Week 1

Task 1

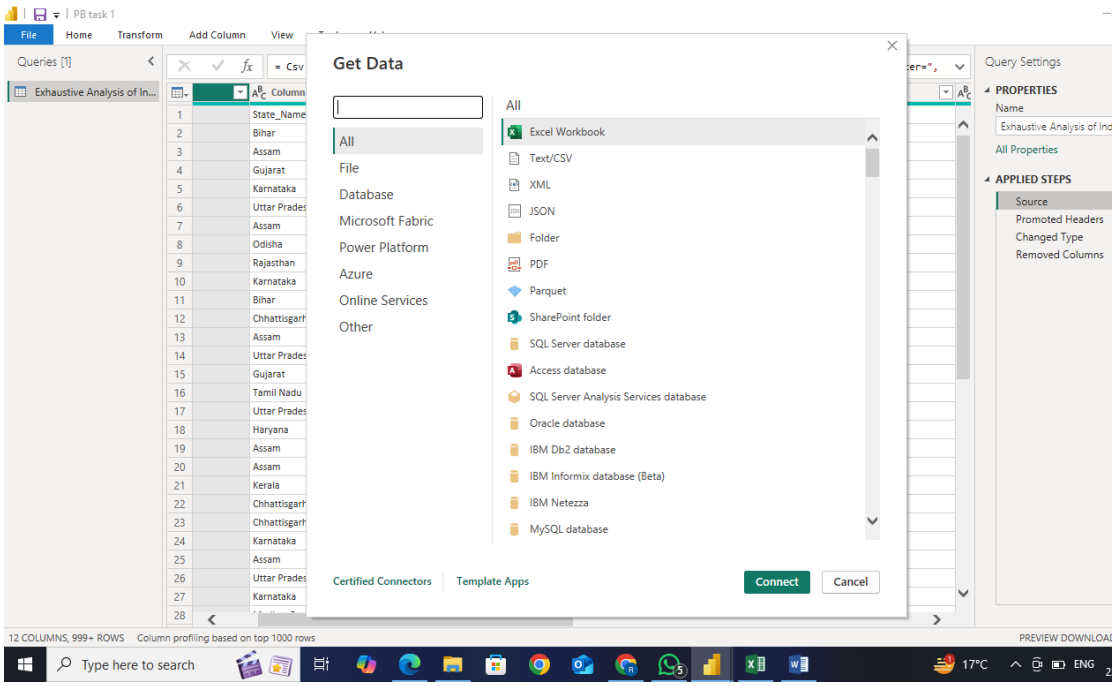
Week 1 - Task 1: Overview of Power BI and Key Concepts

Step 1: Understanding BI Tools

1. **Power BI** is a **Microsoft Product** used for Business Intelligence (BI). It's a powerful tool for data visualization, analysis, and reporting.
2. BI tools are used to **Extract, Transform, and Load (ETL)** data to make informed decisions based on insights.

Step 2: Extract – Pull Data from Data Sources

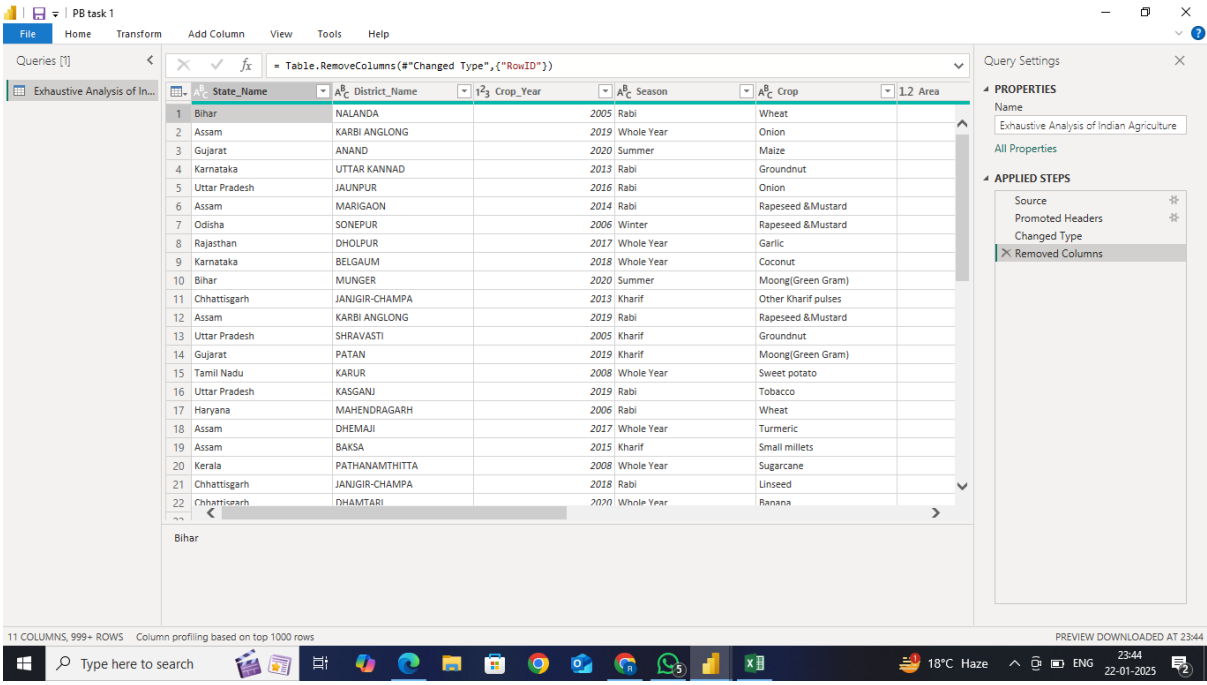
1. **ETL (Extract, Transform, Load)** is the process of working with data from various sources.
    - **Extract**: Pull data from different sources such as:
        - **Excel**
        - **CSV/Text files**
        - **Databases** (SQL, Oracle, etc.)



- **Load**: Load the data into Power BI for analysis once it's cleaned.

Step 3: Data Transformation – Clean and Prepare the Data

1. **Transform the Data**: This step involves processing and cleaning the data. Transformation operations could include:
   - Removing unnecessary columns.



   - Filtering out irrelevant or missing data.
   - Changing data types (e.g., converting a column to Date, Number, or Text).
   - Combining tables (merging data).
   - Creating calculated columns or measures.

In Power BI, this process is done in the **Power Query Editor**.

Step 4: Load Cleaned Data into Power BI

1. Once the data is cleaned and transformed, you **load the data** into Power BI.
   - You can either:
     - **Load data directly** from sources like Excel or databases.
     - **Import** the data into Power BI or create a **Direct Query** connection (depending on the data source).

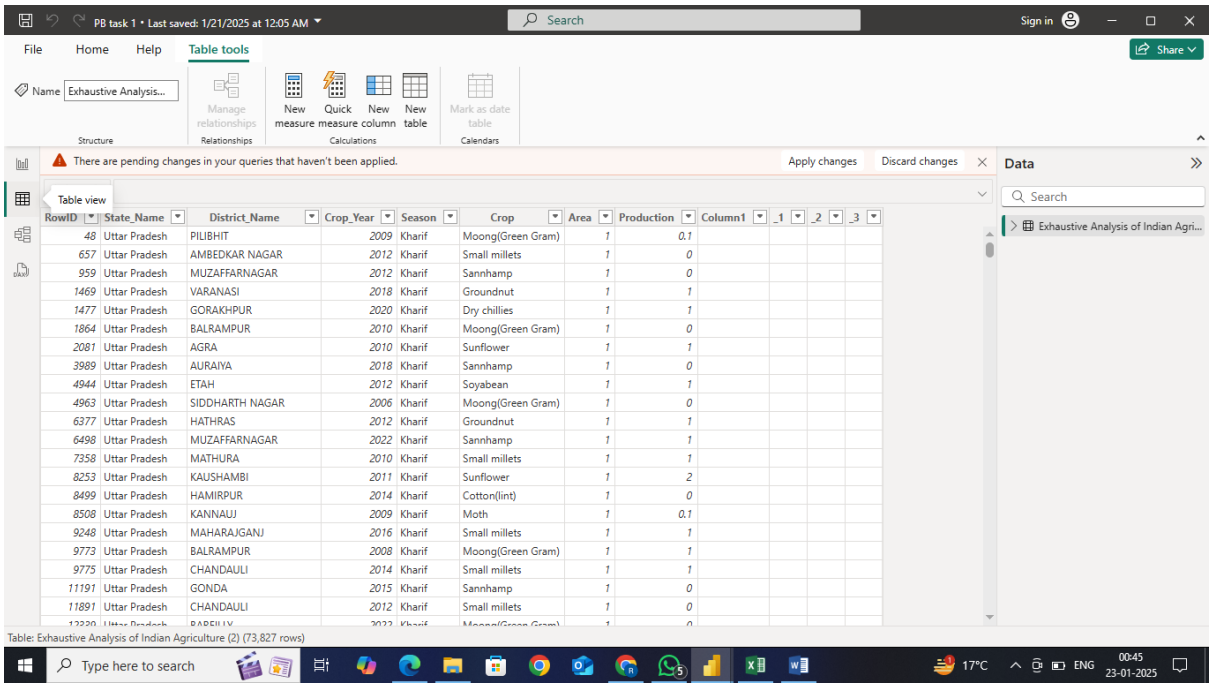
Step 5: Report View – Visualizations

1. **Report View** is where you create your **visualizations** in Power BI. Here, you can:
    - **Drag and drop fields** onto the report canvas to create charts, graphs, tables, etc.
    - Visualizations include bar charts, pie charts, line graphs, maps, etc.
    - You can use slicers and filters to make your report interactive.

Goal: Make your data easy to interpret with engaging visuals for stakeholders.

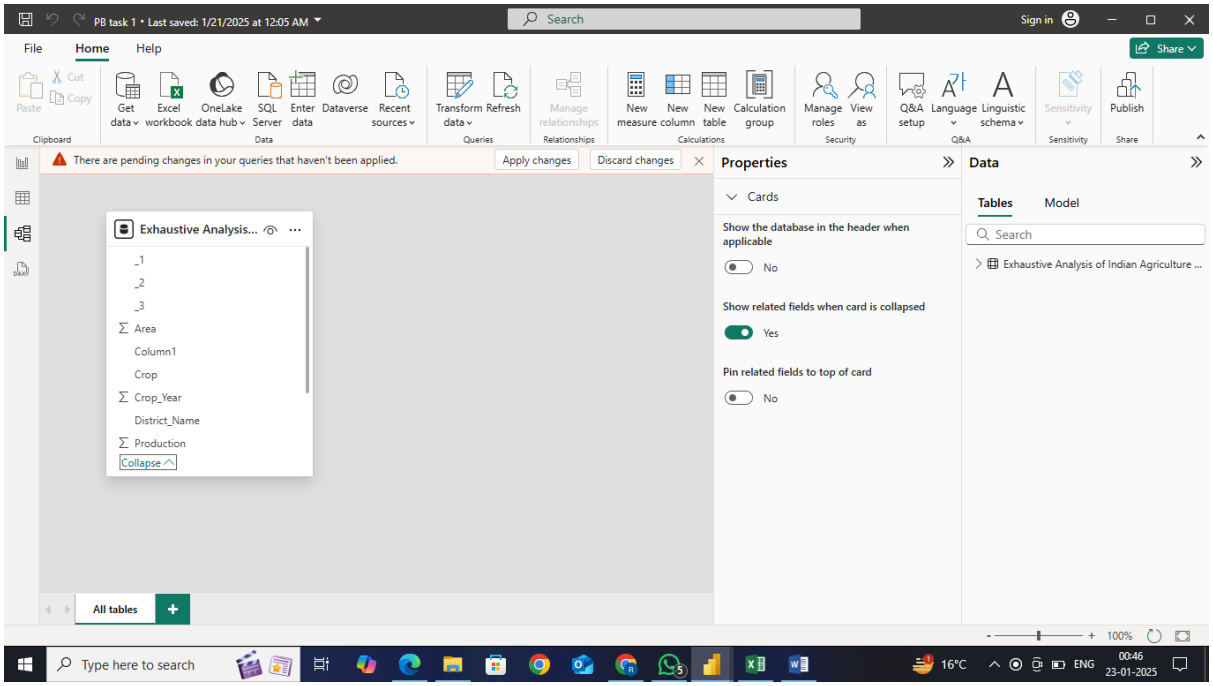
Step 6: Table View – See the Data

1. **Table View** allows you to see the raw data loaded into Power BI.
    - This view shows the **actual records** and values from your source data.
    - **Use Table View** to validate the data you have loaded and check for any anomalies or issues.



Step 7: Model View – Create Relationships and Merge Data

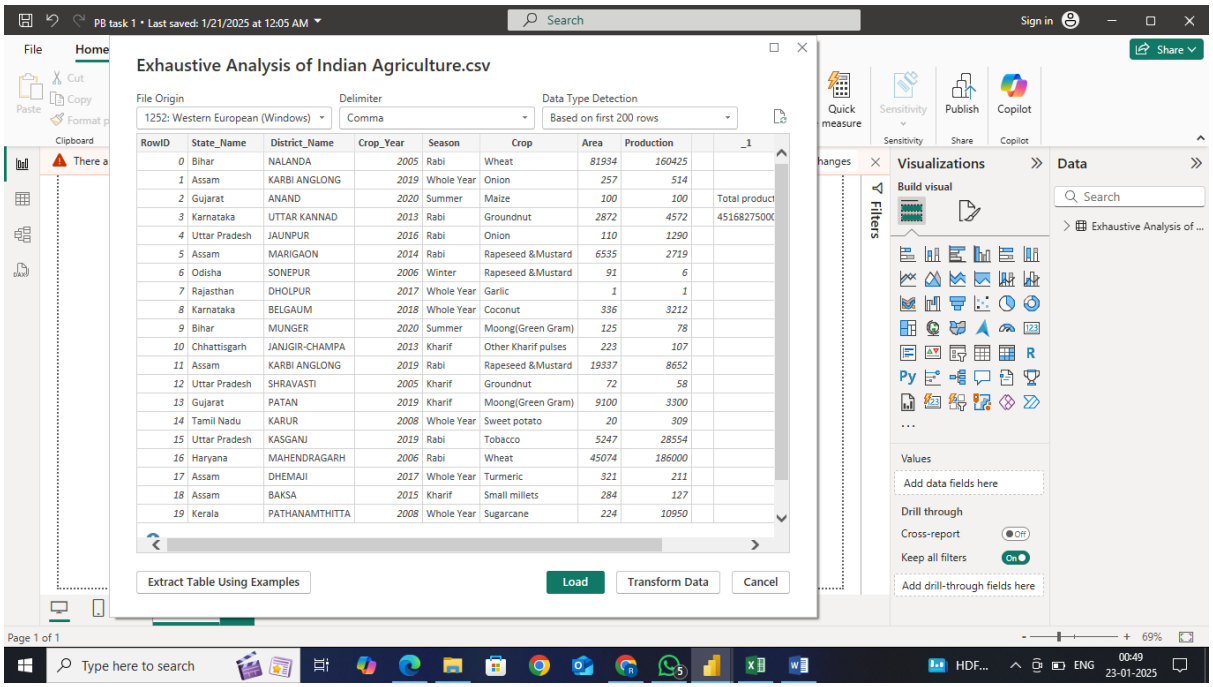
1. **Model View** is where you define relationships between your tables.
    - In the **Model View**, you can:
        - **Create relationships**: Link different tables together based on common fields (e.g., ProductID, CustomerID).
        - **Define relationships**: One-to-many, many-to-one, or many-to-many relationships.



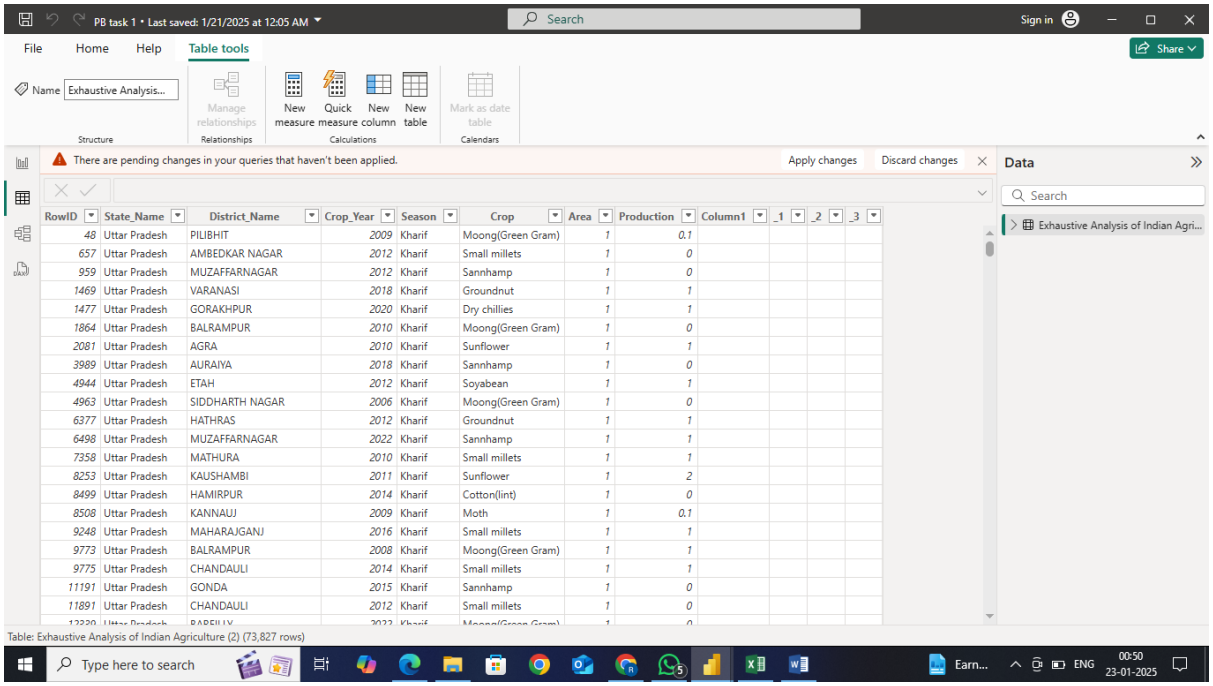
- **Merge Operation**: You can perform merge operations to combine data from multiple tables (similar to SQL joins). For example, merging a "Sales" table with a "Product" table based on a common "ProductID".

Step 8: Key Power BI Views

1. **Report View**: Create interactive reports with visualizations.



2. **Table View**: View raw data and perform data validation.



3. **Model View**: Define relationships between tables and merge data for analysis.

Step 9: Analysis and Dashboard Creation

1. Once your data is transformed and relationships are created, you can perform data analysis and derive **insights**.
2. Create **dashboards** by selecting key visuals from your report.
3. Dashboards are a way to consolidate and display important metrics for decision-makers in an easy-to-understand manner.

Step 10: Final Remarks

- **Load**: When your data is cleaned and ready for analysis, you load it into Power BI.
- **Transform**: Data transformation involves cleaning and processing the data (done in Power Query).
- **Report View**: Visualize the data, create reports, and share insights through interactive dashboards.
- **Model View**: Define relationships and merge multiple data sources to create a cohesive dataset for analysis.

By following this workflow, you'll be able to leverage Power BI effectively for BI (Business Intelligence) tasks like data extraction, transformation, loading, and reporting.