# EDUNET FOUNDATION

# SKILL4FUTURE

## WEEK-1 MILESTONE

PROJECT-1

EXHAUSTIVE ANALYSIS OF INDIAN AGRICULTURE SECTOR USING POWER BI

## INTRODUCTION TO POWERBI AND ITS CONCEPT

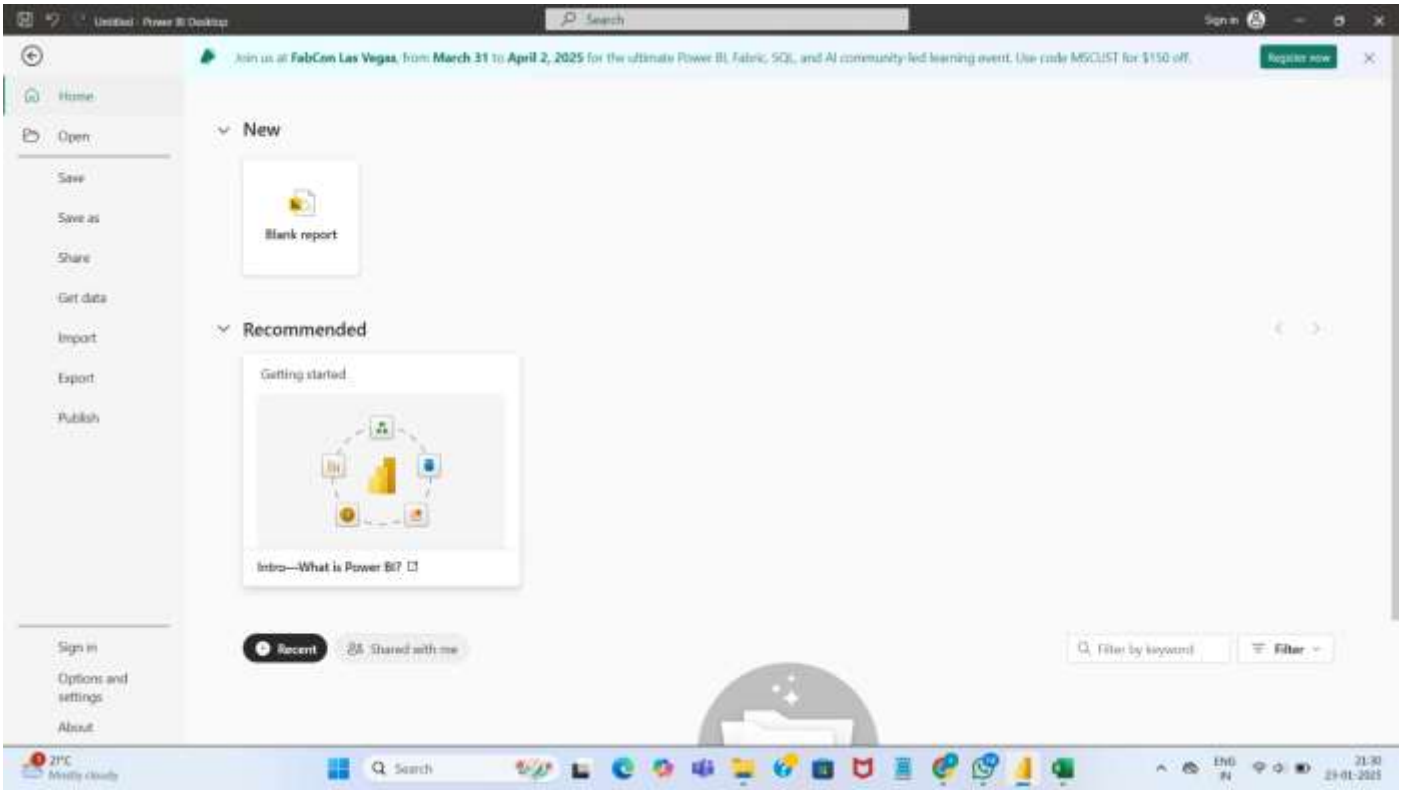
# INTRODUCTION

**Step 1: Understanding the Interface**

- **Home Screen:**
    - The Power BI interface shows options to create a new report, open an existing one, or access recent projects.
    - You can see a "Blank Report" button under the "New" section, which is used to start creating a new report from scratch.

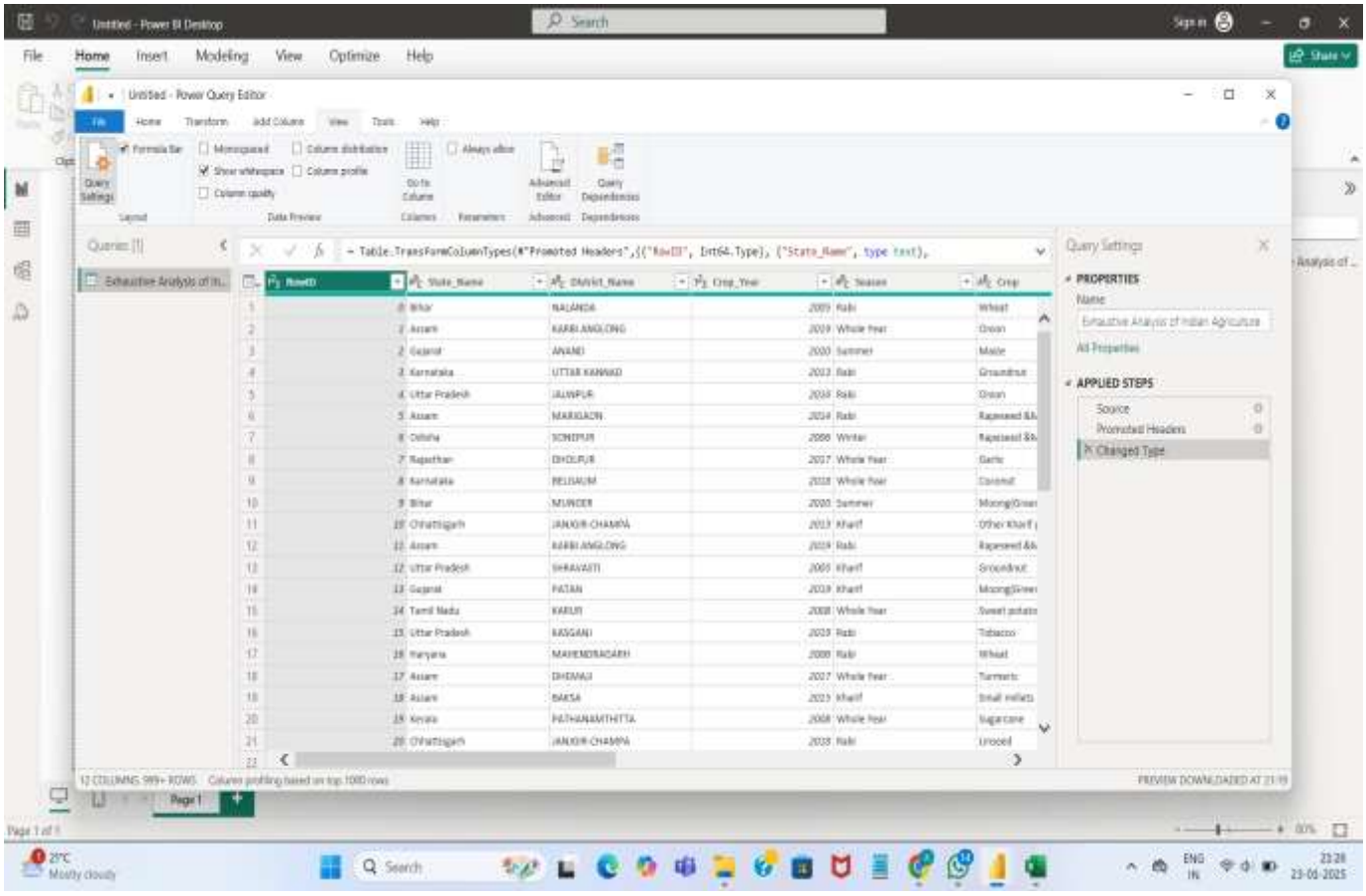
**Introduction:**

- Power BI is a business analytics tool by Microsoft that allows you to connect to multiple data sources, transform data, and create visualizations to gain insights and make data-driven decisions.
- It includes features such as dashboards, interactive reports, and data exploration.



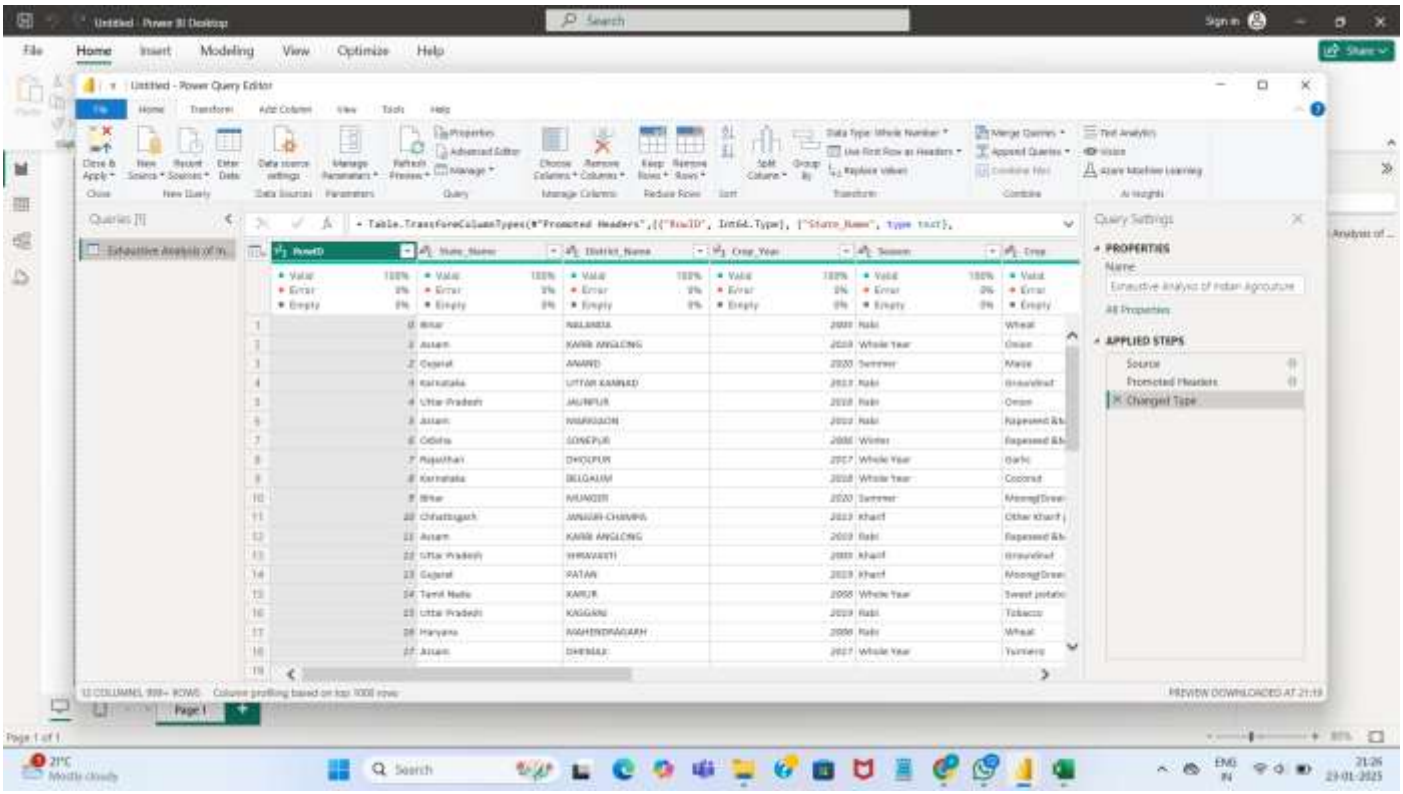
**Step 3: Steps to Start with Power BI**

1. **Create a New Report:**
    - Click the **Blank Report** button to start building a report.
    - This will open the report canvas, where you can add visualizations, charts, and data.
2. **Import Data:**
    - Use the **Get Data** option on the left-hand menu (visible in your screenshot) to load data from various sources, such as Excel, SQL Server, or online services.
3. **Transform Data:**
    - Once the data is imported, Power BI's **Power Query Editor** helps clean and transform it, such as removing null values, renaming columns, or creating calculated columns.
4. **Build Visualizations:**
    - After preparing your data, use the **visualization pane** to create bar charts, pie charts, tables, etc., to represent your data visually.
5. **Publish Reports:**
    - Use the **Publish** option to upload your report to the Power BI service, where you can share it with others in your organization.



**Step 4: Exploring the Menu Options**

- **File Options (Left Sidebar):**
    - **Open, Save, Save as**: Manage your reports.
    - **Get Data**: Import data from various sources.
    - **Export**: Export reports in different formats.
    - **Publish**: Share reports with others.
- **Options and Settings:**
    - This allows you to configure global or report-specific settings, such as enabling hardware acceleration, setting up themes, or configuring data connections.



**Step 5: Learn Using Resources**

- **Recommended Resources:**
    - Explore tutorials and sample datasets to practice and familiarize yourself with Power BI's features.

**Main Components in the Interface**

**1. Report Canvas (Center)**

- This is the main working area where you create visualizations.
- You can build visuals by dragging fields from the "Data" pane (on the right) to the canvas.
- Instructions are provided: *"Select or drag fields from the Data pane onto the report canvas."*

**2. Ribbon Menu (Top)**

- The ribbon provides various tools and options for working with your report:
    - **Home Tab:**
        - **Get Data:** Connect to data sources such as Excel, SQL Server, or online services.
        - **Transform Data:** Opens Power Query Editor to clean and prepare your data.
        - **Visual Options:** Add visual elements like charts, tables, or text boxes to the canvas.
        - **Publish:** Share your report to the Power BI service for collaboration.
    - Other tabs like **Insert, Modeling, View, and Optimize** offer additional features for report creation and performance optimization.

**3. Visualizations Pane (Right)**

- This pane contains different chart types and tools for creating visuals, such as:
    - Bar charts, pie charts, line graphs, scatter plots, etc.
    - Special visuals like maps and Python/R visuals.
    - Drag fields from the "Data" pane into the **Values, Drill-through, or Filters** areas here to customize visuals.

**4. Data Pane (Right)**

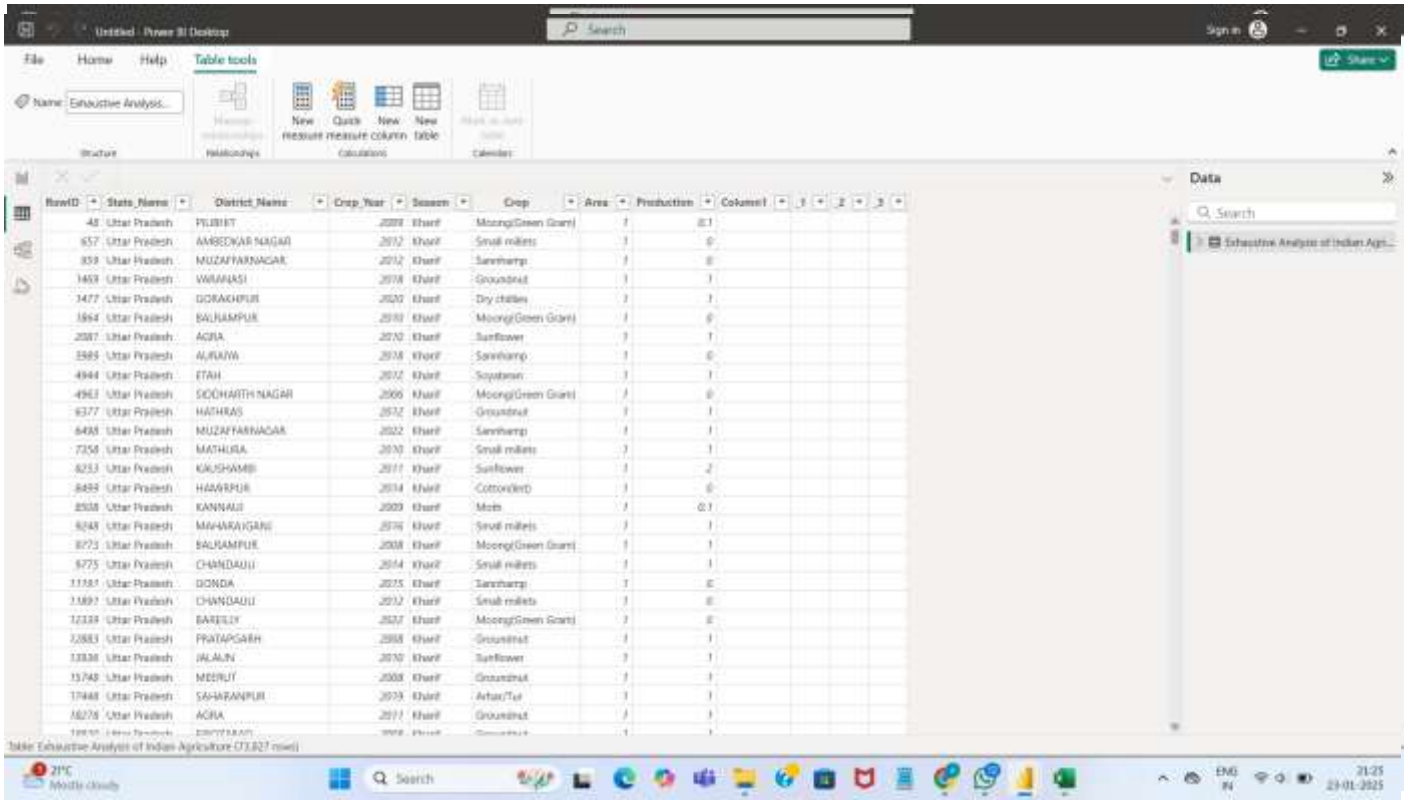
- This pane displays the datasets you've connected to Power BI.
- In the screenshot, a dataset called "Exhaustive Analysis of ..." is visible.
- You can drag fields from here to the report canvas or to the visualization fields to build your report.

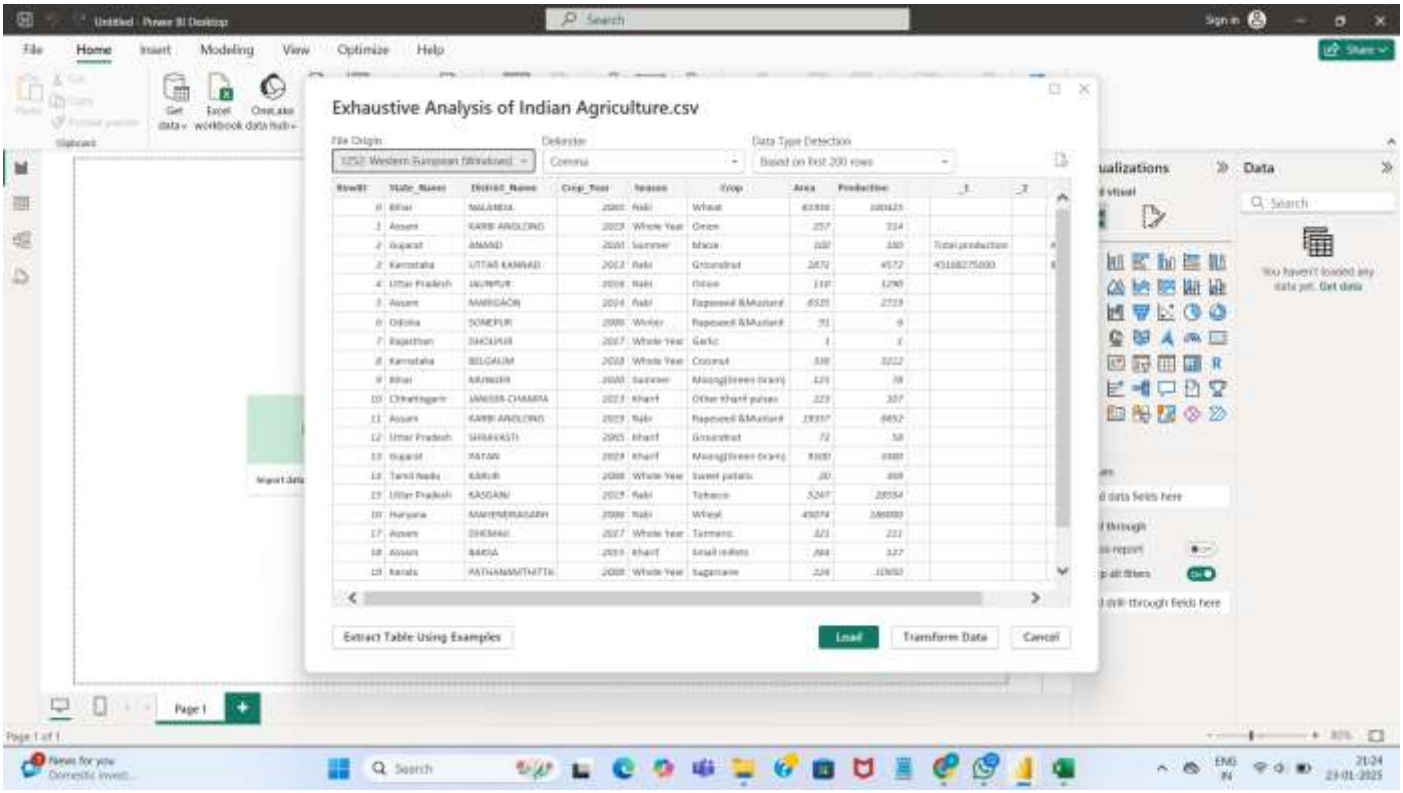
**5. Filters Pane (Right Sidebar)**

- Filters allow you to refine your data and visuals by including or excluding specific data points.
- You can add drill-through fields, apply cross-report filtering, or toggle keeping all filters active.

**6. Pages (Bottom Left)**

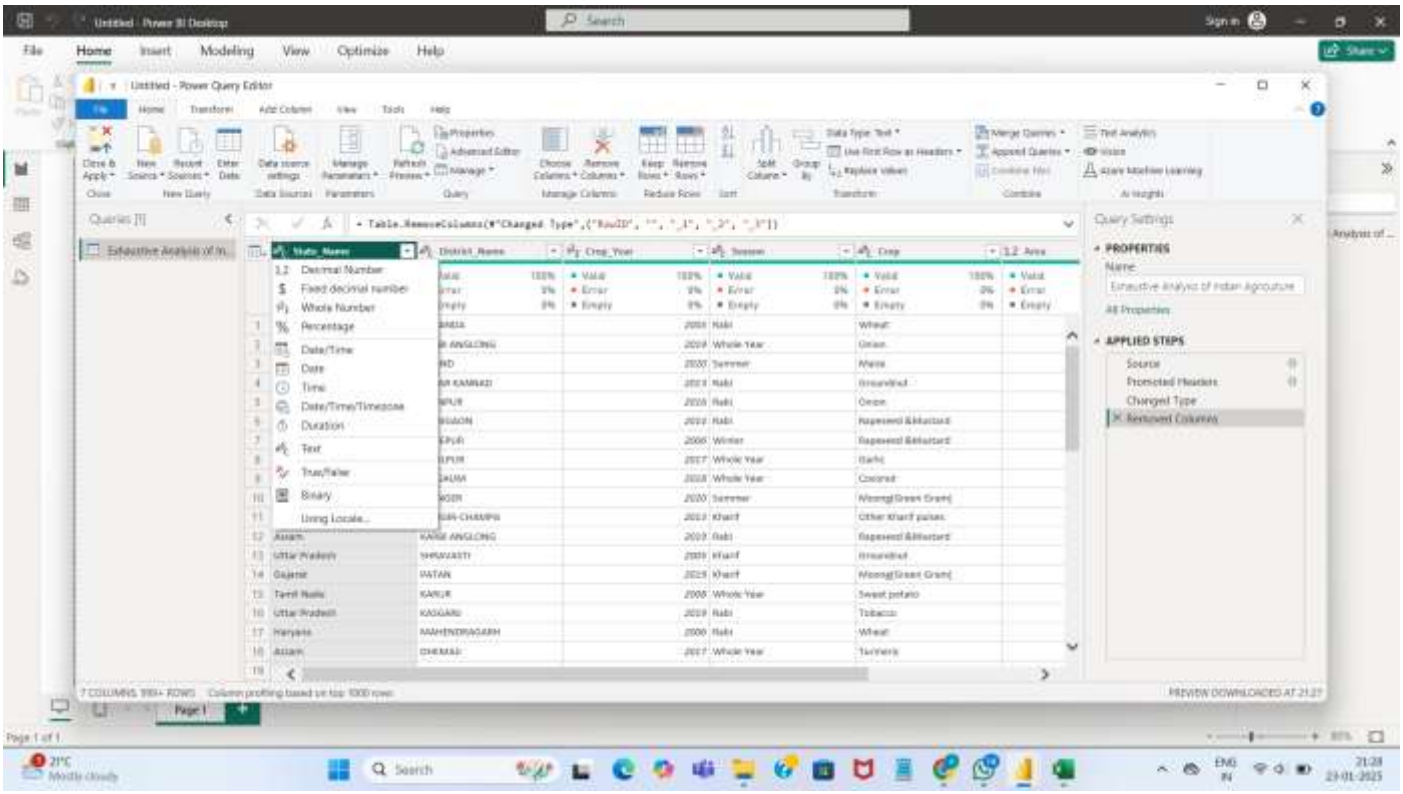
- Add multiple pages to your report using the "+" button. Each page can contain different visuals and datasets.


Untitled - Power BI Desktop
File
Home
Help
Table tools
Data
Search
Sign in
Share
Build visuals with your data
Select or drag fields from the Data pane onto the report canvas.
Visualizations
Page 1




**Steps to Build a Report**

1. **Connect to Data:**
    - Click **Get Data** in the ribbon to connect to a dataset (e.g., Excel, SQL Server, etc.).
2. **Transform Data:**
    - Use the **Transform Data** option to clean or modify the data before using it for visualizations.
3. **Create Visualizations:**
    - Drag fields from the **Data Pane** into the canvas or the visualization areas to create charts or tables.
    - Choose a chart type from the **Visualizations Pane**.
4. **Customize Visuals:**
    - Adjust fields under the **Values** section in the visualizations pane.
    - Use formatting options to style the visual (e.g., change colors, labels, etc.).
5. **Add Filters:**
    - Use the **Filters Pane** to narrow down data displayed in your visuals.
6. **Publish the Report:**
    - Once the report is complete, use the **Publish** button to share it on the Power BI service.



**Key Components in the Power Query Editor**

**1. Ribbon (Top)**

- The ribbon provides options for data transformation:
    - **Home Tab:**
        - **Close & Apply:** Applies all the changes you've made and loads the data into the report canvas.
        - **Transform Data:** Offers tools like changing data types, splitting columns, or applying transformations.
        - **Reduce Rows:** Options for removing rows (e.g., duplicates, errors, etc.).
        - **Combine:** Tools to merge or append multiple queries.
    - **Transform Tab:** Includes advanced transformation tools (e.g., pivot, unpivot, split columns, etc.).

**2. Data Preview (Center)**

- Displays a preview of the data after applying transformations.
- Columns such as:
    - **State_Name:** The state where the data originates.
    - **District_Name:** The district associated with the data.
    - **Crop_Year:** The year when the crop was grown.

- **Crop:** Type of crop (e.g., Wheat, Onion, etc.).
- **Area:** The area covered for growing the crop.
- **Season:** The season in which the crop was grown.

**3. Query Settings Pane (Right)**

- Displays the steps applied to your data:
  - **Source:** Shows where the data is coming from (e.g., Excel, SQL Server).
  - **Promoted Headers:** Ensures the first row of your dataset is treated as column headers.
  - **Changed Type:** Automatically assigns data types (e.g., text, number, date) to columns.
  - **Removed Columns:** A step where unnecessary columns were deleted (e.g., RowID or other irrelevant data).

**4. Queries Pane (Left)**

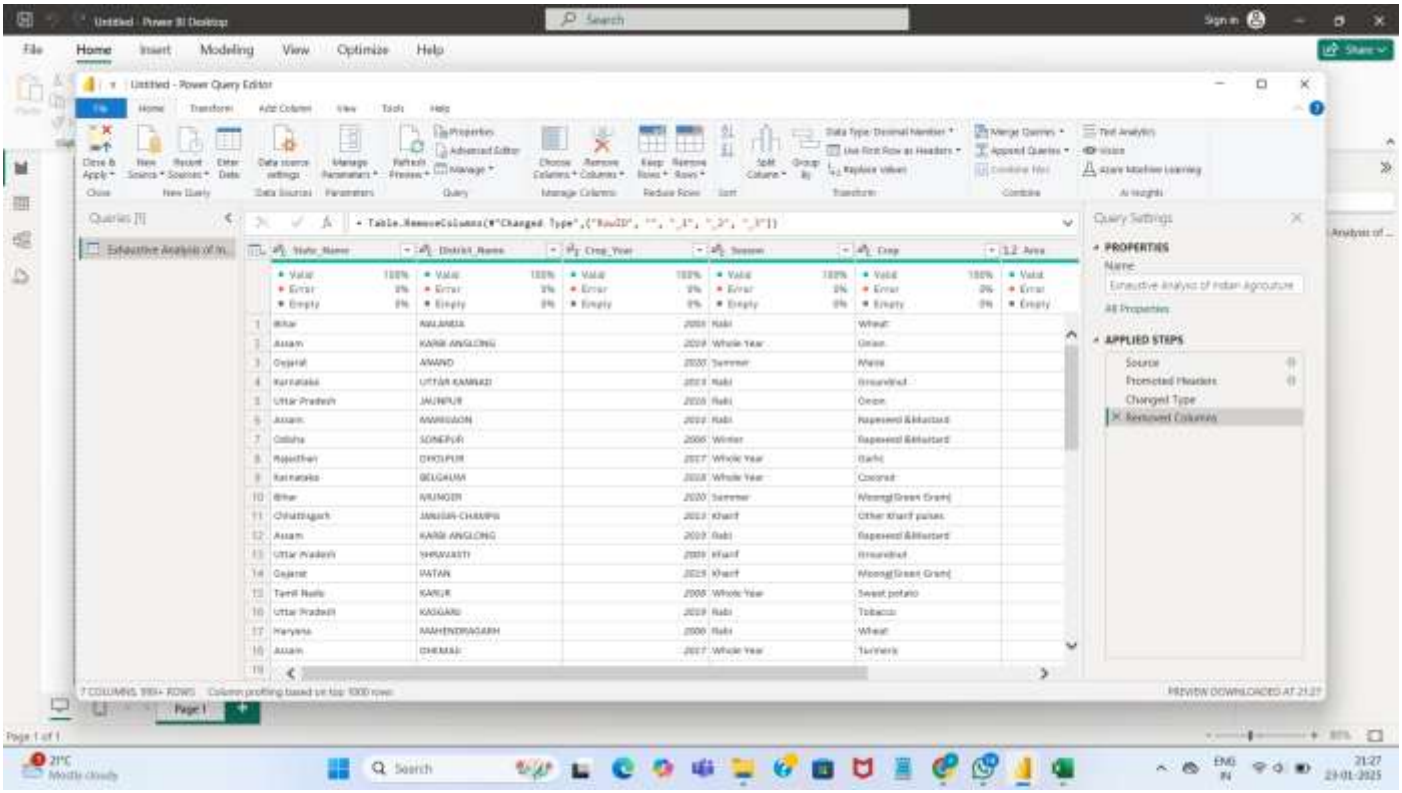
- Lists the data tables/queries in your project. In this case, there is one query titled **"Exhaustive Analysis of Indian Agriculture."**

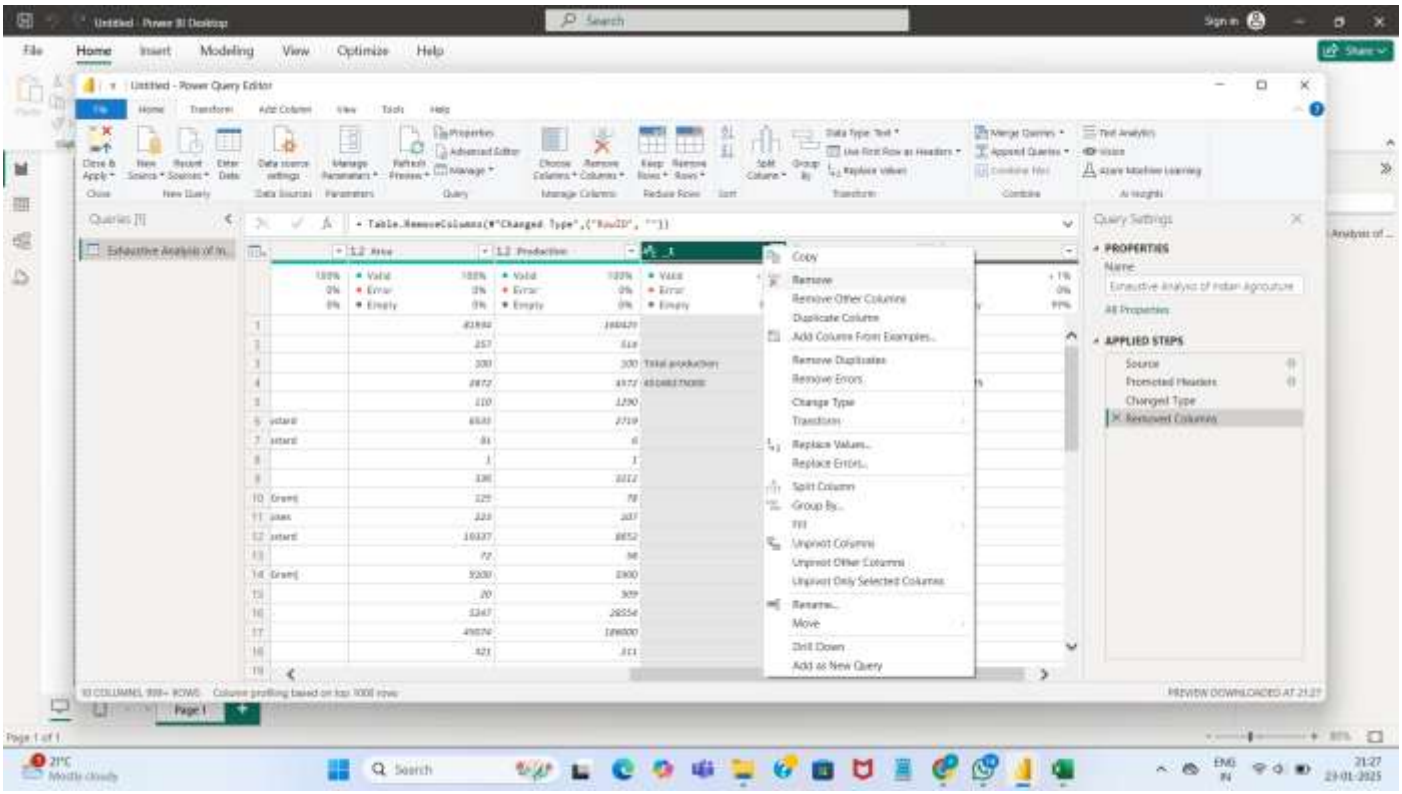
**5. Applied Steps**

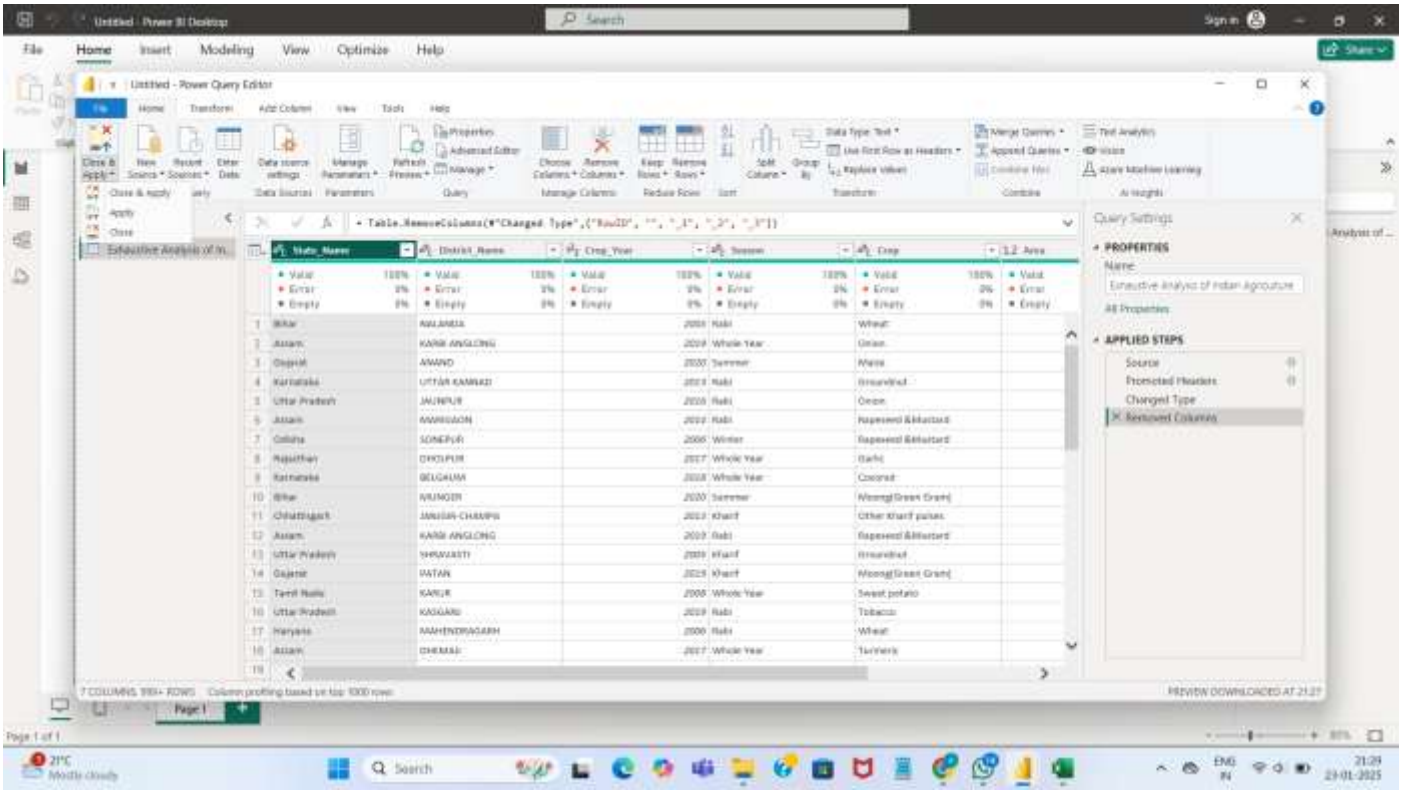
- This section logs every transformation step you've performed on the data. You can:
  - Add a new step.
  - Modify an existing step.
  - Delete steps that are no longer needed.

**6. Column Profiling (Bottom)**

- Displays data quality information for each column:
  - **Valid, Error, Empty:** Shows the percentage of valid, erroneous, or empty entries in each column.
  - **Column profiling based on top 1000 rows:** Analyzes a subset of data for performance reasons. You can adjust this to analyze the entire dataset.







This image appears to show a Power BI Desktop application window. Power BI is a business analytics service provided by Microsoft that allows users to create interactive data visualizations and reports.

The specific view shown is the "Power Query Editor", which is a tool within Power BI for importing, transforming, and preparing data before building visualizations.

The main elements I can see in the image are:

1. The ribbon menu across the top with options like File, Home, Insert, Modeling, View, etc.

2. The "State Name" table shown in the main window, which contains data about different states in India, including the state name, crop, year, area, and other details.

3. The "Properties" pane on the right, which allows you to inspect and modify properties of the selected data.

4. The "Applied Steps" pane below, which shows the data transformation steps that have been applied to the original data.

Overall, this appears to be a Power BI data modeling and preparation workflow, where the user is working with state-level agricultural data and applying various transformations and analysis to prepare it for visualization and reporting.