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QUESTION & ANSWER

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Exam : **DP-500**

Title : Designing and
Implementing Enterprise-
Scale Analytics Solutions
Using Microsoft Azure and
Microsoft Power BI

Version : DEMO

1. Topic 1, Litware, Inc. Overview

Litware, Inc. is a retail company that sells outdoor recreational goods and accessories. The company sells goods both online and at its stores located in six countries.

Azure Resources

Litware has the following Azure resources:

- An Azure Synapse Analytics workspace named synapseworkspace1
- An Azure Data Lake Storage Gen2 account named datalake1 that is associated with synapseworkspace1
- A Synapse Analytics dedicated SQL pool named SQLDW

Dedicated SQL Pool

SQLDW contains a dimensional model that contains the following table.

Name	Relevant column	Description
dbo.Customer	CustomerKey, CustomerID, CustomerEmail	The table currently contains 250,000 rows. Each row identifies a unique customer.
dbo.Product	ProductKey, ProductID, ProductName, ProductCategory, IsActive	The table currently contains 2,500 rows. Each row identifies a unique product.
dbo.Date	Date, Month, Year	The table currently contains 3,653 rows. Each row identifies a unique date.
dbo.SalesTransactions	CustomerKey, ProductKey, SalesDate, SalesChannelKey, SalesAmount, QuantitySold	The table currently contains 75 million rows. Each row identifies the purchase of a single product in a sales transaction.
dbo.SalesChannel	SalesChannelKey, SalesChannel	The table currently contains two rows to identify whether a sale occurred online or in a store.

SQLDW contains the following additional tables.

Name	Relevant column	Description
MLModel	Model, Model_Name	The table contains a machine learning model named PredictPurchase that predicts the likelihood of customers purchasing a specific product based on their past purchases.
CustomersWithProductScore	CustomerID, CustomerEmail, ProductID, ProductName, Score	The Score column contains the results from calling the predictive model.

SQLDW contains a view named dbo.CustomerPurchases that creates a distinct list of values from dbo.Customer [customerID], dbo.Customer [CustomerEmail], dbo.Product[ProductID] and dbo.Product[ProductName].

The sales data in SQLDW is updated every 30 minutes. Records in dbo.SalesTransactions are updated in SQLDW up to three days after being created. The records do NOT change after three days.

Power BI

Litware has a new Power BI tenant that contains an empty workspace named Sales Analytics.

All users have Power BI Premium per user licenses.

IT data analysts are workspace administrators. The IT data analysts will create datasets and reports.

A single imported dataset will be created to support the company's sales analytics goals. The dataset will be refreshed every 30 minutes.

Analytics Goals

Litware identifies the following analytics goals:

- Provide historical reporting of sales by product and channel over time.
- Allow sales managers to perform ad hoc sales reporting with minimal effort.
- Perform market basket analysis to understand which products are commonly purchased in the same transaction.

- Identify which customers should receive promotional emails based on their likelihood of purchasing promoted products.

Litware plans to monitor the adoption of Power BI reports over time. The company wants custom Power BI usage reporting that includes the percent change of users that view reports in the Sales Analytics workspace each month.

Security Requirements

Litware identifies the following security requirements for the analytics environment:

- All the users in the sales department and the marketing department must be able to see Power BI reports that contain market basket analysis and data about which customers are likely to purchase a product.
- Customer contact data in SQLDW and the Power BI dataset must be labeled as Sensitive. Records must be kept of any users that use the sensitive data.
- Sales associates must be prevented from seeing the CustomerEmail column in Power BI reports.
- Sales managers must be prevented from modifying reports created by other users.

Development Process Requirements

Litware identifies the following development process requirements:

- SQLDW and datalake1 will act as the development environment. Once feature development is complete, all entities in synapseworkspace1 will be promoted to a test workspace, and then to a production workspace.
- Power BI content must be deployed to test and production by using deployment pipelines.
- All SQL scripts must be stored in Azure Repos.

The IT data analysts prefer to build Power BI reports in Synapse Studio.

DRAG DROP

You need to implement object-level security (OLS) in the Power BI dataset for the sales associates.

Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Actions

- From Power BI Desktop, add a table filter to the role.
- From Power BI Desktop, create a role for the sales associates.
- From Tabular Editor, set Object Level Security to **None** for the Customer[Email] column and save the changes.
- From Power BI Desktop, publish the dataset to the Sales Analytics workspace.
- From Tabular Editor, set Object Level Security to **None** for the Customer table and save the changes.

Answer Area

Answer:

Actions

- From Power BI Desktop, add a table filter to the role.
- From Power BI Desktop, create a role for the sales associates.
- From Tabular Editor, set Object Level Security to **None** for the Customer[Email] column and save the changes.
- From Power BI Desktop, publish the dataset to the Sales Analytics workspace.
- From Tabular Editor, set Object Level Security to **None** for the Customer table and save the changes.

Answer Area

- From Power BI Desktop, create a role for the sales associates.
- From Tabular Editor, set Object Level Security to **None** for the Customer[Email] column and save the changes.
- From Power BI Desktop, publish the dataset to the Sales Analytics workspace.

2.What should you configure in the deployment pipeline?

- A. a backward deployment
- B. a selective deployment
- C. auto-binding
- D. a data source rule

Answer: C

3.HOTSPOT

You need to populate the CustomersWithProductScore table.

How should you complete the stored procedure? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Answer Area

```

DECLARE @model
SELECT model
FROM MLModel
WHERE model_name = PredictPurchase
);
INSERT INTO CustomersWithProductScore (
    CustomerID
    ,CustomerEmail
    ,ProductID
    ,ProductName
    ,Score
)
SELECT d.CustomerID
    ,d.CustomerEmail
    ,d.ProductID
    ,d.ProductName
    ,p.score
FROM PREDICT(MODEL = @model, DATA =
    WITH (score FLOAT) AS p;
    
```

Options for the first dropdown (next to @model):

- BIT
- FLOAT
- NVARCHAR(1000)
- VARBINARY(max)

Options for the second dropdown (next to AS d):

- dbo.Customer
- dbo.CustomerPurchases
- dbo.CustomersWithProductScore
- dbo.Product

Answer:

Answer Area

```

DECLARE @model
SELECT model
FROM MLModel
WHERE model_name = PredictPurchase
);

INSERT INTO CustomersWithProductScore (
    CustomerID
    ,CustomerEmail
    ,ProductID
    ,ProductName
    ,Score
)

SELECT d.CustomerID
    ,d.CustomerEmail
    ,d.ProductID
    ,d.ProductName
    ,p.score
FROM PREDICT(MODEL = @model, DATA =
    WITH (score FLOAT) AS p;

```

SQL snippets from the image:

- Model definition: `DECLARE @model`, `SELECT model`, `FROM MLModel`, `WHERE model_name = PredictPurchase`, `);`
- Insert statement: `INSERT INTO CustomersWithProductScore (`, `CustomerID`, `,CustomerEmail`, `,ProductID`, `,ProductName`, `,Score`, `)`
- Select statement: `SELECT d.CustomerID`, `,d.CustomerEmail`, `,d.ProductID`, `,d.ProductName`, `,p.score`, `FROM PREDICT(MODEL = @model, DATA =`, `WITH (score FLOAT) AS p;`

Dropdown menus in the image show:

- Model type: `BIT`, `FLOAT` (highlighted), `NVARCHAR(1000)`, `VARBINARY(max)`
- Table names: `dbo.Customer` (highlighted), `dbo.CustomerPurchases`, `dbo.CustomersWithProductScore`, `dbo.Product`

4.DRAG DROP

You need to create the customized Power BI usage reporting. The Usage Metrics Report dataset has already been created. The solution must minimize development and administrative effort.

Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Actions

- From Power BI Desktop, open the **Usage Metrics Report** dataset in the Sales Analytics workspace.
- Add a report measure.
- Publish the report to the Sales Analytics workspace.
- From powerbi.com, create a new report from the Usage Metrics Report dataset in the Sales Analytics workspace.
- Request access to the Power BI audit logs.
- Add visuals to the report.

Answer Area

(Empty area for drag-and-drop)

Answer:

Actions

- From Power BI Desktop, open the **Usage Metrics Report** dataset in the Sales Analytics workspace.
- Add a report measure.
- Publish the report to the Sales Analytics workspace.
- From powerbi.com, create a new report from the Usage Metrics Report dataset in the Sales Analytics workspace.
- Request access to the Power BI audit logs.
- Add visuals to the report.

Answer Area

- Request access to the Power BI audit logs.
- Add a report measure.
- From Power BI Desktop, open the **Usage Metrics Report** dataset in the Sales Analytics workspace.
- From powerbi.com, create a new report from the Usage Metrics Report dataset in the Sales Analytics workspace.

5. Topic 2, Contoso, Ltd

Overview

Contoso, Ltd. is a company that sells enriched financial data to a variety of external customers. Contoso has a main office in Los Angeles and two branch offices in New York and Seattle.

Data Infrastructure

Contoso has a 50-TB data warehouse that uses an instance of SQL Server on Azure Virtual Machines. The data warehouse populates an Azure Synapse Analytics workspace that is accessed by the external customers. Currently, the customers can access all the data.

Contoso has one Power BI workspace named FinData that contains a single dataset. The dataset contains financial data from around the world. The workspace is used by 10 internal users and one external customer. The dataset has the following two data sources: the data warehouse and the Synapse Analytics serverless SQL pool.

Users frequently query the Synapse Analytics workspace by using Transact-SQL.

User Problems

Contoso identifies the following user issues:

- Some users indicate that the visuals in Power BI reports are slow to render when making filter selections.
- Users indicate that queries against the serverless SQL pool fail occasionally because the size of tempdb has been exceeded.
- Users indicate that the data in Power BI reports is stale. You discover that the refresh process of the Power BI model occasionally times out

Planned Changes

Contoso plans to implement the following changes:

- Into the existing Power BI dataset, integrate an external data source that is accessible by using the REST API.
- Build a new dataset in the FinData workspace by using data from the Synapse Analytics dedicated SQL pool.
- Provide all the customers with their own Power BI workspace to create their own reports. Each workspace will use the new dataset in the FinData workspace.
- Implement subscription levels for the customers. Each subscription level will provide access to specific rows of financial data.
- Deploy prebuilt datasets to Power BI to simplify the query experience of the customers.
- Provide internal users with the ability to incorporate machine learning models loaded to the dedicated SQL pool.

You need to recommend a solution to add new fields to the financial data Power BI dataset with data from the Microsoft SQL Server data warehouse.

What should you include in the recommendation?

A. Azure Purview

- B. Site-to-Site VPN
- C. an XMLA endpoint
- D. the on-premises data gateway

Answer: D