Lab - Collaborative Credit Risk Modeling in Microsoft Fabric

Objective:

To learn how to utilize Microsoft Fabric's data engineering, data science, and data governance capabilities in conjunction with the data clean room concept to collaboratively develop a credit risk model while adhering to data privacy regulations and enabling secure multi-party computation.

Tasks:

1. Set Up Data Sources
2. Create and Configure the Clean Room
3. Run Collaborative Analysis

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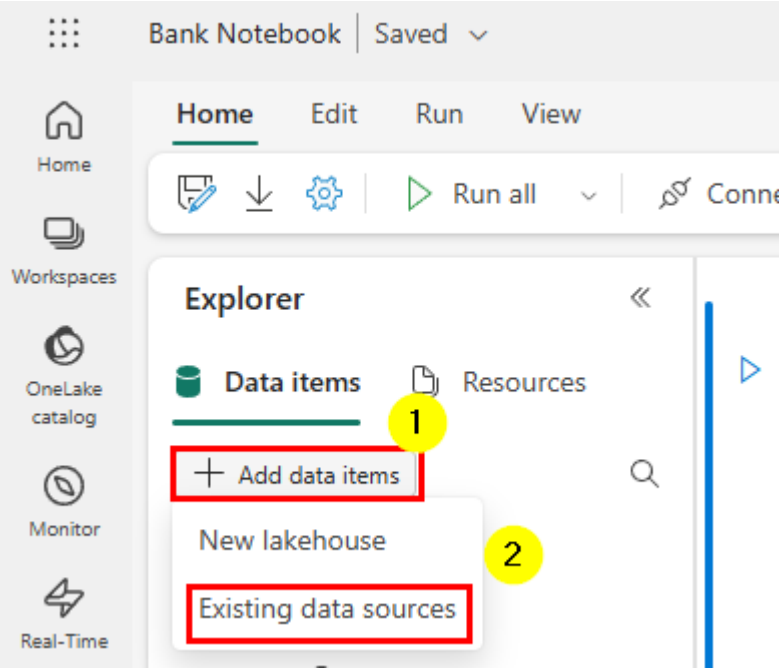
Task 1: Set Up Data Sources

1. In Microsoft Fabric, under the assigned workspace create **Lakehouse A** (Bank A)

2. In **Lakehouse A**, under the file section create a **customer_raw** folder and upload the customer_bank_a.csv file (Download from here).

3. Tokenize the customer data and create a delta table in **Lakehouse A**.

   Import the notebook in the assigned workspace (Download from here), open the notebook add a **Lakehouse A** reference, and execute the code.



4. In Microsoft Fabric, under the assigned workspace create **Lakehouse B (Credit Bureau B)**

5. In **Lakehouse B**, under the file section create a **raw** folder and upload the bureau_customer_raw.csv file (Download from here).

6. Tokenize the customer data, add basic Laplace noise (Differential Privacy) in the data and finally create a delta table in **Lakehouse B**.

   Import the notebook in the assigned workspace (Download from here), open the notebook add a **Lakehouse B** reference, and execute the code.

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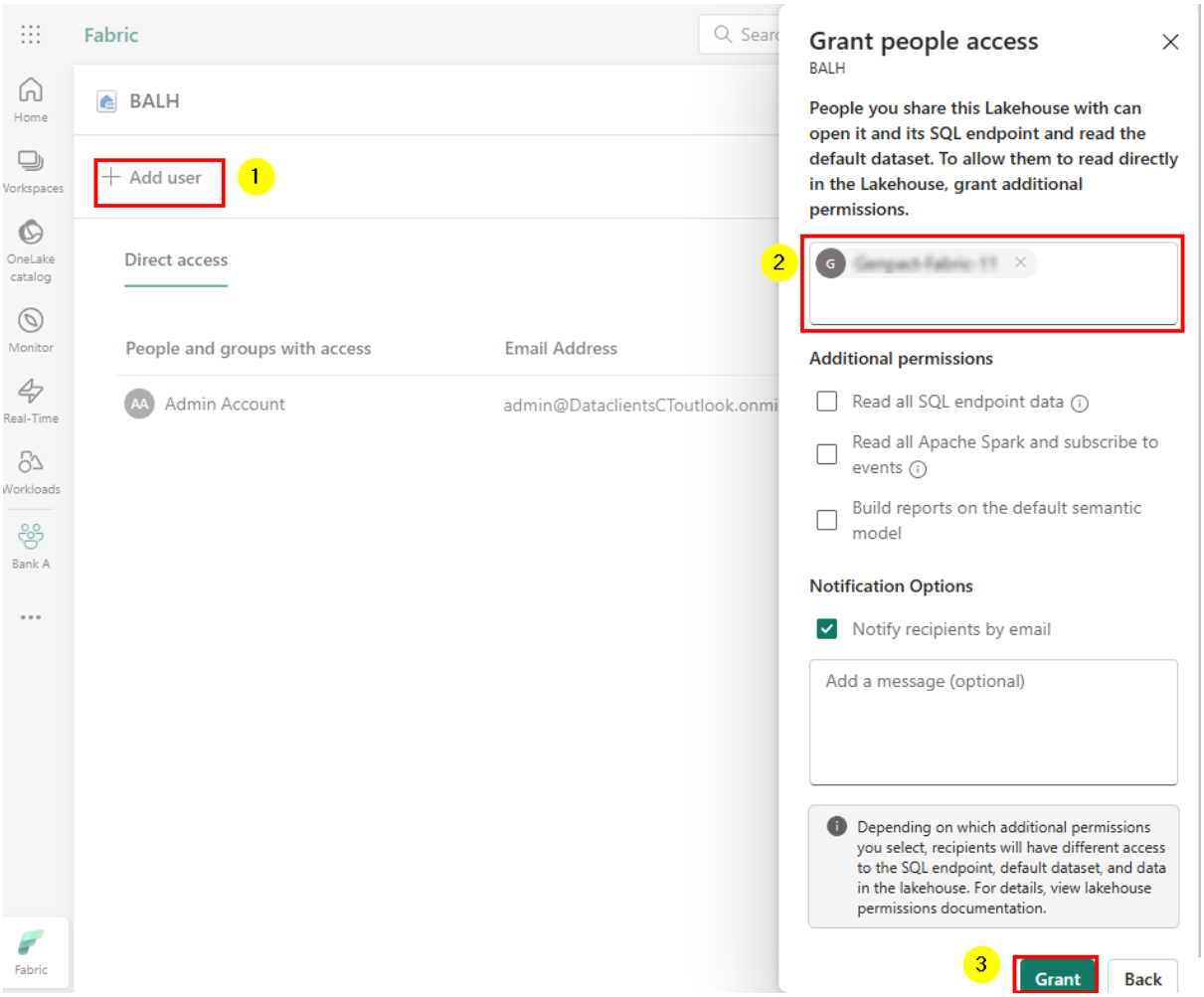
Task 2: Create and Configure the Clean Room

1. Create a new Lakehouse in the assigned workspace **Clean Room LH**.
2. Create a shortcut to **curated tables** from Lakehouse A and B for the **customer** and **creditscore** table in **Clean Room LH.**
3. Configure access on **Clean Room LH** to consumers, and give **Read** metadata access on Lakehouse **Clean Room LH.**



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Task 3: Run Collaborative Analysis

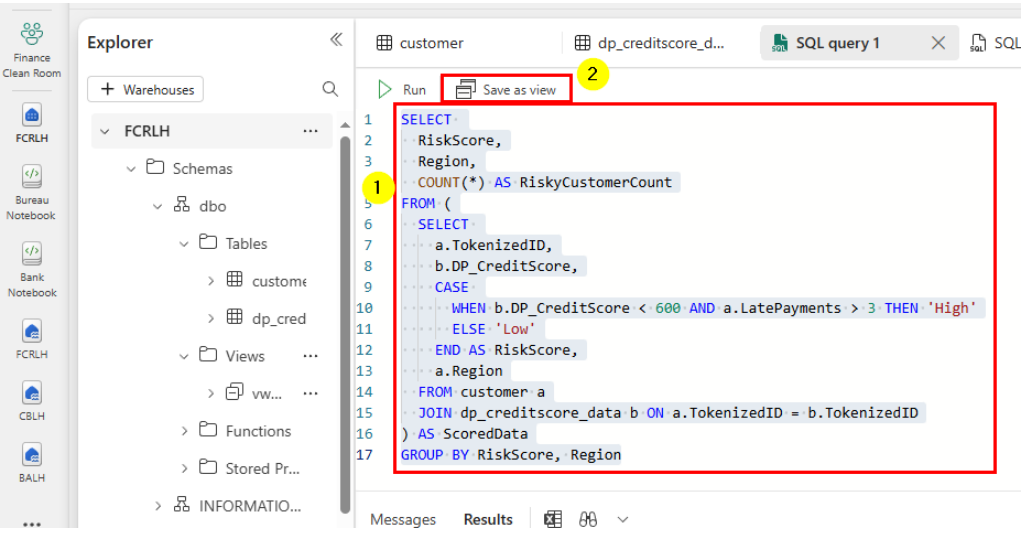
1. Use a **Fabric Notebook or SQL Query** to run joint analytics:
   - Join datasets using Tokenized IDs
   - Classify customers into “High Risk” or “Low Risk”
   - Output aggregate results by region

SQL Query:

```
SELECT
  RiskScore,
  Region,
  COUNT(*) AS RiskyCustomerCount
FROM (
  SELECT
    a.TokenizedID,
    b.DP_CreditScore,
    CASE
      WHEN b.DP_CreditScore < 600 AND a.LatePayments > 3 THEN 'High'
      ELSE 'Low'
    END AS RiskScore,
    a.Region
  FROM customer a
  JOIN dp_creditscore_data b ON a.TokenizedID = b.TokenizedID
) AS ScoredData
GROUP BY RiskScore, Region
```

Run the above query and view the result.

2. Create a view for the above-mentioned query.



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3. Run a query using the view.

```
SELECT TOP (100) [RiskScore],
                 [Region],
                 [RiskyCustomerCount]
FROM [FCRLH].[dbo].[vwRiskyCustomerCount]
```

4. Grant Select permission on view to the users.
   GRANT SELECT on [dbo].[vwRiskyCustomerCount] to [Username];

5. Connect with SSMS or Azure Data Studio using the SQL Endpoint login with the user. You can also use Fabric OneLake Hub to connect with SQL Endpoint and query the data.

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