

Week 3 – Business Analytics Fundamentals – Sydney Campus



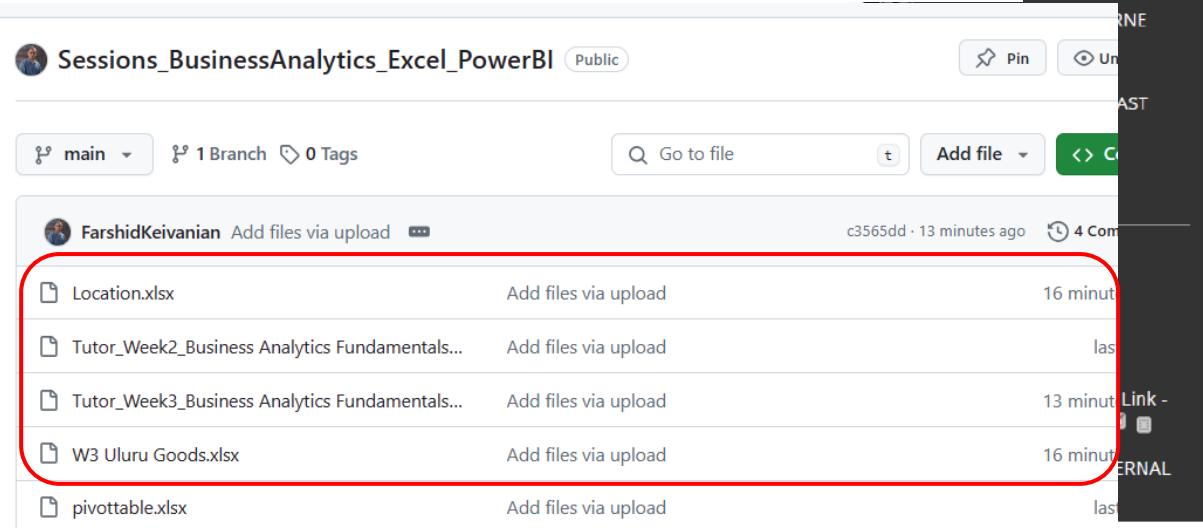
- 1. Summary of Lecture 2**
- 2. Tutorial Week 3**
- 3. Key assessment dates**
- 4. Attendance & Tutorial Questions - Recognising student participation and engagement specifically identifying those who are most actively involved!**

Lecturer/Tutor: Dr. Farshid Keivanian

Check your email now!

Tutorial Week 2 & 3

The document "Tutor_Week3_Business Analytics Fundamentals" pertains to a tutorial session centered around business analytics fundamentals, specifically focused on the application of Microsoft Power BI for data visualization and analysis. It guides students through various foundational concepts of business analytics, demonstrating the iterative process of investigating past business performance to optimize future planning. The tutorial also incorporates practical exercises using Power BI, covering data acquisition, management, and transformation to support informed business decisions. Additionally, the document offers insights into effective data visualization techniques and the differentiation between mere data collection and actionable intelligence.

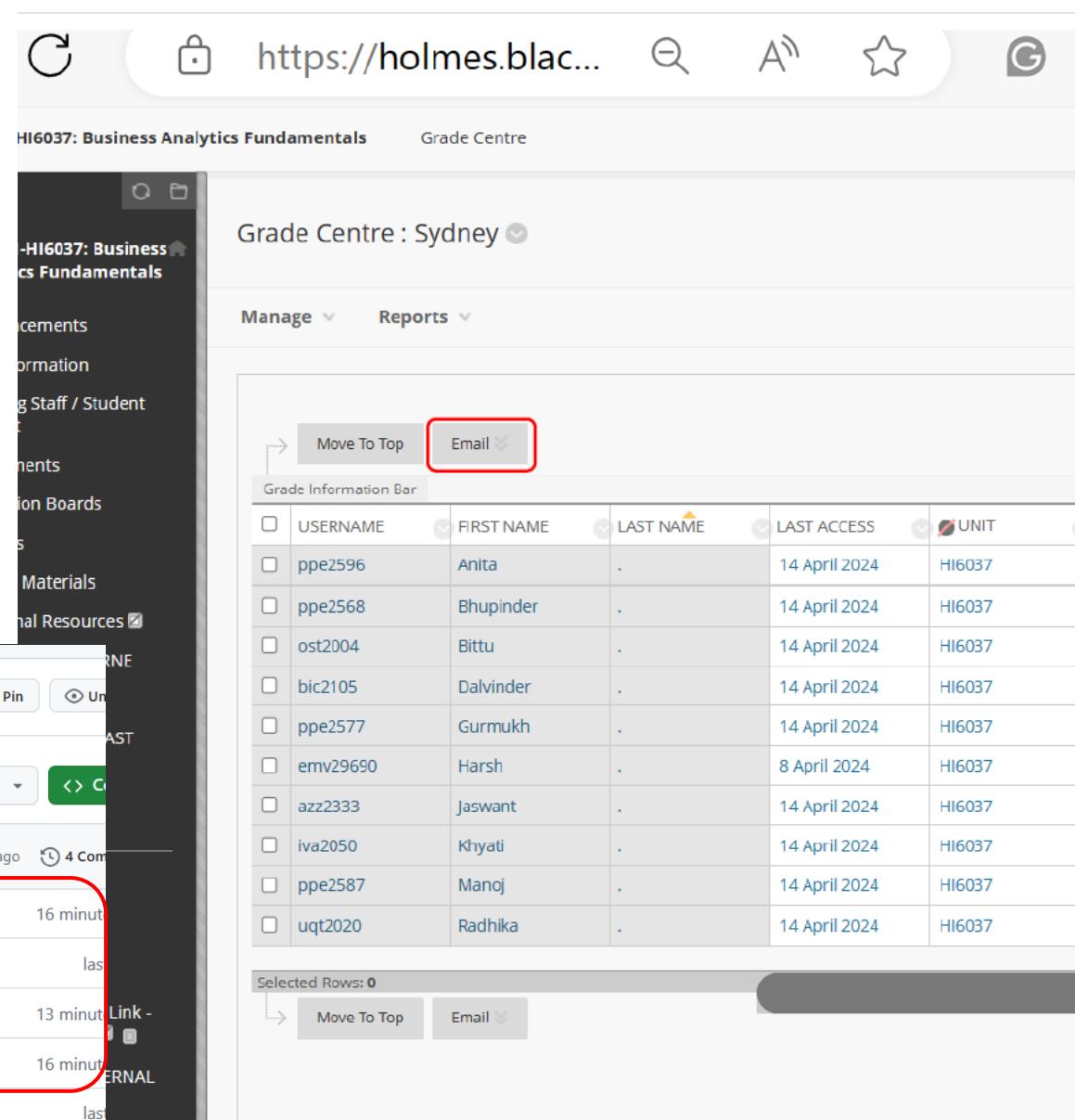


Sessions_BusinessAnalytics_Excel_PowerBI (Public)

main 1 Branch 0 Tags

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| File | Action | Last Modified |
|--|----------------------|----------------|
| Location.xlsx | Add files via upload | 16 minutes ago |
| Tutor_Week2_Business Analytics Fundamentals... | Add files via upload | last |
| Tutor_Week3_Business Analytics Fundamentals... | Add files via upload | 13 minutes ago |
| W3 Uluru Goods.xlsx | Add files via upload | 16 minutes ago |
| pivottable.xlsx | Add files via upload | last |



HI6037: Business Analytics Fundamentals Grade Centre

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Key assessment dates: Ask Questions and give me 1 week to reply: FKeivanian@my.holmes.edu.au



Key Assessment Dates

| ASSESSMENT | DUE DATE | DUE TIME | LENGTH |
|--------------------|-------------------------|----------|----------------------------------|
| Online Quizzes x 4 | Refer assessment folder | 9.00 pm | 15 minutes once test is accessed |
| Group Case Study | 2 June, 2024 | 11.59 pm | Refer to assignment instructions |

| ASSESSMENT | DATE | START TIME | DURATION |
|------------------|------|------------|----------|
| Final Assessment | TBC | TBC | TBC |

Please refer to the assessment folders below for full details regarding submission requirements and times



Online Quizzes Information

| ASSESSMENT | QUIZ DATE | QUIZ AVAILABLE |
|------------|----------------|-------------------|
| Quiz 1 | 14 April, 2024 | 6.00 am – 9.00 pm |
| Quiz 2 | 28 April, 2024 | 6.00 am – 9.00 pm |
| Quiz 3 | 12 May, 2024 | 6.00 am – 9.00 pm |
| Quiz 4 | 26 May, 2024 | 6.00 am – 9.00 pm |

Key assessment dates: Ask Questions and give me 1 week to reply: FKeivanian@my.holmes.edu.au

 **Group Case Study Information** 

| | |
|----------|--------------|
| DUE DATE | 2 June, 2024 |
| DUE TIME | 11.59 pm |

This folder contains information about the **Group Case Study** that forms part of the assessment for this unit. Information includes **instructions to join a group**, detailed assignment requirements and submission link.

 **Final Assessment Information** 

Availability: Item is hidden from students.

This folder contains information about the **Final Assessment** and includes detailed assessment specifications, submission requirements and submission link.

Please note that the assessment and submission link is only available during the period listed above.

The submission link will not be available once the time expires therefore it is strongly recommended you allow yourself sufficient time to complete the assessment prior to the link closing.

If you do not have internet access or if your connection is poor, it is your responsibility to seek out another source such as a public library, internet café, etc., to submit your assessment within the required time.

No late submissions are allowed.

1. Summary of Lecture 2



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- In lecture week 2 of the HI6037 Fundamentals of Business Analytics course, the importance of business analytics in driving informed business decisions was emphasized. The lecture outlined the business analytics process, defining it as a continual, iterative exploration of past business performance to drive future business planning. The lecture noted that although abundant information exists, it often doesn't translate into actionable intelligence for decision-makers. This is underscored by a Gartner Research finding from 2007, which noted that only 36% of CEOs believe their management teams use the right information to run their businesses effectively.

1. Summary of Lecture 2: A Practical Example in Australia

- A practical example in the Australian context might be the transformation story of an Australian retail company that utilized business analytics to optimize its inventory management. After consistently facing issues with overstocking and stockouts, the company identified this as a critical business issue. By formulating specific questions around optimal stock levels and examining historical sales data, the company was able to refine its inventory purchase strategy, leading to improved availability of products and cost savings.
- The lecture continued to illustrate how Continental Airlines moved from being unprofitable in the early '90s to a leader in the industry by the mid-'90s, driven by a data-centric approach that offered a single view of the customer and the business. The process of identifying business issues, formulating questions, gathering and analyzing information, and then taking actions based on the insights was explored as a cyclical process contributing to this turnaround.

1. Summary of Lecture 2: A Practical Example in Australia

- In summary, business analytics is crucial for understanding and enhancing business performance. By leveraging data, companies can make informed decisions that lead to improved operations and competitive advantage. The lecture underscored the necessity of aligning the business analytics process with corporate strategy to ensure that actions taken are in service of the broader organizational goals.

2. Tutorial Week 3: Introduction to Business Analytics – Foundational Concepts to Understand

The tutorial week 3 document is centered around an introduction and tutorial for using Microsoft Power BI for data visualization and analysis. It assumes some familiarity with the foundational concepts as it guides through applying them in practical exercises using Power BI. We will be exploring an explanation of each concept with practical examples:

1. Business Analytics: It's the application of skills, technologies, and practices for continuous iterative exploration and investigation of past business performance to gain insight and drive business planning.

Example: An Australian retail company analyzes historical sales data to forecast inventory needs for the upcoming season.

2. Tutorial Week 3: Introduction to Business Analytics – Foundational Concepts to Understand

2. Information vs Intelligence: Differentiating between mere data collection (information) and actionable insights (intelligence). **Example:** An Australian logistics company collects GPS tracking data (information) and uses it to optimize delivery routes (intelligence).

3. Business Analytics Process: Involves steps from identifying issues to evaluating results. **Example:** An Australian healthcare provider uses patient data to identify treatment success rates and areas for improvement.

4. Data Acquisition and Management: Evolution from simple data collection to sophisticated data mining. **Example:** An Australian bank employs advanced data mining techniques to detect fraudulent transactions.

2. Tutorial Week 3: Introduction to Business Analytics – Foundational Concepts to Understand

5. OLTP vs OLAP: Knowing the difference between transactional systems (OLTP) and analytical systems (OLAP). Understanding these systems' roles in operational and analytical phases is crucial. **Example:** An Australian e-commerce platform uses OLTP for daily transactions and OLAP for analyzing customer buying patterns.

6. Data Warehousing: Understanding what a data warehouse is and its significance. Basic knowledge is essential. **Example:** An Australian telecommunications company uses a data warehouse to integrate data from various sources for analysis.

Practical Example: Using business analytics in an Australian retail chain to improve stock management and sales strategies. The chain could use historical sales data, customer feedback, and market trends analyzed through a business analytics process involving Power BI to forecast demand, optimize inventory levels, and tailor marketing campaigns, thereby reducing costs and increasing revenue.

2. Tutorial Week 3: Understanding the Datasets

- Location.xlsx
- This Excel file contains geographical information useful for linking sales data with specific locations within the retail chain. Here's what each column represents:
- **City:** Contains codes representing various cities where the stores are located.
- **State #:** Lists numerical codes for states correlating to the city codes.
- **Description:** Provides the descriptive name of each city linked to the city codes.
- For geographic analysis or demographic studies, we use Location.xlsx

| A | B | C | D |
|----|-------|---------|--------------|
| 1 | City | State # | Description |
| 2 | CT212 | 8050456 | GILLETTE |
| 3 | CT486 | 8050456 | RAWLINS |
| 4 | CT498 | 8050456 | ROCK SPRINGS |
| 5 | CT49 | 8050453 | BELLINGHAM |
| 6 | CT65 | 8050453 | BOTHELL |
| 7 | CT284 | 8050453 | KENT |
| 8 | CT291 | 8050453 | KIRKLAND |
| 9 | CT331 | 8050453 | LYNNWOOD |
| 10 | CT427 | 8050453 | OLYMPIA |
| 11 | CT433 | 8050453 | OTHELLO |
| 12 | CT470 | 8050453 | PORT ANGELES |
| 13 | CT491 | 8050453 | RENTON |
| 14 | CT537 | 8050453 | SEATTLE |
| 15 | CT557 | 8050453 | SPOKANE |
| 16 | CT634 | 8050453 | YAKIMA |
| 17 | CT299 | 8050449 | LA VERKIN |
| 18 | CT351 | 8050449 | MEADOW |
| 19 | CT525 | 8050449 | SANDY |
| 20 | CT32 | 8050448 | AUSTIN |
| 21 | CT43 | 8050448 | BEAUMONT |
| 22 | CT76 | 8050448 | BRYAN |
| 23 | CT110 | 8050448 | CLEVELAND |
| 24 | CT120 | 8050448 | CONROE |
| 25 | CT131 | 8050448 | DALLAS |
| 26 | CT137 | 8050448 | DAYTON |

2. Tutorial Week 3: Understanding the Datasets



- W3 Uluru Goods.xlsx
- This file offers a comprehensive look at the sales performance of Uluru Goods across various stores. Detailed fields include:
 - **Order_ID:** Unique identifier for each order placed.
 - **Date:** The date each order was made (in Excel date format, which can be converted to a standard date).
 - **Store_ID** and **Store_desc:** Identifier and description of the store where the order was placed.
 - **Longitude** and **Latitude:** Geographic coordinates of the store, useful for spatial analysis.
 - **City_ID** and **City_desc:** Links to the geographical location file for matching store locations with city details.
 - **Cat_ID** and **Category:** Category identifier and description, which categorize the products sold.
 - **Product_ID** and **Prod_desc:** Details of the individual products sold.
 - **Price, Quantity_Sold, Original_Sales_Price, Discount_Percent, Discount, Sales_Revenue, Gross_Margin:** All pertain to the pricing, sales volume, discounts given, revenues generated, and margins on products sold. For sales performance, we use 'W4 Uluru Goods.xlsx' which contains sales data.

2. Tutorial Week 3: Using the Data with Power BI



- Data Integration and Analysis
- **Query Editor:** First, use the Query Editor in Power BI to import and cleanse the data from both Excel files. This involves tasks such as changing column names to more meaningful ones, converting data types appropriately, and removing unnecessary rows or columns.
- **Data Modelling:** Combine data from the two Excel files by linking them via common identifiers like city codes or store IDs. This is crucial for performing comprehensive analyses that incorporate location-based insights.
- **Data Visualization:** After modeling, use Power BI to create visualizations. For instance, sales performance can be visualized geographically, or trends over time can be analyzed through line graphs or bar charts.

Each of these topics is elaborated on, particularly focusing on how to prepare, transform, and model the data using various Power BI tools, making the content quite comprehensive in addressing the processes of handling and visualizing data in Power BI.

2. Tutorial Week 3: Practical Exercise

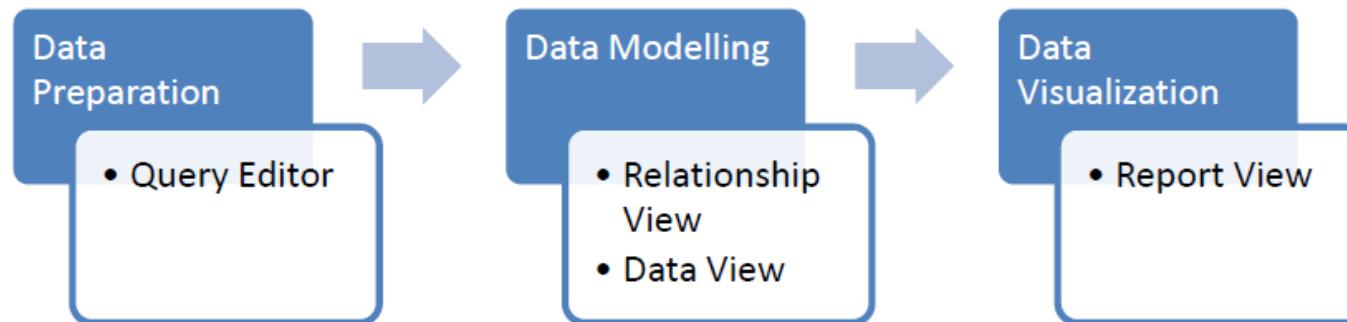
- **Forecasting and Optimization:** Use historical sales data to forecast future demands, using Power BI's forecasting tools. This aligns with the Microsoft Power BI document's scenario of using Power BI to analyze sales revenues and costs, aiming to enhance the business analytics environment of a company.
- Overall, the provided Microsoft Power BI document serves as an introduction to using Power BI for data manipulation and visualization. It is more geared towards foundational skills in handling and visualizing data rather than advanced analytical applications.

2. Tutorial Week 3: Power BI Desktop components



Power BI Desktop

Power BI Desktop has a number of components that can be used to acquire, transform, visualise and analyse data. These include:



- **Query Editor**, where you can connect to one or many data sources, transform the data to meet your needs, then load that model into Power BI Desktop
- **Data View** – see the data in your report in data model format. You can add measures, create new columns, and manage relationships
- **Relationships View** – Used to create relationships between the datasets defined in *Data view*. Power BI Desktop attempts to identify the relationships automatically, but a user can also define them manually
- **Report view**: A canvas for building and viewing reports based on the datasets defined in *Data View*.

2. Tutorial Week 3: Dataset

We will be using each of the components throughout the various tutorials.



Scenario - Data Set



Company History

Uluru Goods is an American based company sells apparel, groceries, household, hardware and camping equipment throughout America. Due to several tax and export issues, Uluru Goods headquarters is located in Philadelphia and has warehouses for shipping in both San Diego and Miami. San Diego handles West Coast distribution

2. Tutorial Week 3: Dataset

while Miami handles East Coast distribution. The company would like a business analytics environment to get a better understanding of their sales revenues and costs for various products and product categories.



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Products

As mentioned previously Uluru Goods sells apparel, groceries, household, hardware and camping equipment. The range of products includes:

| Product Category | Product |
|------------------|-------------|
| Apparel | Rain Jacket |
| | Gloves |
| | Boots |
| Grocery | Water |
| | Beef Jerky |
| Household | Bucket |
| | Mop |
| | Hammer |
| | Nails |
| Camping | Tarp |
| | Canteen |

2. Tutorial Week 3: Dataset



Data Set

The data supplied records the sales of products for each store. The data dictionary is below:

| Field | Data Type | Description |
|------------|-----------|--|
| Actuals | Text | Version of data |
| Order_ID | Number | Unique identifier of orders |
| Date | Date | Date of order |
| Store_ID | Text | Unique identifier of store |
| Store_desc | Text | Name of store |
| Longitude | Number | Longitude of store |
| Latitude | Number | Latitude |
| City_ID | Text | Unique identifier of City where store is located |

Goals

The purpose of this tutorial is to introduce students to the analytical capabilities of Microsoft Power Bi. Students will define and create an analytical data model based on a provided data set. This model will then be used to explore the data to answer a number of queries. The model will also form the basis for a series of visualisations and dashboards.

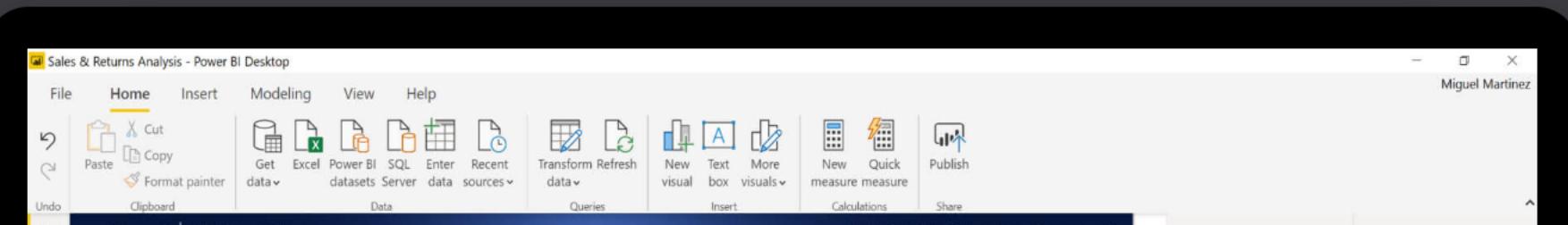
<https://powerbi.microsoft.com/en-us/desktop/>

Go from data to insight to action with Power BI Desktop

Create rich, interactive reports with visual analytics at your
fingertips—for free.

[Download free >](#)

[See download or language options >](#)



2. Tutorial Week 3: Installation

Microsoft Store

Search apps, games, movies, and more

Screenshots

Power BI Desktop

Power BI Desktop

Microsoft Corporation

4.7 ★ 504

Average Ratings

Business

IARC 3+ 3+

Description

Power BI Desktop puts visual analytics at your fingertips. With this powerful authoring tool, you can create interactive data visualizations and reports.

Connect, mash up and model, and visualize your data. Place visuals exactly where you want them, analyze and explore your data, and share content with your team by publishing to the Power BI web service.

Power BI Desktop is part of the Power BI product suite. Use Power BI Desktop to create and

Home

Apps

Gaming

Arcade

Entertainment

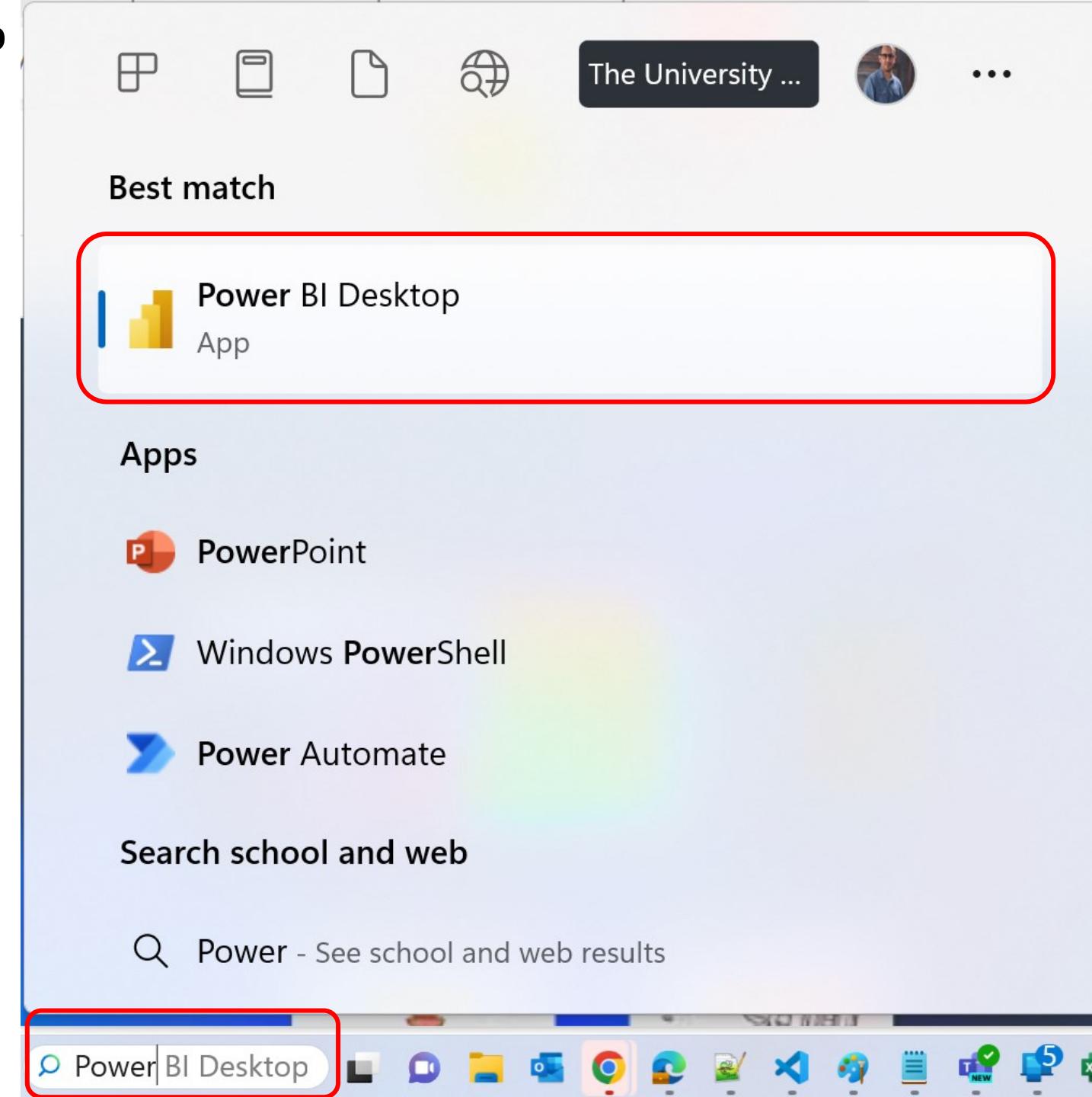
AI Hub

What's New

Library

Help

2. Tutorial Week 3: Running Power BI Desktop



2. Tutorial Week 3: Get Data

Untitled - Power BI Desktop

Search

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Home



Open

Save

Save as

Share

Get data

Import

Export

Open

Recent

OneDrive

Browse this device



Find recently opened reports here

Once you've opened some Power BI content, come back to Recents to find it again easily.

2. Tutorial Week 3: Get Data

The screenshot shows the Power BI Desktop interface with the title bar "Untitled - Power BI Desktop". The "Home" tab is selected in the ribbon. A red box highlights the "Get Data" button in the ribbon's "Data" section. Another red box highlights the "Get data" option in the expanded "Actions" menu. A third red box highlights the "Excel workbook" option under the "Common data sources" section. The right side of the screen displays a "Sensitivity" and "Data" pane.

Get Data

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File Home Insert Modeling Actions

Get data >

Common data sources

Get data

Excel workbook

OneLake data hub

SQL Server

Examples

Refresh

Transform data

Refresh visuals

Help

Get help with "Get Data"

Clipboard Data

Import data from Excel

Once loaded

Import data

Sensitivity

Data

Page 1

32%

2. Tutorial Week 3: Get Excel Document



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Sessions X Content X Bb 2658

https://holmes.blac...

2024-T1-HI6037: Business Analytics Fundamentals Tutorial Materials Week 3

Week 3

Build Content Assessments Tools Partner Content

W3 Power BI tutorial-Importing Data

W3 Uluru Goods.xlsx

Location.xlsx

Need help with Study Skills?
Workshops are occurring on each campus.
Online: [Click here to access the online Study Skills resource](#)

Browser: Mon Apr 15 2024 21:27:24 GMT+1000 (Australian Eastern Standard Time)

utor > W3 Search W3

| Name | Date modified | Type |
|----------------|------------------|-----------------|
| Location | 15/04/2024 04:38 | Microsoft Excel |
| W3 Uluru Goods | 15/04/2024 04:38 | Microsoft Excel |

W3 Uluru Goods

Excel Files (*.xl;*.xlsx;*.xlsm;*.xlst

Open Cancel



Getting Data

As mentioned previously Power BI can be connected to multiple data sources including Microsoft Excel and Access files, text files, and online services such as Salesforce, Microsoft Dynamics, and Azure Storage. For the purpose of this exercise you will acquire data from Microsoft Excel.



2. Tutorial Week 3: Open Query Editor by Selecting Load (Or Edit older versions)



Navigator

Display Options ▾

W3 Uluru Goods.xlsx [1]

- Transactions

Suggested Tables [1]

- Table 1 (Transactions)

Table 1 (Transactions)

| Version | Order_ID | Date | Store_ID | Store_desc |
|---------|----------|-------|----------|----------------------------|
| Actuals | 1 | 42579 | ST278 | Wanget (WAN4) |
| Actuals | 2 | 42579 | ST246 | Yummy Foods (YF6) |
| Actuals | 3 | 42579 | ST350 | Texi-mart (TEXI8) |
| Actuals | 4 | 42579 | ST1047 | Alfredsons (Alf4) |
| Actuals | 5 | 42578 | ST223 | Yummy Foods (YF3) |
| Actuals | 6 | 42640 | ST522 | Wakefields (WA9) |
| Actuals | 7 | 42609 | ST281 | Good Foods (GF6) |
| Actuals | 8 | 42577 | ST456 | Asadi Emporium (AE4) |
| Actuals | 9 | 42577 | ST380 | Eiffel Expo (EE5) |
| Actuals | 10 | 42607 | ST1021 | Miller Center (MC1) |
| Actuals | 11 | 42576 | ST358 | CommNet International (Com |
| Actuals | 12 | 42576 | ST200 | Eiland Foods (EFL4) |

Load

Transform Data

Cancel

2. Tutorial Week 3: Select Load in New Version or Edit in Older Version – for Query Editor in Next

The screenshot shows the Power BI Desktop interface with the following details:

- Top Bar:** Untitled - Power BI Desktop, Search, Farshid Keivanian.
- Home Tab:** Selected. Contains icons for Paste, Get data (with dropdown for Excel workbook, OneLake data hub, and SQL Server), Enter data, Transform, Refresh, New visual, Text box, More, New measure, Quick measure, Sensitivity, and Calculations.
- Clipboard:** Shows a warning message: "⚠ There are pending changes. Save now?"
- Load Dialog Box:** A modal window titled "Load" is open, showing the status: "Transactions Loading data to model...". It has a "Cancel" button.
- Bottom Bar:** Page 1, a green plus sign icon, and a ribbon of visualization icons (Line, Bar, Funnel, Map, Pie, Gauge, Table, World, Map, Line, R, Py, etc.).

2. Tutorial Week 3: Use Power Query Editor



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Untitled - Power BI Desktop Search Farshid Keivani

File Home Help Table tools Share ▾

Paste Get data ▾ SQL Server Enter data OneLake data hub ▾ Dataverse Recent sources ▾

Transform data ▾ Refresh Manage relationships New measure Quick measure New column New table Manage roles Calculations Security ▾

Clipboard Data

⚠ There are pending changes in your report. Use the Power Query editor to connect, prepare, and transform data.

ULURU GOODS SALES Column2 Column3 Column4 Column5

| | Column2 | Column3 | Column4 | Column5 |
|---------|---------|---------|---------|----------------------------|
| Actuals | 211 | 42560 | ST33 | Creative Images LLC (CI23) |
| Actuals | 407 | 42545 | ST343 | Texi-mart (TEXI5) |
| Actuals | 549 | 42623 | ST338 | Texi-mart (TEXI2) |
| Actuals | 567 | 42529 | ST342 | Texi-mart (TEXI4) |
| Actuals | 726 | 42635 | ST333 | Laura J's (LJ6) |
| Actuals | 732 | 42512 | ST215 | Killam Mart (KM8) |
| Actuals | 991 | 42486 | ST332 | Laura J's (LJ5) |
| Actuals | 1056 | 42479 | ST86 | ETK Mart (ETK17) |

Data Transactions

Data Preparation

- Query Editor

Query Editor

The Query Editor enables a user to prepare the data. You can make changes to the data, such as changing a data type, removing columns, or combining data from multiple sources. However, these changes do not affect the original source files.

The Query Editor screen has a number of components that you should become familiar with.

2. Tutorial Week 3: Use Power Query Editor



Often when data is loaded it is not suitable for analysis due to its structure and format. You can transform the data to prepare it for analysis. You do this before it is loaded it into a Data Model for analysis.

| | A ^B _C ULURU GOODS SALES | ABC 123 Column2 | ABC 123 Column3 |
|----|---|-----------------|-----------------|
| 1 | Version | Order_ID | Date |
| 2 | Actuals | | 1 |
| 3 | Actuals | | 2 |
| 4 | Actuals | | 3 |
| 5 | Actuals | | 4 |
| 6 | Actuals | | 5 |
| 7 | Actuals | | 6 |
| 8 | Actuals | | 7 |
| 9 | Actuals | | 8 |
| 10 | Actuals | | 9 |
| 11 | Actuals | | 10 |
| 12 | Actuals | | 11 |

2. Tutorial Week 3: Use the First Row as the Headers



Left Click on Table Symbol >> Use First Row as Headers

As the first row (line #1) contains more appropriate column headings, we need to use this first row (line #1) as headers.

Queries [2]

Transactions ULURU GOODS SALES ABC 123 Column2

A^BC Query1

= Table.TransformColumnTypes(#"Promoted")

Order_ID Date

| | |
|----|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |

Copy Entire Table

Use First Row as Headers (highlighted with a red box)

Add Custom Column...

Add Column From Examples...

Invoke Custom Function...

Add Conditional Column...

Add Index Column

Choose Columns...

Keep Top Rows...

Keep Bottom Rows...

Keep Range of Rows...

Keep Duplicates

Keep Errors

Remove Top Rows...

Remove Bottom Rows...

Remove Alternate Rows...

Remove Errors

Merge Queries...

Append Queries...

2. Tutorial Week 3: Use the First Row as the Headers

See Applied Steps

The screenshot shows the Power BI Query Editor interface. On the left, there's a 'Queries [2]' pane with 'Transactions' selected. The main area displays a table with three columns: 'Version', 'Order_ID', and 'Date'. The 'Version' column contains 13 rows labeled 'Actuals'. The 'Order_ID' and 'Date' columns each have one row with the value '1'. Below the table, it says '0 COLUMNS, 999+ ROWS' and 'Column profiling based on top 1000 rows'. To the right, a 'Query Settings' pane is open, showing 'Properties' for the query named 'Transactions'. A red box highlights the 'APPLIED STEPS' section, which lists several steps: 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Promoted Headers1', and 'Changed Type1'. The 'Changed Type1' step is currently selected. At the bottom right of the editor, it says 'PREVIEW DOWNLOADED AT 21:33'.

Each of the steps we perform in transforming data is recorded by Query Editor, and each time this query connects to the data source those steps are carried out so that the data is always shaped the way we specified.

2. Tutorial Week 3: Make Column Headings More Meaningful

Rename Some Columns

Prod_desc → Product

The screenshot shows the Power Query Editor interface. A table is being transformed with the formula: `= Table.TransformColumnTypes(#"Promoted Headers", {{"Prod_desc", "Product"}, {"Price", "L2 Price"}, {"Category", "Category Group"}, {"Count", "Count"}})`. The 'Prod_desc' column is highlighted with a red box. A context menu is open over this column, with the 'Rename...' option highlighted by another red box.

| Product_ID | Prod_desc | Category | Count | L2 Price |
|------------|-------------|----------|-------|----------|
| DS75 | Nails | Hardware | 10 | 1.2 |
| DS72 | Bucket | Hardware | 10 | 1.2 |
| DS64 | Water | Hygiene | 10 | 1.2 |
| DS89 | Tarp | Leisure | 10 | 1.2 |
| DS72 | Bucket | Hardware | 10 | 1.2 |
| DS54 | Gloves | Leisure | 10 | 1.2 |
| DS54 | Gloves | Leisure | 10 | 1.2 |
| DS56 | Boots | Leisure | 10 | 1.2 |
| DS51 | Rain Jacket | Leisure | 10 | 1.2 |
| DS56 | Boots | Leisure | 10 | 1.2 |
| DS77 | Nails | Hardware | 10 | 1.2 |
| DS75 | Nails | Hardware | 10 | 1.2 |
| DS54 | Gloves | Leisure | 10 | 1.2 |

The screenshot shows the Power BI Data View. The 'Prod_desc' column has been renamed to 'Product'. The 'All Properties' pane on the right shows the step 'Renamed Columns'.

| Product | Category | Count | L2 Price |
|-------------|----------|-------|----------|
| Nails | Hardware | 10 | 1.2 |
| Bucket | Hardware | 10 | 1.2 |
| Water | Hygiene | 10 | 1.2 |
| Tarp | Leisure | 10 | 1.2 |
| Bucket | Hardware | 10 | 1.2 |
| Gloves | Leisure | 10 | 1.2 |
| Gloves | Leisure | 10 | 1.2 |
| Boots | Leisure | 10 | 1.2 |
| Rain Jacket | Leisure | 10 | 1.2 |
| Boots | Leisure | 10 | 1.2 |
| Nails | Hardware | 10 | 1.2 |
| Nails | Hardware | 10 | 1.2 |
| Gloves | Leisure | 10 | 1.2 |

APPLIED STEPS

The screenshot shows the Applied Steps pane. It lists the steps taken during the transformation: Source, Navigation, Promoted Headers, Changed Type, and Promoted Headers1. The 'Changed Type1' step is highlighted by a red box.

The screenshot shows the Properties pane. The 'Name' field is set to 'Transactions'. The 'All Properties' section shows the step 'Renamed Columns'.

Properties

- Name: Transactions
- All Properties

2. Tutorial Week 3: Make Column Headings More Meaningful

Rename Some Columns

- Store_desc --> Store
- City_Desc --> City
- Quantity_Sold --> Quantity Sold
- Original_Sales_Price --> Sales Revenue
- Discount_Percent --> Discount %
- Discount --> Discount \$
- Sales_Revenue --> Discounted Sales Revenue
- Gross_Margin --> Profit

| | 1.2 Discount % | 1.2 Discounted Sales Revenue |
|----|----------------|------------------------------|
| 4 | 0.11 | 0.3498 |
| 5 | 0.28 | 261.072 |
| 6 | 0.08 | 14.72 |
| 7 | 0.07 | 0.3885 |
| 8 | 0.06 | 14.184 |
| 9 | 0.23 | 1.426 |
| 10 | 0.14 | 0.413 |
| 11 | < | > |

2. Tutorial Week 3: Make Column Headings More Meaningful

Remove Columns

- Store_ID
- City_ID
- Cat_ID

Choose Remove Keep Remove Split Group 1 2 Replace Values
Columns Columns Rows Rows Column By Transform
Manage Columns Reduce Rows Sort
Combine Files Combine

table.RenameColumns(#"Changed Type1", { })

| Store_ID | Category |
|----------|----------|
| 42579 | ST1047 |
| 42578 | ST223 |
| 42640 | ST522 |
| 42609 | ST281 |
| 42577 | ST456 |
| 42577 | ST380 |
| 42607 | ST1021 |
| 42576 | ST358 |
| 42576 | ST399 |
| 42638 | ST340 |
| 42575 | ST898 |
| 42575 | ST937 |
| 42575 | ST172 |

The screenshot shows a Power BI desktop interface. A context menu is open over the 'Store_ID' column header. The 'Remove' option in the menu is highlighted with a red box. The menu also includes other options like 'Copy', 'Remove Other Columns', 'Duplicate Column', 'Add Column From Examples...', 'Remove Duplicates', 'Remove Errors', 'Change Type', 'Transform', 'Replace Values...', 'Replace Errors...', 'Split Column', 'Group By...', 'Fill', 'Unpivot Columns', 'Unpivot Other Columns', 'Unpivot Only Selected Columns', 'Rename...', 'Move', 'Drill Down', and 'Add as New Query'. The background shows a table with columns 'Store_ID' and 'Category'.

2. Tutorial Week 3: Change Data Type

- When you load data into Power BI it will attempt to convert the data type of the source column into a data type that better supports more efficient storage, calculations, and data analysis. The data types in Power BI are:
 - If you review your data set you will realise that incorrect data types have been applied. For example, Date column. The

Text:

Decimal Number:

Whole Number:

= Table.RemoveColumns(#"Renamed Columns", {"Store_ID", "Category", "Sub-Category", "Unit Price", "Quantity Sold", "Total Cost", "Profit Margin", "Last Purchase Date", "Last Sale Date", "Days Since Last Purchase", "Days Since Last Sale", "Days Since Last Purchase & Sale", "Days Since Last Purchase or Sale", "Days Since Last Purchase & Sale (Days)", "Days Since Last Purchase or Sale (Days)"})

| ABC | Product | Number | Quantity Sold |
|-----|-------------|--------|---------------|
| | Nails | 3.69 | |
| | Bucket | 3.59 | |
| | Water | 3.33 | |
| | Tarp | 3.18 | |
| | Bucket | 3.33 | |
| | Gloves | 2.3 | |
| | Gloves | 5.55 | |
| | Boots | 3.94 | |
| | Rain Jacket | 3.1 | |
| | Boots | 2.95 | |
| | Nails | 4.1 | |
| | Nails | 2.65 | |

2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Date’ Column, then left click on its current data type, and choose ‘Date’

The screenshot shows the Power Query Editor interface. At the top, there are buttons for 'Query', 'Manage Columns', 'Reduce Rows', and 'Sort'. Below the buttons, a formula bar displays the code: `= Table.RemoveColumns(#"`. To the right of the formula bar is a column header labeled 'Date' with a dropdown arrow. A red box highlights this header. A context menu is open over the 'Date' header, listing various data types: Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, Text, True/False, Binary, and Using Locale... The 'Date' option is highlighted with a red box and has a green arrow pointing to it from the right side of the screen. The main table area shows several rows of data, and the 'Date' column contains dates like '28/07/2016' and '27/07/2016'. The entire screenshot is enclosed in a large red border.

| | Date | Customer |
|----|-------|----------|
| 1 | 123 | Warren |
| 2 | 42579 | Yum |
| 3 | 42579 | Texi |
| 4 | 42579 | Alfre |
| 5 | 42578 | Yum |
| 6 | 42640 | Wak |
| 7 | 42609 | Goo |
| 8 | 42577 | Asad |
| 9 | 42577 | Eiffe |
| 10 | 42607 | Mille |
| 11 | 42576 | Com |
| 12 | 42576 | Ekel |
| 42 | 42638 | Texi |

2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Price’ Column, then left click on its current data type, and choose ‘Fixed decimal number’

The screenshot shows a spreadsheet interface with a context menu open over the 'Price' column header. The menu lists various data types, with '\$ Fixed decimal number' highlighted by a red box. A large green arrow points from the menu towards the right side of the screen, indicating the result of the change.

| 1.2 Price | |
|-------------------------------|------|
| 1.2 Decimal Number | 3.69 |
| \$ Fixed decimal number | 3.69 |
| 1 ² 3 Whole Number | 3.59 |
| % Percentage | 3.33 |
| Date/Time | 3.33 |
| Date | 3.18 |
| Time | 3.33 |
| Date/Time/Timezone | 2.30 |
| Duration | 5.55 |
| Text | 3.94 |
| True/False | 3.10 |
| Binary | 2.95 |
| Using Locale... | 4.10 |
| | 2.65 |
| | 2.81 |

2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Sales Revenue’

Column, then

left click on its current data type, and
choose ‘Fixed decimal number’

The screenshot shows a data editor interface with two columns. The left column displays the 'Sales Revenue' data, and the right column shows the same data after applying a new data type. A context menu is open over the first row of the left column, with the option '\$ Fixed decimal number' highlighted. A large green arrow points from the right column towards the context menu.

| Sales Revenue | \$ Sales Revenue |
|-------------------------|------------------|
| 1.2 Decimal Number | 7.38 |
| \$ Fixed decimal number | 753.90 |
| 123 Whole Number | 9.99 |
| % Percentage | 3.18 |
| Date/Time | 932.40 |
| Date | 184.00 |
| Time | 5.55 |
| Date/Time/Timezone | 236.40 |
| Duration | 6.20 |
| Text | 2.95 |
| True/False | 20.50 |
| Binary | 254.40 |
| Using Locale... | |

2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Discount %’ Column,

then

left click on its current data type, and
choose ‘Percent’

The screenshot shows a data editor interface with two columns. The first column is labeled '1.2 Discount %' and the second column is labeled '% Discount %'. A context menu is open over the first column, specifically over the cell containing '1.741'. The menu items are: '1.2 Decimal Number', '\$ Fixed decimal number', '1 Whole Number', '% Percentage', 'Date/Time', 'Date', 'Time', 'Date/Time/Timezone', 'Duration', 'Text', 'True/False', 'Binary', and 'Using Locale...'. The '% Percentage' option is highlighted with a red box. A large green arrow points from the '1.2' in the menu to the '1.741' cell in the table. The table data is as follows:

| 1.2 Discount % | % Discount % |
|----------------|--------------|
| 1.741 | 174.17% |
| 158.3 | 15831.90% |
| 2.89 | 289.71% |
| 0.34 | 34.98% |
| 261.0 | 26107.20% |
| 14. | 1472.00% |
| 0.38 | 38.85% |
| 14.1 | 1418.40% |
| 1.4 | 142.60% |
| 0.4 | 41.30% |

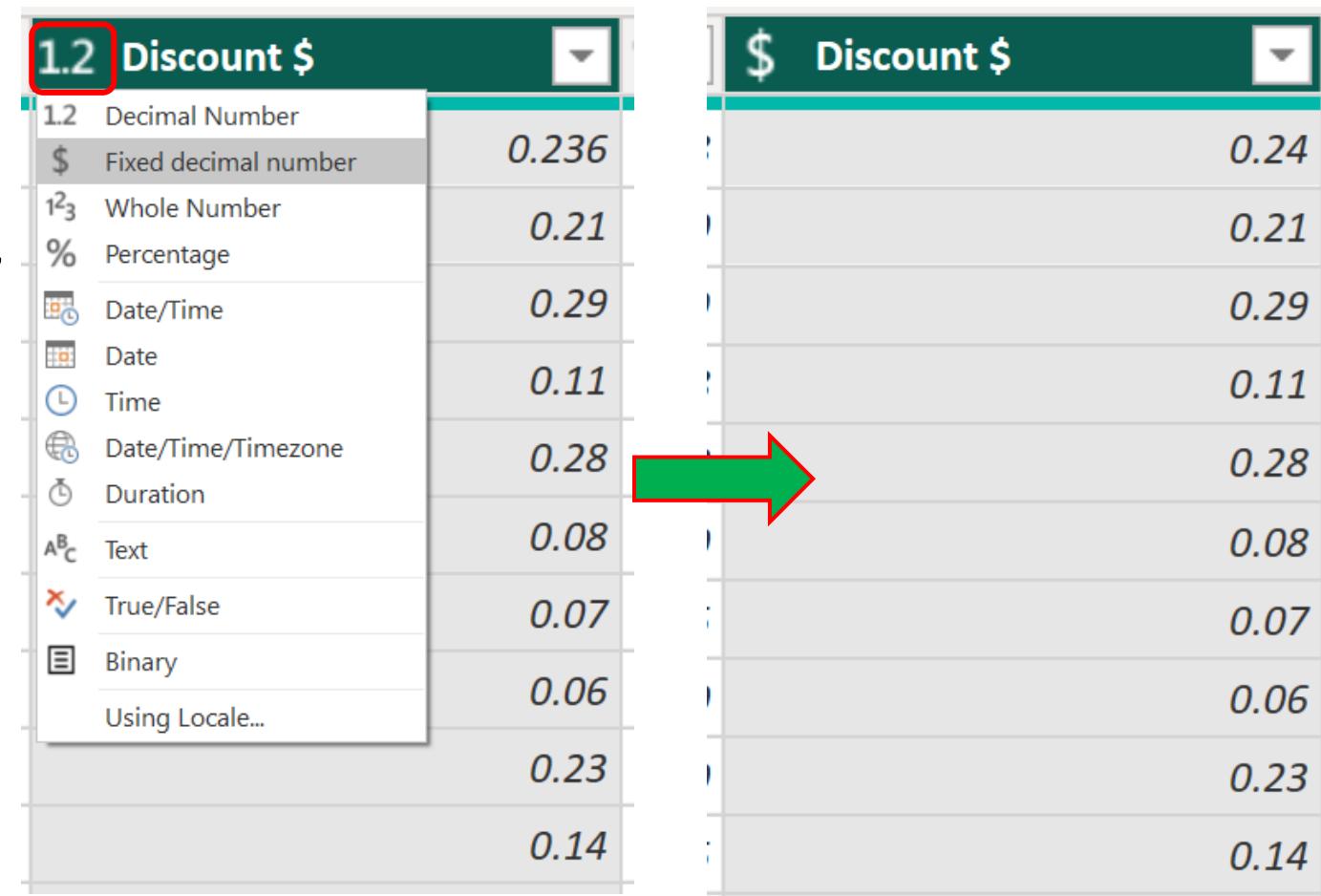
2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Discount \$’ Column,

then

left click on its current data type, and
choose ‘Fixed Decimal’



2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Discounted Sales Revenue’ Column, then left click on its current data type, and choose ‘Fixed Decimal’

The screenshot illustrates the process of changing the data type for the 'Discounted Sales Revenue' column. On the left, a context menu is open over the column header, with the option 'Fixed decimal number' highlighted. A red box highlights the column header '1.2 Discounted Sales Revenue'. A green arrow points from the 'Fixed decimal number' option in the menu to the same option in the adjacent table on the right, which shows the results after the change.

| \$ | Discounted Sales Revenue |
|----|--------------------------|
| | 5.64 |
| | 595.58 |
| | 7.09 |
| | 2.83 |
| | 671.33 |
| | 169.28 |
| | 5.16 |
| | 222.22 |
| | 4.77 |
| | 2.54 |
| | 19.57 |
| | 229.98 |

2. Tutorial Week 3: Change Data Type

- **Left Click on Current Data Type**

For example) Find ‘Profit’ Column, then left click on its current data type, and choose ‘Fixed Decimal Number’

The screenshot shows a data editor interface. On the left, a dropdown menu is open over the 'Profit' column header, which is currently set to '1.2'. The dropdown menu lists various data types: Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, Text, True/False, Binary, and Using Locale... The 'Fixed decimal number' option is highlighted with a red box. To the right of the dropdown, the 'Profit' column contains numerical values. A green arrow points from the dropdown menu towards the right side of the screen, where the data is displayed. The data consists of two columns: a header '\$ Profit' and a body of 12 rows of numerical values.

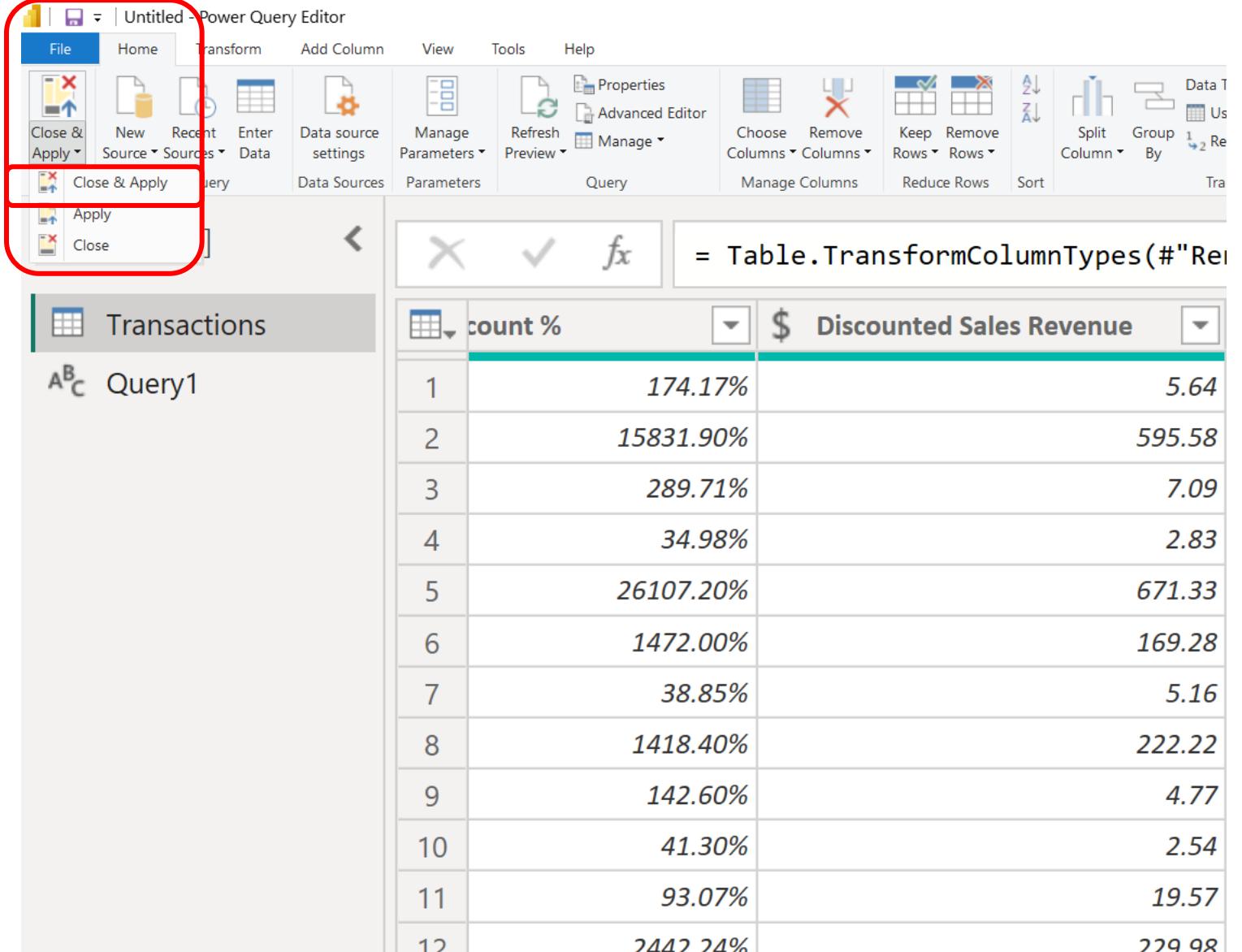
| \$ Profit | |
|-----------|--|
| 1.30 | |
| 137.12 | |
| 2.70 | |
| 1.08 | |
| 248.63 | |
| 62.74 | |
| 2.43 | |
| 69.03 | |
| 1.82 | |
| 0.87 | |
| 4.51 | |
| 94.54 | |
| 1.17 | |

2. Tutorial Week 3: Saving

- **Close & Apply**

The saving process will close the Query

Editor and applies the changes to the
data model into Power BI Desktop

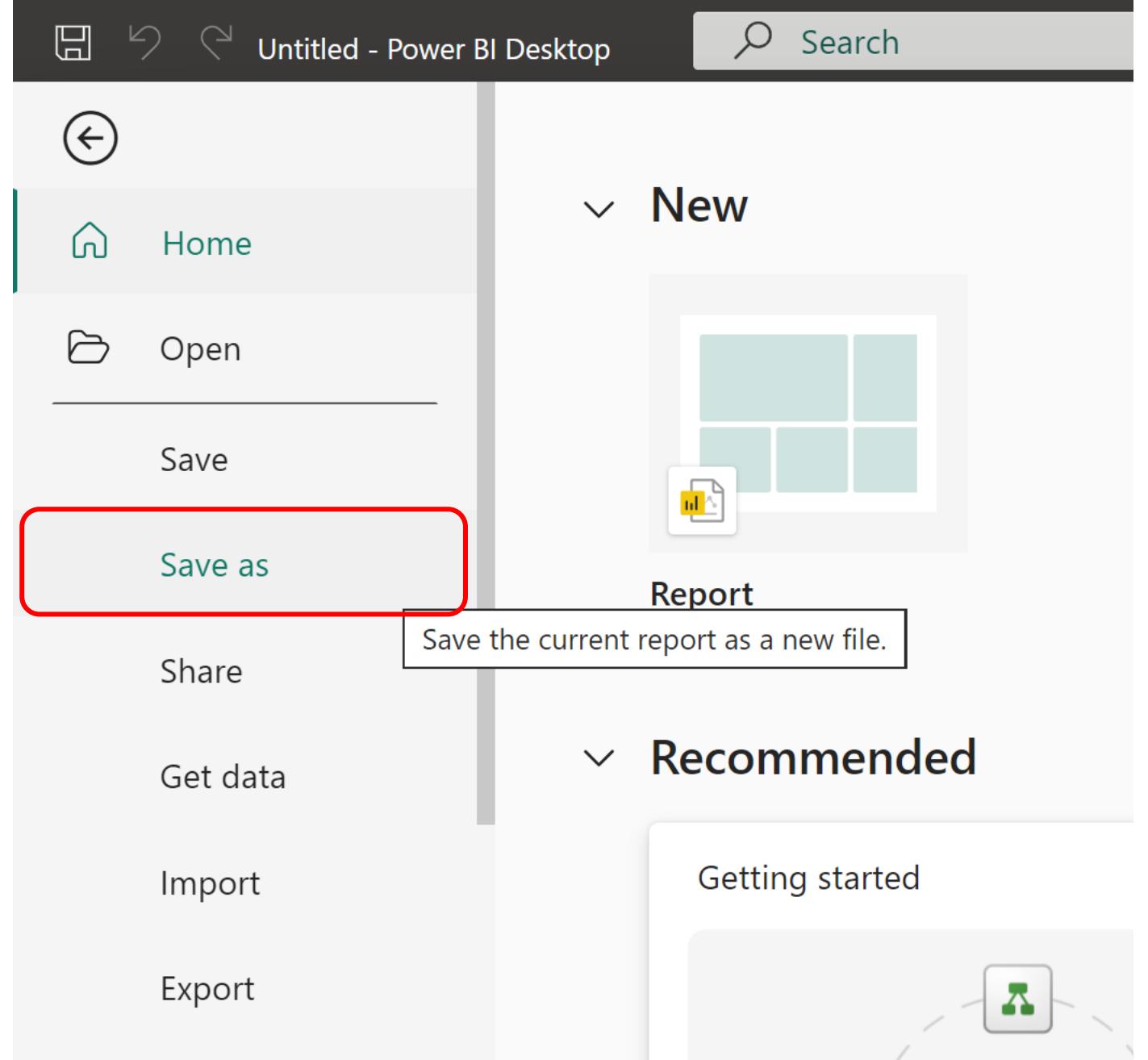


The screenshot shows the Power Query Editor interface. The top ribbon has tabs for File, Home, Transform, Add Column, View, Tools, and Help. The 'File' tab is selected. A red box highlights the 'Close & Apply' button in the 'File' tab's ribbon. Below the ribbon, there are two rows of buttons: 'Close & Apply' (highlighted), 'Apply', and 'Close'. The main area shows a table titled 'Transactions' with a query named 'Query1'. The formula bar at the top right shows '= Table.TransformColumnTypes(#"Re...". The table has three columns: 'count %' (values 174.17%, 15831.90%, etc.), '\$ Discounted Sales Revenue' (values 5.64, 595.58, etc.), and a third column with values 7.09, 2.83, etc. The bottom right corner of the table shows the value 229.98.

| | count % | \$ Discounted Sales Revenue |
|----|-----------|-----------------------------|
| 1 | 174.17% | 5.64 |
| 2 | 15831.90% | 595.58 |
| 3 | 289.71% | 7.09 |
| 4 | 34.98% | 2.83 |
| 5 | 26107.20% | 671.33 |
| 6 | 1472.00% | 169.28 |
| 7 | 38.85% | 5.16 |
| 8 | 1418.40% | 222.22 |
| 9 | 142.60% | 4.77 |
| 10 | 41.30% | 2.54 |
| 11 | 93.07% | 19.57 |
| 12 | 2442.24% | 229.98 |

2. Tutorial Week 3: Saving

- **Save As**
 - Choose the name 'Tutor Week 3.pbix'
 - Remember the location you save the file



2. Tutorial Week 3: Saving

- **Save As**

- Choose the name 'Tutor

- Week 3.pbix'

- Remember the location

- you save the file

The screenshot shows the Microsoft Power BI desktop interface. The ribbon menu at the top includes tabs for File, Home, Help, and Table tools. The Home tab is selected. The Data section of the ribbon contains options like Excel workbook, Enter data, Get data, OneLake data hub, Dataverse, SQL Server, and Recent sources. Below the ribbon is a data grid table with columns: Version, Order_ID, Date, Store, and Longitude. A tooltip is visible over the 'Longitude' column header, showing the formula: Name 'Transactions'[Category]. The Data pane on the right lists data sources: Transactions, Category, City, Date, Discount %, Discount \$, and Discounted Sales Revenue.

| Version | Order_ID | Date | Store | Longitude |
|---------|----------|----------------------------|-------------------------|--------------|
| Actuals | 310 | Sunday, 30 October 2016 | iChannel (iCH10) | -71.1036819 |
| Actuals | 372 | Tuesday, 28 June 2016 | Alfredsons (Alf32) | 40.70941658 |
| Actuals | 573 | Tuesday, 7 June 2016 | Finnys (Finn16) | 40.71474749 |
| Actuals | 776 | Monday, 16 May 2016 | Forage (FORA6) | 40.71474749 |
| Actuals | 1041 | Thursday, 21 April 2016 | Texi-mart | 40.71474749 |
| Actuals | 1110 | Tuesday, 13 September 2016 | German Imports (GI3) | 43.04173217 |
| Actuals | 1131 | Monday, 11 April 2016 | Vancity (VAN4) | -72.1139672 |
| Actuals | 1229 | Thursday, 31 March 2016 | Texi-mart (TEXI6) | 40.71398196 |
| Actuals | 1418 | Sunday, 20 March 2016 | AMAF Supply Inc (AMAF8) | -104.6173481 |

2. Tutorial Week 3: See Report View

- **See Visualisation Tools**
- For further analysis, we need to get geographical information useful for linking sales data with specific locations (City, State, and Region)

The screenshot shows the Microsoft Power BI desktop application interface. The top navigation bar includes 'File', 'Home' (selected), 'Insert', 'Modeling', 'View', 'Optimize', and 'Help'. The 'Home' tab has options like 'Clipboard' (Paste, Get data from), 'Data' (Excel workbook, OneLake data hub, SQL Server, Recent sources), 'Queries' (Transform, Refresh data), 'Insert' (New visual, Text box, More visuals), and 'Calculations' (New measure, Quick measure, Sensitivity). The main area is titled 'Report view' and contains a 'Build visual' section with a grid icon and a 'Search' bar. To the right are sections for 'Filters' (Search, Add data fields here) and 'Visualizations' (Build visual, a large grid of visualization icons including charts, maps, and tables). At the bottom, there's a page navigation bar showing 'Page 1 of 1' and a green '+' button.

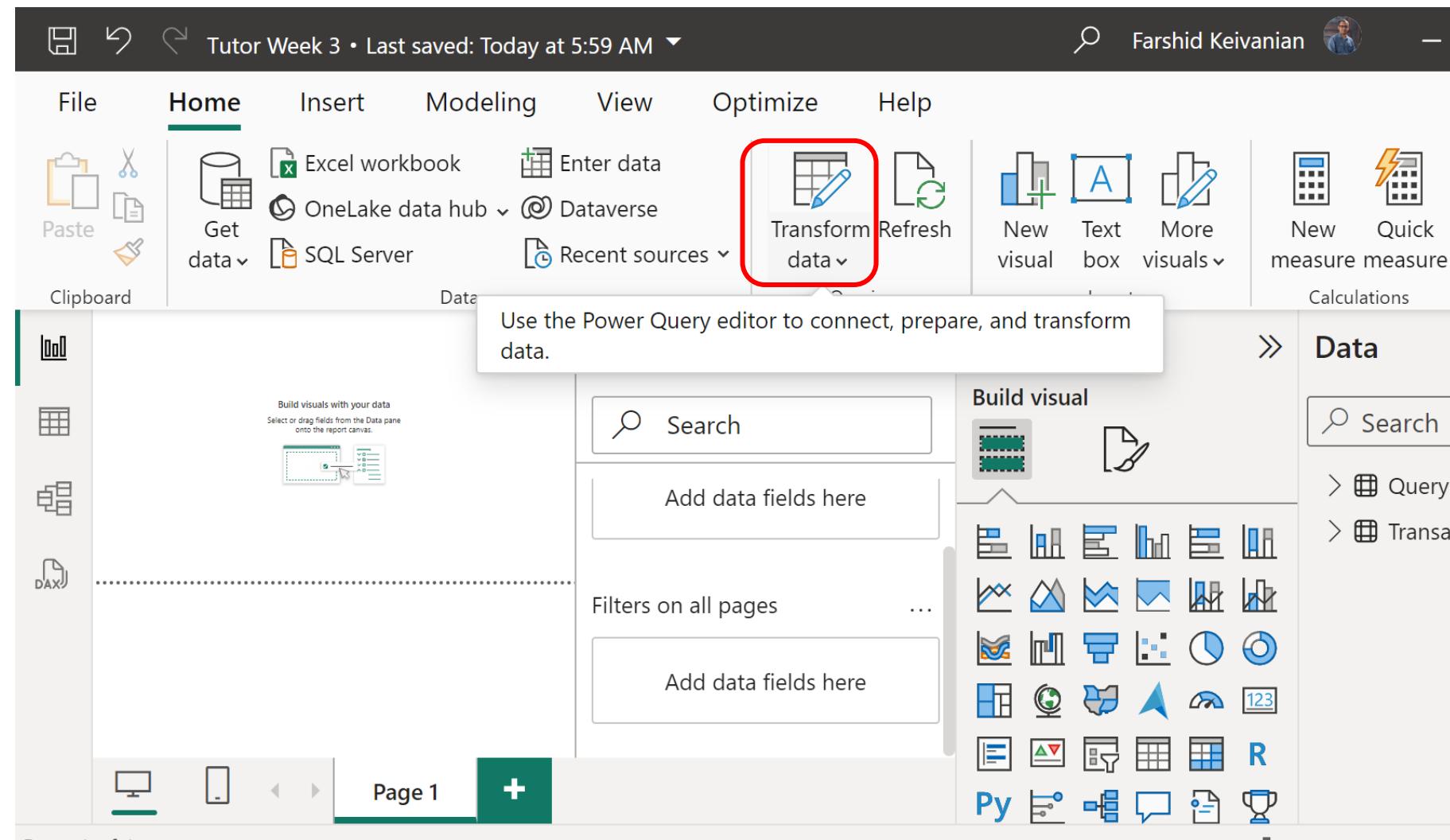
2. Tutorial Week 3: See Report View

- **See Visualisation Tools**
- For further analysis, we need to get geographical information useful for linking sales data with specific locations (City, State, and Region)

The screenshot shows the Microsoft Power BI desktop application interface. The top navigation bar includes 'File', 'Home' (selected), 'Insert', 'Modeling', 'View', 'Optimize', and 'Help'. The 'Home' tab has options like 'Clipboard' (Paste, Get data from), 'Data' (Excel workbook, OneLake data hub, SQL Server, Recent sources), 'Queries' (Transform, Refresh data), 'Insert' (New visual, Text box, More visuals), and 'Calculations' (New measure, Quick measure, Sensitivity). The main area is titled 'Report view' and contains a 'Build visual' section with a 'Search' bar and a 'DAX' button. To the right are sections for 'Filters' (Search, Add data fields here) and 'Visualizations' (a grid of visualization icons including bar charts, line graphs, and maps). A 'Data' pane on the far right lists 'Query1' and 'Transactions'. The bottom of the screen shows a page navigation bar with 'Page 1' highlighted.

2. Tutorial Week 3: Acquire Additional Data

- Select **Transform data**
- We need to use **Power Query Editor** to acquire additional data



2. Tutorial Week 3: Acquire Additional Data

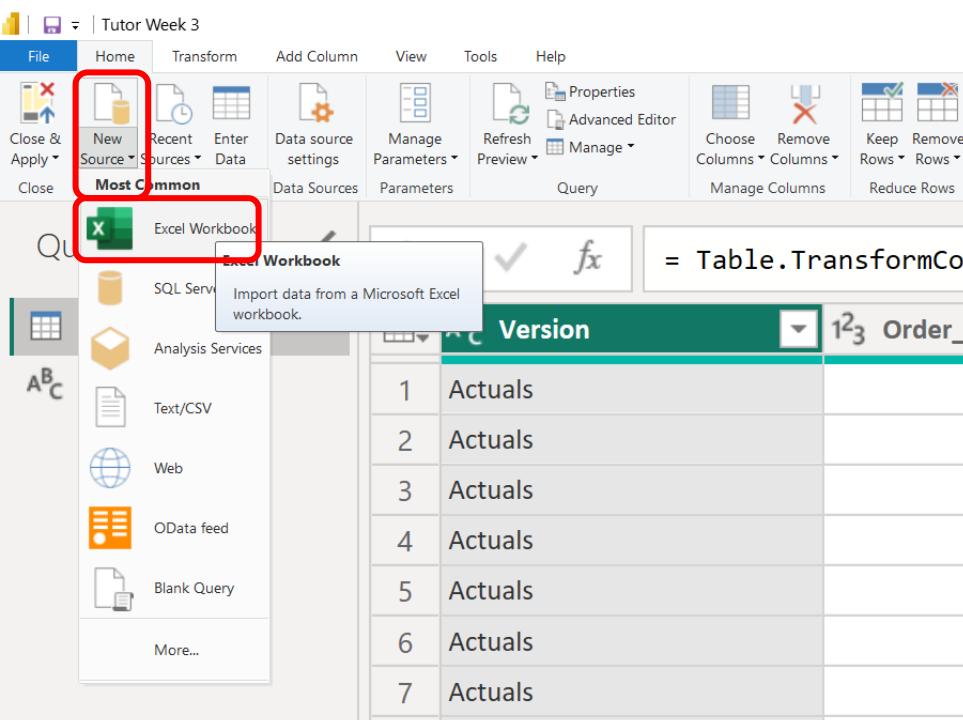
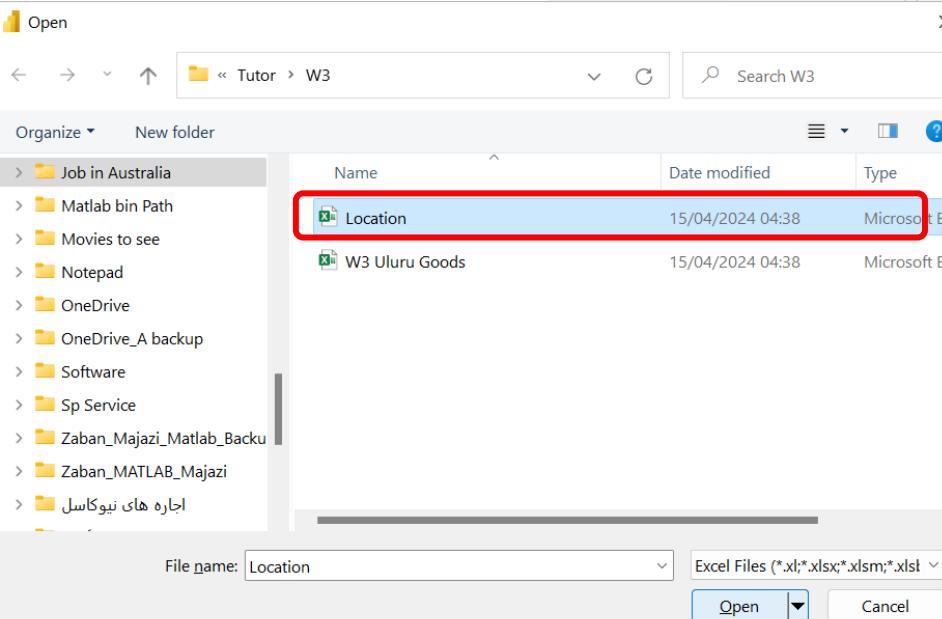
- Select Transform data
- We need to use Power Query Editor to acquire additional data

The screenshot shows the Microsoft Power BI Query Editor interface. The title bar says "TUTOR WEEK 3". The ribbon menu has "File", "Home" (selected), "Transform", "Add Column", "View", "Tools", and "Help". The "Home" tab has icons for Close & Apply, New Source, Recent Sources, Enter Data, Data source settings, Manage Parameters, Refresh Preview, Properties, Advanced Editor, and Manage. The "Transform" tab has icons for Choose Columns, Remove Columns, Keep Rows, Remove Rows, Sort, Split Column, Group By, Replace Values, Merge Queries, Append Queries, Combine Files, Text Analytics, Vision, Azure Machine Learning, and AI Insights. The main area shows a table with two columns: "Version" and "Date". The "Version" column contains 13 rows labeled "Actuals" from 1 to 13. The "Date" column contains the value "1" for all rows. The formula bar at the top right shows "= Table.TransformColumnTypes(#"Renamed")". The left sidebar shows "Queries [2]" with "Transactions" selected and "Query1" listed. The right sidebar shows "Query Settings" with sections for "PROPERTIES" (Name: Transactions) and "APPLIED STEPS" (Changed Type, Promoted Headers1, Changed Type1, Renamed Columns, Removed Columns, Changed Type2, Renamed Columns1, and Changed Type3).

| Version | Date |
|------------|------|
| 1 Actuals | 1 |
| 2 Actuals | 2 |
| 3 Actuals | 3 |
| 4 Actuals | 4 |
| 5 Actuals | 5 |
| 6 Actuals | 6 |
| 7 Actuals | 7 |
| 8 Actuals | 8 |
| 9 Actuals | 9 |
| 10 Actuals | 10 |
| 11 Actuals | 11 |
| 12 Actuals | 12 |
| 13 Actuals | 42 |

2. Tutorial Week 3: Acquire Additional Data

- Select New Source
- We need to navigate to the Location document



A screenshot of a web-based course navigation interface. The top navigation bar includes 'Session X', 'Content X', and a URL 'https://holmes.blac...'. The sidebar on the left shows course details: '2024-T1-HI6037: Business Analytics Fundamentals', 'Tutorial Materials', and 'Week 3'. The main content area displays two files: 'W3 Power BI tutorial-Importing Data' and 'W3 Uluru Goods.xlsx'. A third file, 'Location.xlsx', is shown in a box with a red border at the bottom.

2. Tutorial Week 3: Acquire Additional Data

Navigator

Display Options ▾

- Location.xlsx [3]
 - Region
 - State
 - State & Region

Suggested Tables [3]

- City (State)
- Table 2 (State & Region)

State & Region

| State # | Region # | State |
|---------|----------|------------|
| 8050456 | 80502 | Wyoming |
| 8050453 | 80502 | Washington |
| 8050449 | 80502 | Utah |
| 8050448 | 80506 | Texas |
| 8050441 | 80502 | Oregon |
| 8050440 | 80506 | Oklahoma |
| 8050435 | 80506 | New Mexico |
| 8050432 | 80502 | Nevada |
| 8050430 | 80502 | Montana |
| 8050416 | 80502 | Idaho |
| 8050408 | 80502 | Colorado |
| 8050406 | 80502 | California |

OK

Cancel

2. Tutorial Week 3: Acquire Additional Data

The worksheets have been added to the Query Editor.

The screenshot shows the Microsoft Power BI Query Editor interface. The top navigation bar includes File, Home, Transform, Add Column, View, Tools, and Help. The Home tab is selected. The ribbon below the navigation bar contains various icons for managing data sources, parameters, and transforming data. On the left, a sidebar titled 'Queries [5]' lists five queries: Transactions, Query1, Region, State, and State & Region. The 'State & Region' query is highlighted with a red box. The main workspace displays a table with three columns: 'State #' (containing values 1 through 13), 'Region #' (containing values 8050456 through 8050404), and 'State' (containing state names: Wyoming, Washington, Utah, Texas, Oregon, Oklahoma, New Mexico, Nevada, Montana, Idaho, Colorado, California, Arizona). Above the table, a formula bar shows the query definition: '= Table.TransformColumnTypes(#"Promoted", {{"State #", Int64.Type}, {"Region #", Int64.Type}, {"State", Text.Type}})'. To the right, a 'Query Settings' pane is open, showing the 'Properties' section with the name 'State & Region' and the 'Applied Steps' section which includes 'Source', 'Navigation', 'Promoted Headers', and 'Changed Type' (which is currently selected).

| | State # | Region # | State |
|----|---------|----------|------------|
| 1 | 8050456 | 80502 | Wyoming |
| 2 | 8050453 | 80502 | Washington |
| 3 | 8050449 | 80502 | Utah |
| 4 | 8050448 | 80506 | Texas |
| 5 | 8050441 | 80502 | Oregon |
| 6 | 8050440 | 80506 | Oklahoma |
| 7 | 8050435 | 80506 | New Mexico |
| 8 | 8050432 | 80502 | Nevada |
| 9 | 8050430 | 80502 | Montana |
| 10 | 8050416 | 80502 | Idaho |
| 11 | 8050408 | 80502 | Colorado |
| 12 | 8050406 | 80502 | California |
| 13 | 8050404 | 80506 | Arizona |

2. Tutorial Week 3: Select Region

You will notice that many of the rows contain null values. Null values indicate that the rows contain no data. These should be removed

The screenshot shows the Microsoft Power BI Data Editor interface. The title bar says "Tutor Week 3". The ribbon menu includes File, Home, Transform, Add Column, View, Tools, Help, and various data management and transformation tools. On the left, the "Queries [5]" pane lists "Transactions", "Query1" (which is selected and highlighted with a red box), "Region", "State", and "State & Region". The main workspace displays a table titled "Table.TransformColumnTypes(#"Promoted")". The table has two columns: "Region #" and "Region". The data rows are:

| | Region # | Region |
|----|----------|-------------|
| 1 | 80501 | New England |
| 2 | 80502 | West |
| 3 | 80503 | Atlantic |
| 4 | 80504 | South |
| 5 | 80505 | Midwest |
| 6 | 80506 | Southwest |
| 7 | null | null |
| 8 | null | null |
| 9 | null | null |
| 10 | null | null |
| 11 | null | null |
| 12 | null | null |
| 13 | null | null |
| 14 | null | null |

The "Query Settings" pane on the right shows the query name is "Region". The "APPLIED STEPS" section lists "Source", "Navigation", "Promoted Headers", and "Changed Type" (which is currently selected and highlighted with a red box). The bottom status bar says "POWER BI DATA EDITOR" and "Version 2.62.1000.1000".

2. Tutorial Week 3: Select Region

Tutor Week 3

File Home Transform Add Column View Tools Help

Close & Apply New Source Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Whole Number Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Text Analytics Vision Combine Files Azure Machine Learning AI Insights

Close New Query Data Sources Parameters Query Manage Columns Transform Queries [5] = Table.Transform

Transactions Query1 Region State State & Region

Region #

| | Region # | Region |
|----|----------|-------------|
| 1 | 80501 | New England |
| 2 | 80502 | West |
| 3 | 80503 | Atlantic |
| 4 | 80504 | South |
| 5 | 80505 | Midwest |
| 6 | 80506 | Southwest |
| 7 | null | null |
| 8 | null | null |
| 9 | null | null |
| 10 | null | null |
| 11 | null | null |
| 12 | null | null |
| 13 | null | null |
| 14 | null | null |

Remove Blank Rows Remove Errors Remove all blank rows from this table.

Query Settings

PROPERTIES

Name: Region

All Properties

APPLIED STEPS

Source Navigation Promoted Headers Changed Type

2 COLUMNS. 639 ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 06:24

2. Tutorial Week 3: Remove Null Values from Region

The screenshot shows the Power Query Editor interface. On the left, there is a navigation pane with items like 'Regions' and 'Region'. The main area displays a table with two columns: 'Region #' and 'Region'. The 'Region #' column contains numerical values from 1 to 6, and the 'Region' column contains categorical names: 'New England', 'West', 'Atlantic', 'South', 'Midwest', and 'Southwest'. Above the table, the formula bar shows the query code: `= Table.SelectRows(#"Changed Type", each`. The status bar on the right indicates '1 row(s) found'.

| Region # | Region |
|----------|-------------|
| 1 | New England |
| 2 | West |
| 3 | Atlantic |
| 4 | South |
| 5 | Midwest |
| 6 | Southwest |

2. Tutorial Week 3: Select State (City) and remove Null values

Select State & Region
(State #) and remove Null
values (blank rows)

The screenshot shows the Microsoft Power BI Data Editor interface. The top navigation bar includes Home, Transform, Add Column, View, Tools, and Help. The Transform ribbon tab is selected, showing various data manipulation tools like New, Recent, Enter, Data source settings, Manage Parameters, Refresh, Advanced Editor, Properties, Choose Columns, Remove Columns, Keep Rows, Remove Rows, Split Column, Group By, Data Type: Whole Number, Merge Queries, Append Queries, Text Analytics, Vision, Azure Machine Learning, and AI Insights.

The left sidebar lists Queries [5]: Transactions, Query1, Region, State, and State & Region, with State & Region selected. The main workspace displays a table titled "Table.Transform" with two columns: "State #" and "Region". The "State #" column contains 13 rows of data, and the "Region" column contains 12 rows of data. A context menu is open over the first row of the "State #" column, with the "Remove Blank Rows" option highlighted. The "Properties" pane on the right shows the query name "State & Region" and the "Applied Steps" pane lists the steps taken: Source, Navigation, Promoted Headers, and Changed Type (the last step is highlighted).

| | State # | Region |
|----|---------|------------------|
| 1 | 8050456 | |
| 2 | 8050453 | 80502 Washington |
| 3 | 8050449 | 80502 Utah |
| 4 | 8050448 | 80506 Texas |
| 5 | 8050441 | 80502 Oregon |
| 6 | 8050440 | 80506 Oklahoma |
| 7 | 8050435 | 80506 New Mexico |
| 8 | 8050432 | 80502 Nevada |
| 9 | 8050430 | 80502 Montana |
| 10 | 8050416 | 80502 Idaho |
| 11 | 8050408 | 80502 Colorado |
| 12 | 8050406 | 80502 California |
| 13 | 8050404 | 80506 Arizona |

2. Tutorial Week 3: Adding Custom Columns

Uluru Goods wants to track the costs of goods in each order where products are sold.

Currently there is no column containing this data however it can be calculated from the other data available. A new column needs to be created which contains the cost of goods for each order. This is calculated by:

$(\text{Discount Revenue} - \text{Profit}) / \text{Quantity Sold}$

The screenshot shows the Microsoft Power BI Data Editor interface. The ribbon at the top has 'Home' selected. In the 'Transform' tab, the 'Custom Column' icon is highlighted with a red box. The main area shows a table with three columns: 'Order_ID' (containing values 1 through 13), 'Actuals' (containing the text 'Actuals' repeated 13 times), and 'Date' (containing the value '1'). To the left, the 'Transactions' query is selected. On the right, the 'Query Settings' pane is open, showing the 'PROPERTIES' section with 'Name' set to 'Transactions' and the 'APPLIED STEPS' section listing various data transformations. The 'Custom Column' dialog box is open, prompting to 'Create a new column in this table, based on a custom formula.' The formula bar shows the formula: `= Table.TransformColumnTypes(#"Renamed", {{"Order_ID", type number}, {"Actuals", type string}, {"Date", type date}})`.

2. Tutorial Week 3: Adding Formula

We will use the Custom Column. In the Query Editor you can create custom formulas that operate on multiple columns in your table, then place the result of such formulas into a new (custom) column. The formulas are created using the Power Query Formula Language (M Formula).

Add a column that is computed from the other columns.

New column name

Custom column formula [①](#)

```
= ([Discounted Sales Revenue] - [Profit])/[Quantity Sold]
```

Available columns

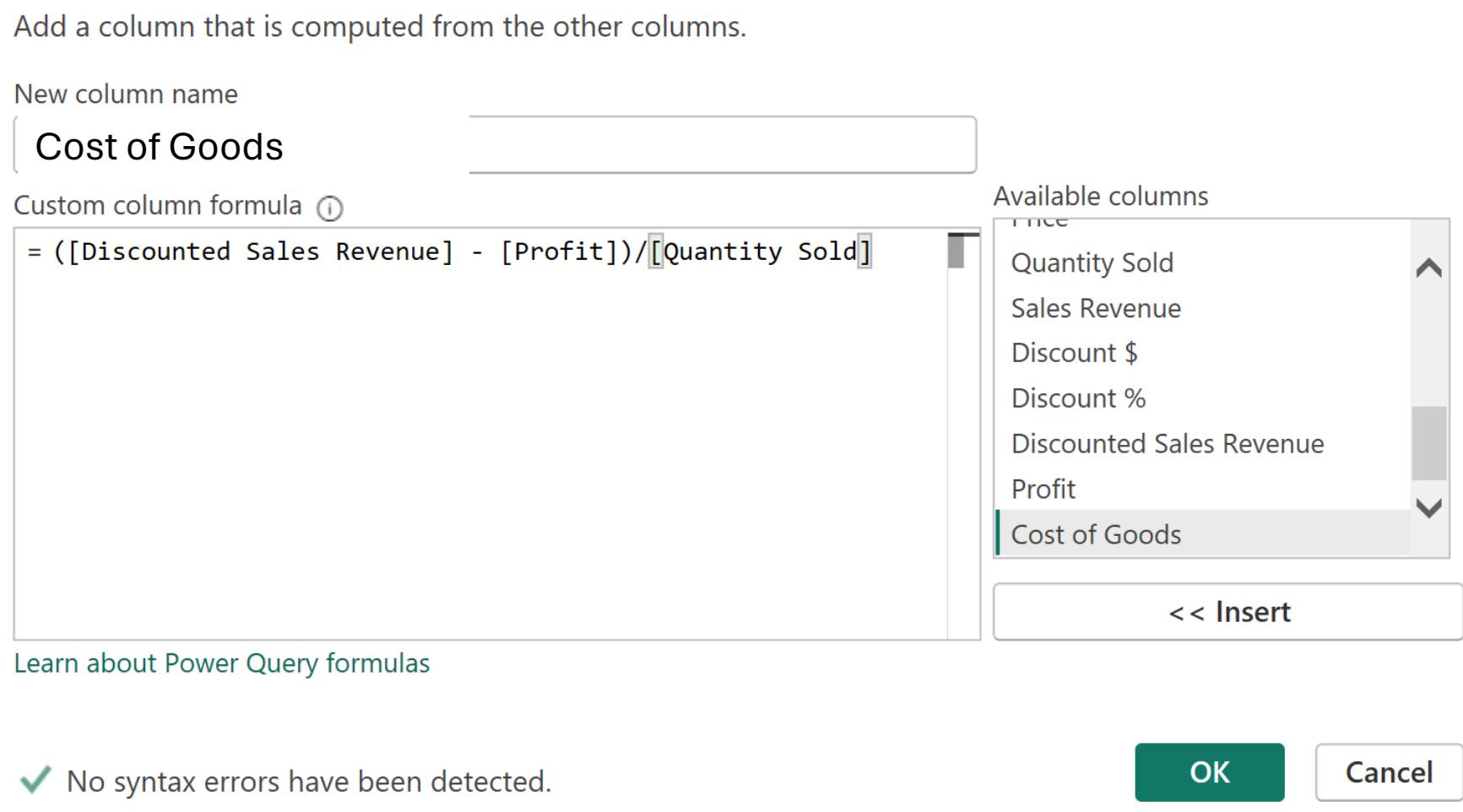
- Quantity Sold
- Sales Revenue
- Discount \$
- Discount %
- Discounted Sales Revenue
- Profit
- Cost of Goods

<< Insert

Learn about Power Query formulas

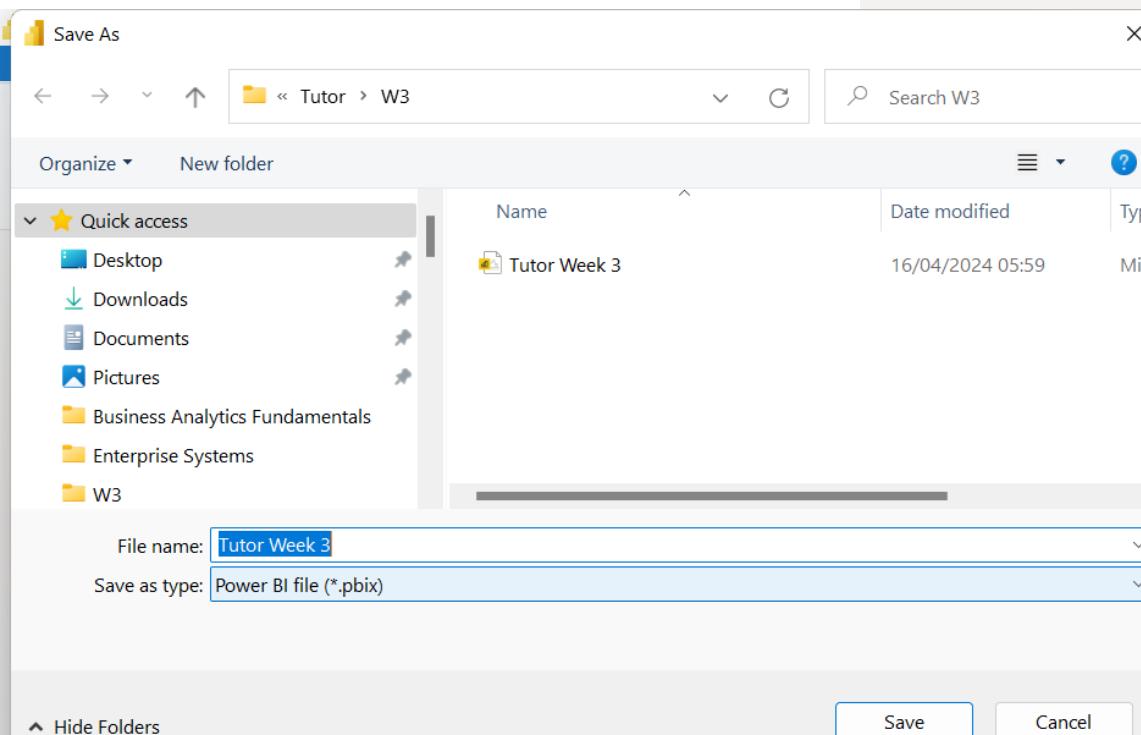
✓ No syntax errors have been detected.

OK Cancel

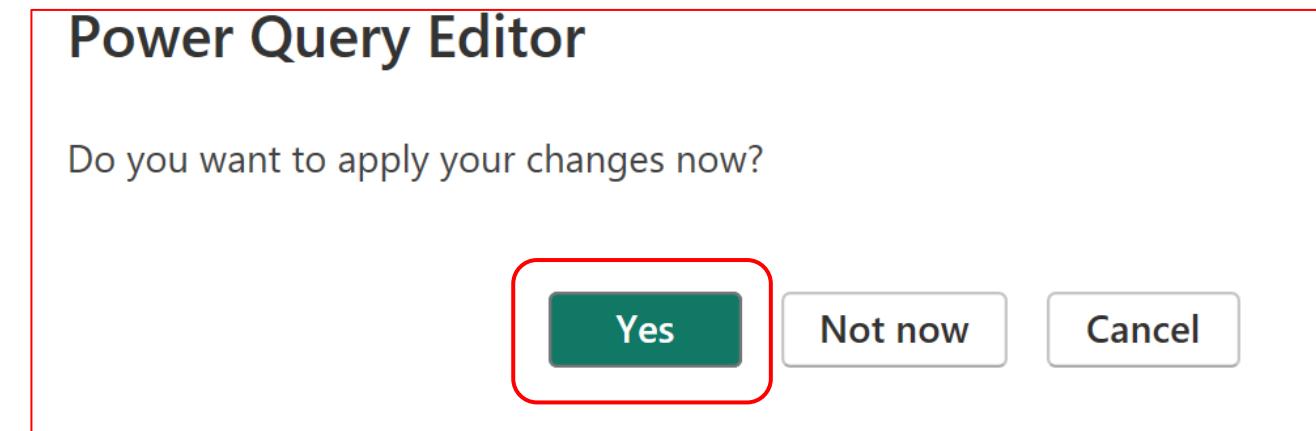


2. Tutorial Week 3: Change Data Type, Save, and Apply Changes

- Change Data Type to Fixed Decimal Number
- Finally, save the work as **Tutor Week 3.pbix** and Click on Apply all Changes if asked!



The screenshot shows the Power Query Editor interface. The left pane displays 'Queries [5]' with 'Transactions' selected. The main pane shows a table with columns 'Revenue' and 'Profit'. The 'Cost of Goods' column is currently highlighted. A context menu is open over this column, with the 'Data Type' option expanded. The 'Fixed decimal number' option is highlighted with a red box. The right pane shows 'Query Settings' with 'Properties' and 'Applied Steps' sections. The 'Applied Steps' section lists several previous changes, including 'Renamed Columns1' and 'Renamed Columns2'. A large red box highlights the 'Cost of Goods' column in the table and the 'Fixed decimal number' option in the context menu.



2. Tutorial Week 3: Summary

We have now completed this tutorial on Power BI. In this tutorial we had:

- Load BI
- Acquired Data
- Familiarised ourselves with Query Editor
- Transformed the data
- Changed data Types
- Added custom columns
- Saved our work