automatically generated

1. The table is having item name column, add two columns based on the following value, 1st column contains a value based on the distinct item and 2nd column contains a value based on the item by skipping the row if there is a tie as shown in the screenshot below. [Use Q6 sheet from DAX\_Data.xlsx].

Table

Description automatically generated

1. Create a bar graph as shown below with previous year and present year sales month on month basis. [Use Q7 sheet from DAX\_Data.xlsx].

Chart, bar chart

Description automatically generated

1. Write a DAX function to create a filter (Region= “South”) set of rows from an existing table to a new table as shown in the snapshot below. [Use Q9 sheet from DAX\_Data.xlsx].

Table

Description automatically generated

1. Create a bar graph as shown below with swapping axis as profit, sales, or quantity on a parameter(slicer). [Use Q9 sheet from DAX\_Data.xlsx].

Chart, bar chart

Description automatically generated

1. Generate a calendar table that has the following columns-

Date: containing a date value

DateKey: containing a date in integer format, ex- 26-05-2022🡪 20220626

Year: containing a year value from date

MonthNo: containing a month number from date

MonthName: containing month name from date

Day: containing day from date

Quarter: containing quarter from date

WeekNo: containing week no from date

WeekDay: containing week day from day

Table

Description automatically generated

**Deliverable**

1. Two files need to be uploaded .one pbix file and one report (screen shots with timestamp.). Screen shots must be below each question
2. Its group based. One report per group
3. Scala file for part 1 and any supporting document for part 2
4. Must be PDF format.
5. Format of the report as following
   1. Table of contents
   2. Body of report (which has screen shots **with explanation and timestamp. These screen shots proof that you have done the activity successfully)**
   3. Achievement (Write a paragraph and explain what you have learned in this activity)
6. Use this submission template otherwise you lose mark
7. I do not accept your lab or assignment through email
8. Drop the screen shot below each section (each Task)
9. All your results should have screen shot with time stamp and customized background otherwise you do not get any grade
10. Please make sure, you provide enough screen shots to avoid deduction in your grade. Moreover, all screen shots require explanation.
11. All screen shots must have time stamp otherwise you do not get mark
12. There will be 10% deduction for each day delay. After three days I do not accept the assignment and you get zero.
13. Whoever is uploading must complete the following table. If this table is not completed, you do not get mark for the assignment. This is to make sure everyone participates in the activity. Keep it at the end of PDF

|  |
| --- |
| **Name of students who has participated in the assignment.** |
| **Student name:** |
| **Student name:** |
| **Student name:** |
| **Student name:** |
| **Student name:** |

|  |
| --- |
| **Name of students who has not participated in the assignment.** |
| **Student name:** |
| **Student name:** |
| **Student name:** |
| **Student name:** |
| **Student name:** |