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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.ProductfProductID] 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 B1 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 B1 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 B1 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 B1 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	Answer Area
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:

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: D
Explanation:
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.
Create deployment rules
When working in a deployment pipeline, different stages may have different configurations. For example, each stage can have different databases or different query parameters. The development stage might query sample data from the database, while the test and production stages query the entire database. When you deploy content between pipeline stages, configuring deployment rules enables you to allow changes to content, while keeping some settings intact. For example, if you want a dataset in a production stage to point to a production database, you can define a rule for this. The rule is defined in the production stage, under the appropriate dataset. Once the rule is defined, content deployed from test to production, will inherit the value as defined in the deployment rule, and will always apply as long as the rule is unchanged and valid.
You can configure data source rules and parameter rules.
Incorrect:
Not B: if you already have a steady production environment, you can deploy it backward (to Test or Dev, based on your need) and set up the pipeline. The feature is not limited to any sequential orders.
Reference: https://docs.microsoft.com/en-us/power-bi/create-reports/deployment-pipelines-get-started#step-4---create-deployment-rules

3.HOTSPOT

You need to populate the Customers With Product Score 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.

```
DECLARE @model [BIT | FLOAT | NVARCHAR(1000) | VARBINARY(max)] = (
     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 = [dbo.Customer | dbo.CustomerPurchases | dbo.CustomersWithProductScore | dbo.Product] AS d)
     WITH (score FLOAT) AS p;
```

Answer:

```
DECLARE @model [BIT / FLOAT / NVARCHAR(1000) / VARBINARY(max)] = (
     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 = [dbo.Customer / dbo.CustomerPurchases / dbo.CustomersWithProductScore / dbo.Product] AS d)
     WITH (score FLOAT) AS p;
```

Explanation:

Box 1: FLOAT

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

FLOT is used in the last statement of the code: WITH (score FLOAT) as p;

From syntax: MODEL

The MODEL parameter is used to specify the model used for scoring or prediction. The model is specified as a variable or a literal or a scalar expression.

Box 2: dbo.CustomerWithProductScore

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

Only table CustomerWithProductScore has the required filed score.

From the syntax:

DATA

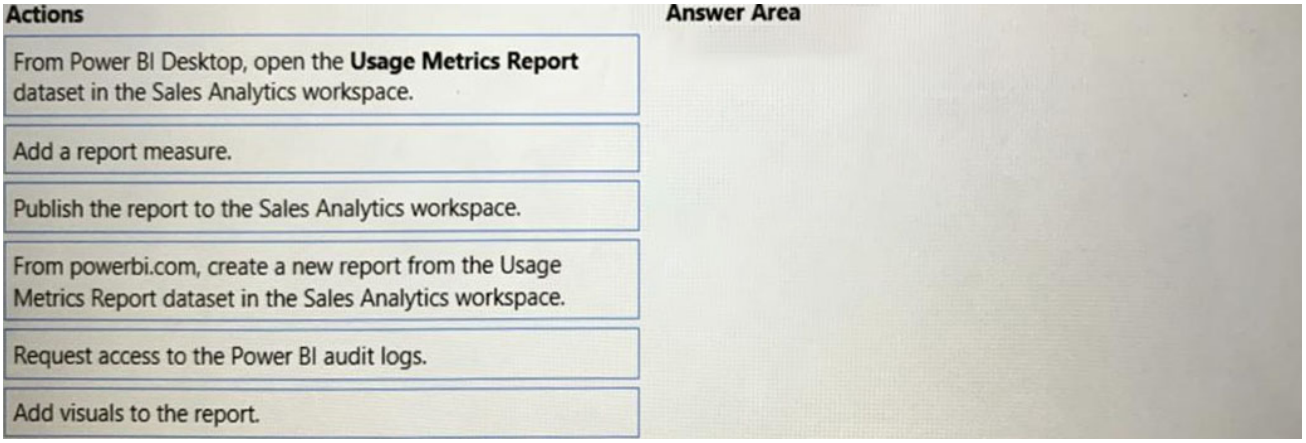
The DATA parameter is used to specify the data used for scoring or prediction. Data is specified in the form of a table source in the query. Table source can be a table, table alias, CTE alias, view, or table-valued function.

Reference: https://docs.microsoft.com/en-us/sql/t-sql/queries/predict-transact-sql

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.



Answer:

Explanation:

Step 1: From powerbi.com, create a new report.

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.

Step 2: Add a report measure

Measures are used in some of the most common data analyses. Simple summarizations such as sums, averages, minimum, maximum and counts can be set through the Fields well. The calculated results of measures are always changing in response to your interaction with your reports, allowing for fast and dynamic ad-hoc data exploration.

Step 3: Add visuals to the report
Step 4: Publish the report to the Sales Analytics workspace
Reference: https://docs.microsoft.com/en-us/power-bi/transform-model/desktop-measures

5.You need to configure the Sales Analytics workspace to meet the ad hoc reporting requirements. What should you do?
A. Grant the sales managers the Build permission for the existing Power BI datasets.
B. Grant the sales managers admin access to the existing Power BI workspace.
C. Create a deployment pipeline and grant the sales managers access to the pipeline.
D. Create a PBIT file and distribute the file to the sales managers.
Answer: D
Explanation:
Allow sales managers to perform ad hoc sales reporting with minimal effort
Power BI report templates contain the following information from the report from which they were generated:
Report pages, visuals, and other visual elements
The data model definition, including the schema, relationships, measures, and other model definition items
All query definitions, such as queries, Query Parameters, and other query elements What is not included in templates is the report's data.
Report templates use the file extension .PBIT (compare to Power BI Desktop reports, which use the .PBIX extension).
Note: With Power BI Desktop, you can create compelling reports that share insights across your entire organization. With Power BI Desktop templates, you can streamline your work by creating a report template, based on an existing template, which you or other users in your organization can use as a starting point for a new report's layout, data model, and queries. Templates in Power BI Desktop help you jump-start and standardize report creation.
Reference: https://docs.microsoft.com/en-us/power-bi/create-reports/desktop-templates