Vendor: Microsoft

Exam Code: PL-300

Exam Name: Microsoft Power BI Data Analyst

Version: DEMO

QUESTION 1
Case Study 1 - Litware, Inc.
Overview
Litware, Inc. is an online retailer that uses Microsoft Power BI dashboards and reports. The company plans to leverage data from Microsoft SQL Server databases, Microsoft Excel files, text files, and several other data sources.
Litware uses Azure Active Directory (Azure AD) to authenticate users.

Existing Environment
Sales Data
Litware has online sales data that has the SQL schema shown in the following table.

Table name	Column name	Data type
Sales_Region	region_id	Integer
	name	Varchar
Region_Manager	region_id	Integer
	manager_id	Integer
Sales_Manager	sales_manager_id	Integer
	name	Varchar
	username	Varchar
Sales	sales_id	Integer
	sales_date_id	Integer
	sales_amount	Floating
	customer_id	Integer
	sales_ship_date_id	Integer
	region_id	Varchar
Customer_Date	customer_id	Integer
	first_name	Varchar
	last_name	Varchar
Date	date_id	Integer
	date	Date
	month	Integer
	week	Integer
	year	Integer
Weekly_Returns	week_id	Integer
	total_returns	Floating
	sales_region_id	Varchar
Targets	target_id	Integer
	sales_target	Decimal
	date_id	Integer
	region_id	Integer

In the Date table, the dateid column has a format of yyyymmdd and the month column has a format of yyyymm. The week column in the Date table and the weekid column in the Weekly_Returns table have a format of yyyyww. The regionid column can be managed by only one sales manager.

Data Concerns
You are concerned with the quality and completeness of the sales data. You plan to verify the sales data for negative sales amounts.

You need to create the required relationship for the executive's visual.

What should you do before you can create the relationship?

A. Change the data type of Sales[region_id] to Whole Number.
B. In the Sales table, add a measure for sum(sales_amount).
C. Change the data type of sales[sales_id] to Text.
D. Change the data type of sales [region_id] to Decimal Number.

Answer: A
Explanation:
Executives require a visual that shows sales by region.
The data type of Sales[region_id] must be changed from varchar to Whole Number, as Sales[region_id] is Integer.

QUESTION 2
Case Study 2 - Contoso Ltd
Overview
Existing Environment
Contoso, Ltd. is a manufacturing company that produces outdoor equipment Contoso has quarterly board meetings for which financial analysts manually prepare Microsoft Excel reports, including profit and loss statements for each of the company's four business units, a company balance sheet, and net income projections for the next quarter.

Data and Sources
Data for the reports comes from three sources. Detailed revenue, cost and expense data comes from an Azure SQL database. Summary balance sheet data comes from Microsoft Dynamics 365 Business Central. The balance sheet data is not related to the profit and loss results, other than they both relate to dates.

Monthly revenue and expense projections for the next quarter come from a Microsoft SharePoint Online list. Quarterly projections relate to the profit and loss results by using the following shared dimensions: date, business unit, department, and product category.

Net Income Projection Data
Net income projection data is stored in a SharePoint Online list named Projections in the format shown in the following table.

MonthStartDate	Projection type	ProductCategory	Department	Projection
1-Apr-20	Revenue	Bikes	N/A	200,000
1-Apr-20	Revenue	Components	N/A	250,000
1-Apr-20	Revenue	Clothing	N/A	300,000
1-Apr-20	Revenue	Accessories	N/A	150,000
1-May-20	Revenue	Bikes	N/A	200,000
1-May-20	Revenue	Components	N/A	250,000
1-Apr-20	Expense	Bikes	Bike Manufacture	50,000
1-Apr-20	Expense	Bikes	Bike Sales	3,333

Revenue projections are set at the monthly level and summed to show projections for the quarter.

Drag and Drop Question

You need to create a DAX measure in the data model that only allows users to see projections at the appropriate levels of granularity.

How should you complete the measure? To answer, drag the appropriate values to the correct targets. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.
NOTE: Each correct selection is worth one point.

Values

| AND |
| IF |
| ISFILTERED |
| KEEPFILTERS |
| SUM |
| SUMX |

Answer Area

```
Total Projected Revenue =
[        ] (
   NOT ( [        ] ( 'Date' [Date] ) ),
   [        ] (Projection[Revenue Projection] )
)
```

Answer:

Values

| AND |
| KEEPFILTERS |
| SUMX |

Answer Area

```
Total Projected Revenue =
[ IF ] (
   NOT ( [ ISFILTERED ] ( 'Date' [Date] ) ),
   [ SUM ] (Projection[Revenue Projection] )
)
```

Explanation:
Scenario: Revenue projections are set at the monthly level and summed to show projections for the quarter.

Box 1: IF

Box 2: ISFILTERED
ISFILTERED returns TRUE when columnName is being filtered directly. If there is no filter on the column or if the filtering happens because a different column in the same table or in a related table is being filtered then the function returns FALSE.

Box 3: SUM

Reference:
https://docs.microsoft.com/en-us/dax/isfiltered-function-dax

QUESTION 3
Case Study 3 - Northwind Traders
Overview. General Overview

Northwind Traders is a specialty food import company.
The company recently implemented Power BI to better understand its top customers, products, and suppliers.

Overview. Business Issues
The sales department relies on the IT department to generate reports in Microsoft SQL Server Reporting Services (SSRS). The IT department takes too long to generate the reports and often misunderstands the report requirements.

Existing Environment. Data Sources
Northwind Traders uses the data sources shown in the following table.

Name	Type	Data size
Source1	Azure SQL database	2 GB
Source2	Microsoft Excel spreadsheet	5 MB

Source2 is exported daily from a third-party system and stored in Microsoft SharePoint Online.

Existing Environment. Customer Worksheet
Source2 contains a single worksheet named Customer Details. The first 11 rows of the worksheet are shown in the following table.

CustomerID	CustomerCRMID	CompanyName	Address	City	Region	PostalCode	Country	Phone
1	ALFKI	Alfreds Futterkiste	Obere Str. 57	Berlin	DE	12209	Germany	030-0074321
2	ANATR	Ana Trujillo Emparedados y helados	Avda. de la Constitución 2222	México D.F.	MX	5021	Mexico	(5) 555-4729
3	ANTON	Antonio Moreno Taquería	Mataderos 2312	México D.F.	MX	5023	Mexico	(5) 555-3932
4	AROUT	Around the Horn	120 Hanover Sq.	London	UK	WA1 1DP	UK	(171) 555-7788
5	BERGS	Berglunds snabbköp	Berguvsvägen 8	Luleå	SWE	S-958 22	Sweden	0921-12 34 65
6	BLAUS	Blauer See Delikatessen	Forsterstr. 57	Mannheim	DE	68306	Germany	0621-08460
7	BLONP	Blondesddsi père et fils	24, place Kléber	Strasbourg	FRA	67000	France	88.60.15.31
8	BOLID	Bólido Comidas preparadas	C/ Araquil, 67	Madrid	SPN	28023	Spain	(91) 555 22 82
9	BONAP	Bon app'	12, rue des Bouchers	Marseille	FRA	13008	France	91.24.45.40
10	BOTTM	Bottom-Dollar Markets	23 Tsawassen Blvd.	Tsawassen	BC	T2F 8M4	Canada	(604) 555-4729

All the fields in Source2 are mandatory.

The Address column in Customer Details is the billing address, which can differ from the shipping address.

You need to create the On-Time Shipping report.
The report must include a visualization that shows the percentage of late orders.
Which type of visualization should you create?

A. scarterplot
B. bar chart
C. Pie chart

Answer: B
Explanation:
Scenario: The On-Time Shipping report will show the following metrics for a selected shipping month or quarter:
The percentage of orders that were shipped late by country and shipping region
Customers that had multiple late shipments during the last quarter

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Note: Bar and column charts are some of the most widely used visualization charts in Power BI. They can be used for one or multiple categories. Both these chart types represent data with rectangular bars, where the size of the bar is proportional to the magnitude of data values.
The difference between the two is that if the rectangles are stacked horizontally, it is called a bar chart. If the rectangles are vertically aligned, it is called a column chart.

Reference:
https://www.pluralsight.com/guides/bar-and-column-charts-in-power-bi

QUESTION 4
Case Study 4 - Contoso Ltd 2

Overview
Contoso, Ltd. is a manufacturing company that produces sports equipment. Contoso holds quarterly board meetings for which financial analysts manually prepare Microsoft Excel reports, including balance sheets and profit and loss statements for each of the company's four business units.

Existing Environment
Data and Sources
Data for the reports comes from the sources shown in the following table.

Data type	Description
Azure SQL database	Detailed revenue, cost, and expense data Uses a public endpoint
Microsoft Dynamics 365 Business Central	Summary balance sheet data and product catalog data

The balance sheet data is unrelated to the profit and loss results other than they both relate to dates.

Balance Sheet Data
The balance sheet data is imported and includes the final monthly balances of each account in the format shown in the following table.

AccountCategory	Account	Month	Year	BalanceAmount
Current assets	Cash and cash equivalents	3	2020	20,289
Current assets	Inventories	3	2020	4,855
Long-term liabilities	Long-term debt	3	2020	50,207
Current assets	Cash and cash equivalents	2	2020	28,209
Current assets	Inventories	2	2020	5,845
Long-term liabilities	Long-term debt	2	2020	49,887
Current assets	Cash and cash equivalents	1	2020	25,567
Current assets	Inventories	1	2020	65,998
Long-term liabilities	Long-term debt	1	2020	46,124

The balance sheet data always includes a row for each account for each month.

You need to create the relationship between the product list and the revenue results. The solution

must minimize the time it takes to render visuals.
What should you set as the relationship cardinality?

A. One to one
B. Many to many
C. Many to one
D. One to many

Answer: D
Explanation:
One product in the product list can occur many times in the revenue results.
Note 1: One to many (1:*): In a one-to-many relationship, the column in one table has only one instance of a particular value, and the other related table can have more than one instance of a value.
Note 2:
Revenue data is provided at the date and product level.
The board must be able to get the following information from the quarterly reports:

Revenue trends over time -
The percent of total revenue contributed by each product category
A comparison of quarterly revenue versus the same quarter from the previous year
Reference:
https://docs.microsoft.com/en-us/power-bi/transform-model/desktop-create-and-manage-relationships

QUESTION 5
You have a dataset that is used infrequently and refreshes every hour.
You receive a notification that the refresh was disabled due to inactivity.
Which two actions will cause the scheduled refresh schedule to resume? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point.

A. Enable query caching for the dataset.
B. Import the dataset to Microsoft Excel.
C. From the Power BI service, open a dashboard that uses the dataset.
D. From the Power BI service, open a report that uses the dataset.
E. From PowerShell, run the get-powerbireport cmdlet.

Answer: CD
Explanation:
After two months of inactivity, scheduled refresh on your dataset is paused. A dataset is considered inactive when no user has visited any dashboard or report built on the dataset. At that time, the dataset owner is sent an email indicating the scheduled refresh is paused. The refresh schedule for the dataset is then displayed as disabled. To resume scheduled refresh, simply revisit any dashboard or report built on the dataset.
Reference:
https://docs.microsoft.com/en-us/power-bi/connect-data/refresh-scheduled-refresh

QUESTION 6
In Power BI Desktop, you have a dataset that contains a table.
You create a table visual on a Power BI report page as shown in the following exhibit.

Plant Name	Plant Image
Pothos	https://raw.githubusercontent.com/ml
Spider plant	https://raw.githubusercontent.com/ml
philodendron	https://raw.githubusercontent.com/ml
ZZ plant	https://raw.githubusercontent.com/ml

You need to configure the visual to display the referenced image instead of the URL in the Plant Image column.
What should you do?

A. From the Formatting tab, select Values, and then set URL icons to On for the table.
B. Set the Data category of the Plant Image field to Web URL.
C. Set the Data type of the Plant Image field to Binary.
D. Set the Data category of the Plant Image field to Image URL.

Answer: D
Explanation:
Add images to your report
1. Create a column with the URLs of the images. See Considerations later in this article for requirements.
2. Select that column. On the Column tools ribbon, for Data category, select Image URL.
3. Add the column to a table, matrix, slicer, or multi-row card.
Step 3: From powerbi.com, add a tile for Excel1 dataset to DashboardA.
In the Power BI service (app.powerbi.com), a dashboard contains tiles pinned from one or more datasets, so you can ask questions about any of the data contained in any of those datasets.
Reference:
https://docs.microsoft.com/en-us/power-bi/create-reports/power-bi-images-tables
https://docs.microsoft.com/en-us/power-bi/create-reports/power-bi-tutorial-q-and-a

QUESTION 7
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have a Power BI report that imports a date table and a sales table from an Azure SQL database data source. The sales table has the following date foreign keys:

- Due Date
- Order Date
- Delivery Date

You need to support the analysis of sales over time based on all the date foreign keys.

Solution: From Power Query Editor, you rename the date query as Due Date. You reference the Due Date query twice to make the queries for Order Date and Delivery Date.

Does this meet the goal?

A. Yes
B. No

Answer: A
Explanation:
Creating two additional tables in Power Query can be a possible solution:
Remove any inactive relationships.
Consider renaming the role-playing dimension-type table to better describe its role. In the example, the Airport table is related to the ArrivalAirport column of the Flight table, so it's renamed as Arrival Airport.
Create a copy of the role-playing table, providing it with a name that reflects its role. If it's an Import table, we recommend defining a calculated table. If it's a DirectQuery table, you can duplicate the Power Query query.
In the example, the Departure Airport table was created by using the following calculated table definition.

QUESTION 8
For the sales department at your company, you publish a Power BI report that imports data from a Microsoft Excel file located in a Microsoft SharePoint folder.
The data model contains several measures.
You need to create a Power BI report from the existing data. The solution must minimize development effort.
Which type of data source should you use?

A. Power BI dataset
B. a SharePoint folder
C. Power BI dataflows
D. an Excel workbook

Answer: A
Explanation:
The case states there is already a report published and the datamodel contains measures. therefore and to be able to use the measures in the datamodel you should connect to the existing dataset (which was created when you plublished the report) instead of starting from scratch with the files in the SharePoint folder.

QUESTION 9
You have a Power BI report that uses row-level security (RLS).
You need to transfer RLS membership maintenance to an Azure network security team. The solution must NOT provide the Azure network security team with the ability to manage reports, datasets. or dashboards.
What should you do?

A. Add the Azure network security team as members of the RLS role.
B. Instruct the Azure network security team to create security groups. Configure RLS to use the groups.
C. Configure custom instructions for the Request access feature that instructs users to contact the Azure network security team.
D. Grant the Read and Build permissions for the Power BI datasets to the Azure network security team.

Answer: B
Explanation:
Configure row-level security group membership, Working with members

Add members -
In the Power BI service, you can add a member to the role by typing in the email address or name of the user or security group.
You can use the following groups to set up row level security.

Distribution Group -
Mail-enabled Group -
Security Group -

Reference:
https://docs.microsoft.com/en-us/power-bi/enterprise/service-admin-rls

QUESTION 10
You have a Power BI workspace named Workspace1 that contains a dataset named DS1 and a report named RPT1.
A user wants to create a report by using the data In DS1 and publish the report to another workspace.
You need to provide the user with the appropriate access. The solution must minimize the number of access permissions granted to the user.
What should you do?

A. Share RPT1 with the user.
B. Add the user as a Viewer of Workspace1.
C. Add the user as a member of Workspace1.
D. Grant the Build permission for DS1 to the user.

Answer: D
Explanation:
Power BI provides the Build permission as a complement to the existing permissions, Read and Reshare. All users who already had Read permission for datasets via app permissions, sharing, or workspace access at that time also got Build permission for those same datasets. They got Build permission automatically because Read permission already granted them the right to build new content on top of the dataset, by using Analyze in Excel or Export.
With this more granular Build permission, you can choose who can only view the content in the existing report or dashboard and who can create content connected to the underlying datasets.
If your dataset is being used by a report outside the dataset workspace, you can't delete that dataset. Instead, you see an error message.
Reference:
https://docs.microsoft.com/en-us/power-bi/connect-data/service-datasets-build-permissions

QUESTION 11
You have a Power BI workspace that contains a dataset. a report, and a dashboard. The following groups have access:

```
- External users can access the dashboard.
- Managers can access the dashboard and a manager-specific report.
- Employees can access the dashboard and a row-level security (RLS)
constrained report.
```

You need all users, including the external users, to be able to tag workspace administrators if they identify an issue with the dashboard. The solution must ensure that other users see the issues that were raised.
What should you use?

A. subscriptions
B. comments
C. alerts
D. chat in Microsoft Teams

Answer: B
Explanation:
Add a personal comment or start a conversation about a dashboard or report with your colleagues. The comment feature is just one of the ways a business user can collaborate with others.
Note: Comments can be added to an entire dashboard, to individual visuals on a dashboard, to a report page, to a paginated report, and to individual visuals on a report page. Add a general comment or add a comment targeted at specific colleagues.
Reference:
https://docs.microsoft.com/en-us/power-bi/consumer/end-user-comment

QUESTION 12
You have the Power BI model shown in the following exhibit.
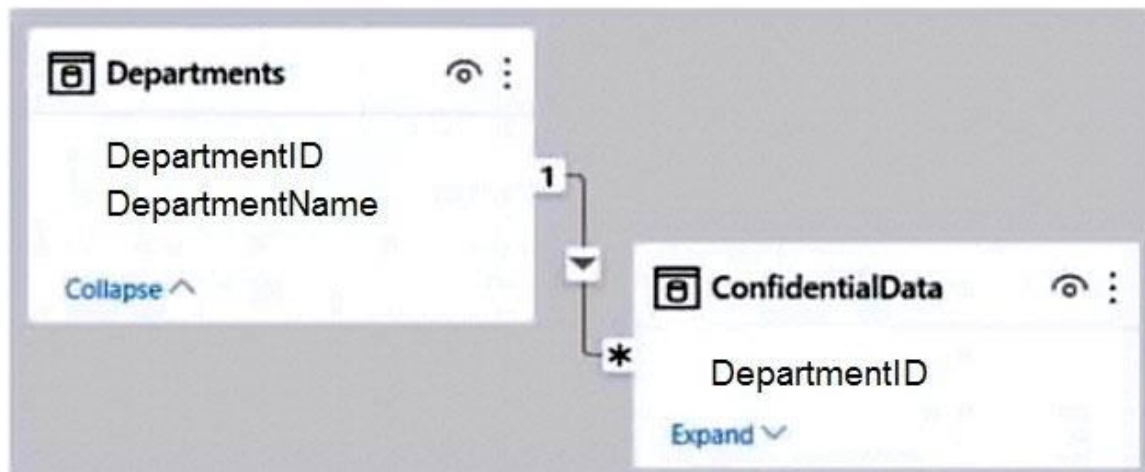
There are four departments in the Departments table.
You need to ensure that users can see the data of their respective department only.
What should you do?

A. Create a row-level security (RLS) role for each department, and then define the membership of the role.
B. Create a DepartmentID parameter to filter the Departments table.
C. To the ConfidentialData table, add a calculated measure that uses the currentgroup DAX function.
D. Create a slicer that filters Departments based on DepartmentID.

Answer: A

Explanation:
Row-level security (RLS) with Power BI can be used to restrict data access for given users.
Filters restrict data access at the row level, and you can define filters within roles.
Reference:
https://docs.microsoft.com/en-us/power-bi/enterprise/service-admin-rls

QUESTION 13
You have a Power BI report hosted on powerbi.com that displays expenses by department for
department managers.
The report contains a line chart that shows expenses by month.
You need to enable users to choose between viewing the report as a line chart or a column chart.
The solution must minimize development and maintenance effort.
What should you do?

A. Add a column chart, a bookmark, and a button for users to choose a visual.
B. Create a mobile report that contains a column chart.
C. Create a separate report page for users to view the column chart.
D. Enable report readers to personalize visuals.

Answer: D
Explanation:
Let users personalize visuals in a report
Enable personalization in a report
You can enable the feature either in Power BI Desktop or the Power BI service. You can also
enable it in embedded reports.
To enable the feature in the Power BI (powerbi.com) service, go to Settings for your report.
Turn on Personalize visuals > Save.

Reference:
https://docs.microsoft.com/en-us/power-bi/create-reports/power-bi-personalize-
visuals?tabs=powerbi-service#enable-personalization-in-a-report

QUESTION 14
Drag and Drop Question

You are creating a Power Bi model and report.
You have a single table in a data mode) named Product Product contains the following fields:

```
- ID
- Name
- Color
- Category
- Total Sales
```

You need to create a calculated table that shows only the top eight products based on the highest
value in Total Sales.
How should you complete the DAX expression? To answer, drag the appropriate values to the
coned targets. Each value may be used once, more than once, or not at all. You may need to
drag the split bar between panes or scroll to view content.

Values		Answer Area
ASC		
DESC		Top 8 Products = [Value] (8,'Product','Product'[Total Sales], [Value])
RELATEDTABLE		
CALCULATETABLE		
MAXX		
TOPN		

Answer:

Values		Answer Area
ASC		
DESC		Top 8 Products = [TOPN] (8,'Product','Product'[Total Sales], [DESC])
RELATEDTABLE		
CALCULATETABLE		
MAXX		
TOPN		

Explanation:
Box 1: TOPN
TOPN returns the top N rows of the specified table.
Syntax: TOPN(<n_value>, <table>, <orderBy_expression>, [<order>[, <orderBy_expression>, [<order>]]ᶥ€¦])

Box 2: DESC
Descending order to get the highest values first.
Reference:
https://docs.microsoft.com/en-us/dax/topn-function-dax

QUESTION 15
From Power BI Desktop, you publish a new dataset and report to a Power BI workspace. The dataset has a row-level security (RLS) role named HR.
You need to ensure that the HR team members have RLS applied when they view reports based on the dataset.
What should you do?

A. From Power BI Desktop, change the Row-Level Security settings.
B. From Power BI Desktop, import a table that contains the HR team members
C. From powerbi.com.add users to the HR role for the dataset.
D. From powerbi.com. share the dataset to the HR team members.

Answer: C
Explanation:

Working with members -
Add members -
In the Power BI service, you can add a member to the role by typing in the email address or name of the user or security group.
Reference:
https://docs.microsoft.com/en-us/power-bi/enterprise/service-admin-rls

QUESTION 16
You have a PBiX file that imports several tables from an Azure SQL database. The data will be migrated to another Azure SQL database.
You need to change the connections in the PBIX file. The solution must minimize administrative effort.
What should you do?

A. From Power Query Editor, modify the source of each query.
B. Create a PBiT file, open the file, and change the data sources when prompted
C. From Power Query Editor, create new queries.
D. Modify the Data source settings.

Answer: D
Explanation:
Open the PBIX file with Microsoft Power BI Desktop.
Then choose File -> Options and settings -> Data source settings >Right click data sources and change source.

Reference:
https://windowsreport.com/open-pbix-file/

QUESTION 17
You have a Power Bi report. The report contains a visual that snows gross sales by date. The visual has anomaly detection enabled. No anomalies ate detected.
You need to increase the likelihood that anomaly detection will identify anomalies in the report.
What should you do?

A. Add a data field to the Secondary values field weft
B. Increase the Sensitivity setting.
C. Increase the Expected range transparency setting,
D. Add a data field to the Legend field well

Answer: B
Explanation:
If you increase the sensitivity, the algorithm is more sensitive to changes in your data. In that case, even a slight deviation is marked as an anomaly. If you decrease the sensitivity, the algorithm is more selective on what it considers an anomaly.
https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-anomaly-detection

QUESTION 18
You are creating a Power BI report to analyze consumer purchasing patterns from a table named Transactions.
The Transactions table contains a numeric field named Spend.
You need to include a visual that identifies which fields have the greatest impact on Spend.

Which type of visual should you use?

A. decomposition tree
B. Q&A
C. smart narrative
D. key influences

Answer: D
Explanation:
The key influencers visual helps you understand the factors that drive a metric you're interested in. It analyzes your data, ranks the factors that matter, and displays them as key influencers. For example, suppose you want to figure out what influences employee turnover, which is also known as churn. One factor might be employment contract length, and another factor might be commute time.

When to use key influencers -
The key influencers visual is a great choice if you want to:
See which factors affect the metric being analyzed.
Contrast the relative importance of these factors. For example, do short-term contracts affect churn more than long-term contracts?
Reference:
https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-influencers

QUESTION 19
You have a Power BI report.
You have a table named Dalai that contains 10 million rows. Data is used in the following visuals:

```
- A card that shows the number of records
- A bar chart that snows total transaction amount by territory
- A scatter plot that shows transaction amount and profit amount on the
axes and points colored by territory
```

You need to modify the scatter plot to make it easier for users to identify meaningful patterns. The solution must not affect the accuracy of the other visuals. What should you do?

A. Apply a row filter to the Dalai query in Power Query Editor.
B. Add a trend line to the scatter plot
C. Enable high-density sampling on the scatter plot
D. Add a count field of the transaction amount to the size bucket of the scatter plot

Answer: B
Explanation:
A trend line is a straight line that best represents the points on a scatterplot. The trend line may go through some points but need not go through them all. The trend line is used to show the pattern of the data. This trend line may show a positive trend or a negative trend.
Reference:
https://flexbooks.ck12.org/cbook/ck-12-interactive-middle-school-math-8-for-ccss/section/6.3/related/lesson/use-a-scatterplot-to-interpret-data-msm8/

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