MONASH University

FIT1013 Digital Futures: IT for Business
Week 2: Excel Tables, Pivot Tables and Pivot Charts


**On completion of your study this week, you should aim to:**

- Create and modify an Excel Table
- Create and modify a PivotTable
- Apply PivotTable styles and formatting
- Filter a PivotTable
- Create a PivotChart
- Explore data visualization in Tableau

GROUP OF EIGHT AUSTRALIA

# How do you want to view this data?

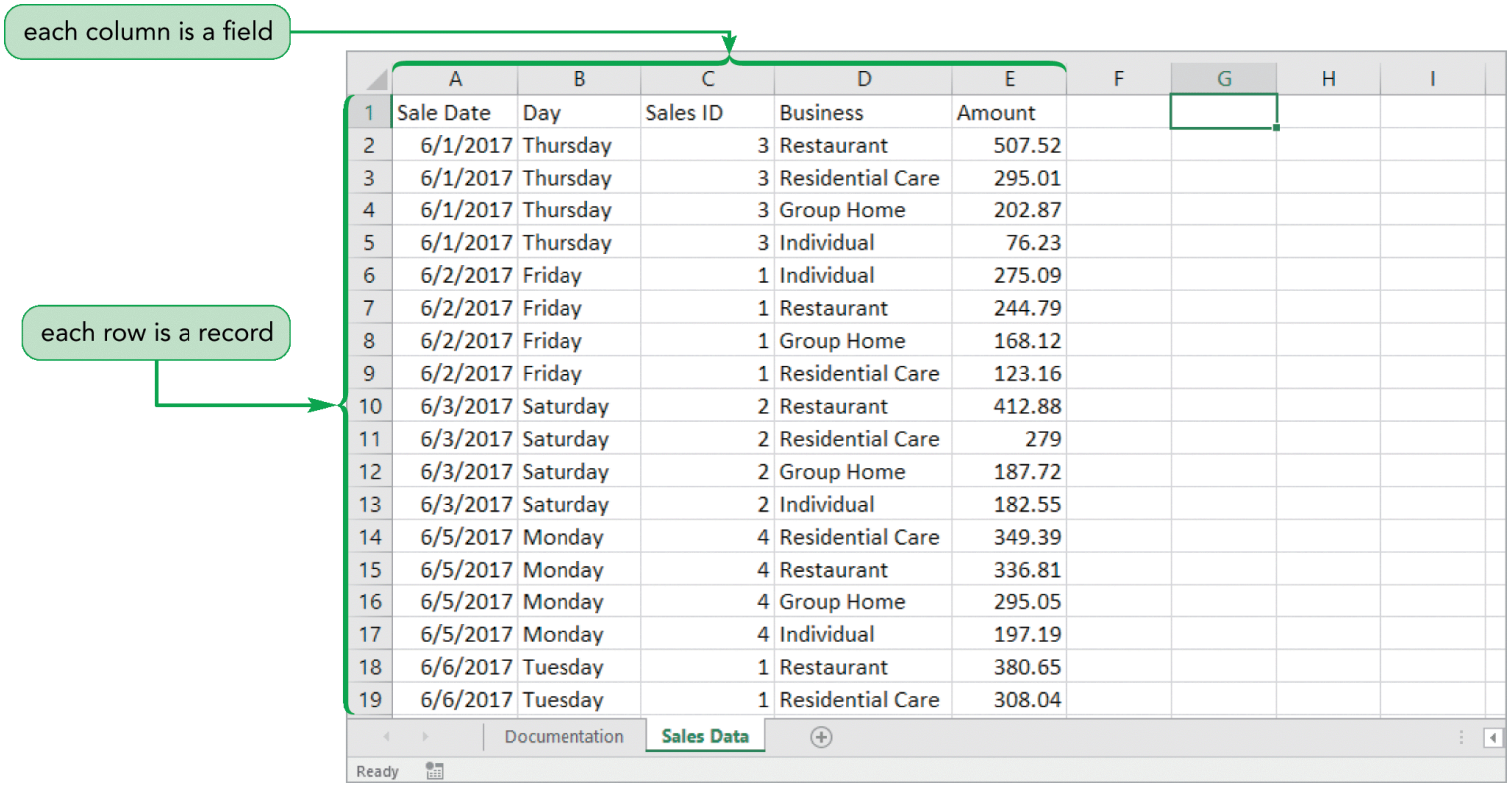
D10 fx Restaurant

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Sale Date | Day | Sales ID | Business | Amount | | | | | |
| 2 | 1/6/17 | Thursday | 3 | Restaurant | 507.52 | | | | | |
| 3 | 1/6/17 | Thursday | 3 | Residential Care | 295.01 | | | | | |
| 4 | 1/6/17 | Thursday | 3 | Group Home | 202.87 | | | | | |
| 5 | 1/6/17 | Thursday | 3 | Individual | 76.23 | | | | | |
| 6 | 2/6/17 | Friday | 1 | Individual | 275.09 | | | | | |
| 7 | 2/6/17 | Friday | 1 | Restaurant | 244.79 | | | | | |
| 8 | 2/6/17 | Friday | 1 | Group Home | 168.12 | | | | | |
| 9 | 2/6/17 | Friday | 1 | Residential Care | 123.16 | | | | | |
| 10 | 3/6/17 | Saturday | 2 | Restaurant | 412.88 | | | | | |
| 11 | 3/6/17 | Saturday | 2 | Residential Care | 279 | | | | | |
| 12 | 3/6/17 | Saturday | 2 | Group Home | 187.72 | | | | | |
| 13 | 3/6/17 | Saturday | 2 | Individual | 182.55 | | | | | |
| 14 | 5/6/17 | Monday | 4 | Residential Care | 349.39 | | | | | |
| 15 | 5/6/17 | Monday | 4 | Restaurant | 336.81 | | | | | |
| 16 | 5/6/17 | Monday | 4 | Group Home | 295.05 | | | | | |
| 17 | 5/6/17 | Monday | 4 | Individual | 197.19 | | | | | |
| 18 | 6/6/17 | Tuesday | 1 | Restaurant | 380.65 | | | | | |
| 19 | 6/6/17 | Tuesday | 1 | Residential Care | 308.04 | | | | | |
| 20 | 6/6/17 | Tuesday | 1 | Group Home | 221.11 | | | | | |
| 21 | 6/6/17 | Tuesday | 1 | Individual | 192.05 | | | | | |
| 22 | 7/6/17 | Wednesday | 5 | Restaurant | 346.84 | | | | | |
| 23 | 7/6/17 | Wednesday | 5 | Group Home | 170.24 | | | | | |
| 24 | 7/6/17 | Wednesday | 5 | Individual | 158.33 | | | | | |
| 25 | 7/6/17 | Wednesday | 5 | Residential Care | 158.25 | | | | | |
| 26 | 8/6/17 | Thursday | 2 | Restaurant | 459.72 | | | | | |
| 27 | 8/6/17 | Thursday | 2 | Individual | 238.89 | | | | | |
| 28 | 8/6/17 | Thursday | 2 | Group Home | 217.6 | | | | | |
| 29 | 8/6/17 | Thursday | 2 | Residential Care | 168.59 | | | | | |
| 30 | 9/6/17 | Friday | 1 | Individual | 499 | | | | | |
| 31 | 9/6/17 | Friday | 1 | Restaurant | 330.87 | | | | | |
| 32 | 9/6/17 | Friday | 1 | Group Home | 207.79 | | | | | |
| 33 | 9/6/17 | Friday | 1 | Residential Care | 196.15 | | | | | |
| 34 | 10/6/17 | Saturday | 3 | Individual | 323.49 | | | | | |
| 35 | 10/6/17 | Saturday | 3 | Restaurant | 281.68 | | | | | |
| 36 | 10/6/17 | Saturday | 3 | Group Home | 194.68 | | | | | |

# Planning a Structured Range of Data

- A collection of similar data can be structured in a range of columns and rows, representing fields and records, respectively
  - Each column represents a field, which is a single piece of data
  - Each row represents a record, which is a group of related fields
- A structured range of data is commonly referred to as a list or table

# Planning a Structured Range of Data



# Planning a Structured Range of Data

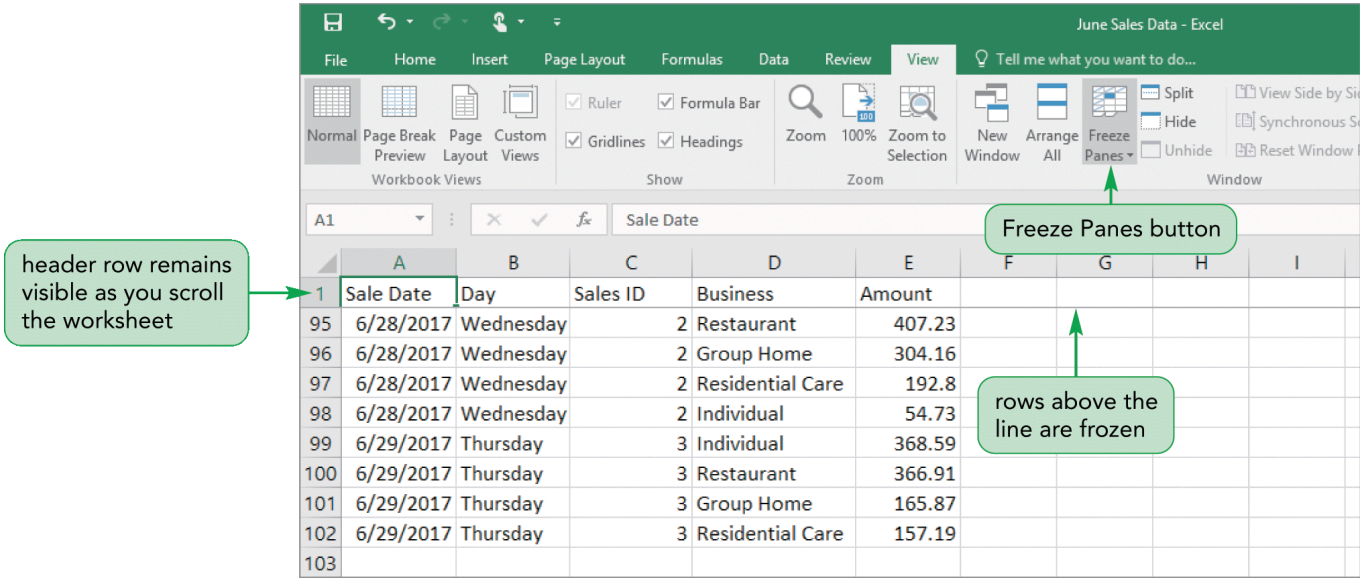
- Common operations for working with data:
  - Add, edit, and delete data in the range
  - Sort the data range
  - Filter to display only rows that meet specified criteria
  - Insert formulas to calculate subtotals
  - Create summary tables based on the data in the range (usually with PivotTables)

# Planning a Structured Range of Data

- Creating an Effective Structured Range of Data
  - Enter field names in top row of range
  - Use short, descriptive field names
  - Format field names to distinguish header row from data
  - Enter the same kind of data in a field
  - Separate data (including header row) from other information in the worksheet by *at least* one blank row and one blank column

# Freezing Rows and Columns

- **Freezing** a row or column keeps headings visible as you work with data in a large worksheet

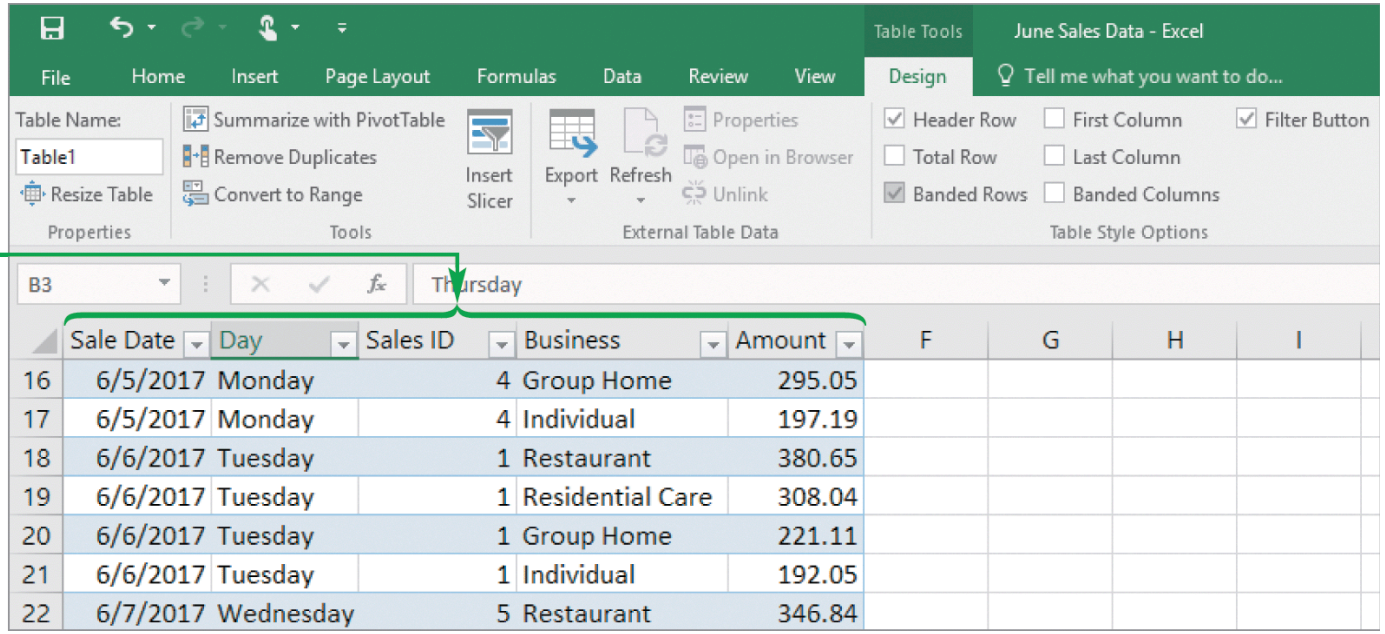


# Creating an Excel Table

- Excel tables make it easier to identify, manage, and analyze the groups of related data
- When a structured range of data is converted into an Excel table, you see the following:
  - A filter button in each cell of the header row
  - The range formatted with a table style
  - A sizing handle (a small triangle) in the lower-right corner of the last cell of the table
  - The TABLE TOOLS DESIGN tab on the ribbon

# Creating an Excel Table

header row replaces column headings




| | Sale Date | Day | Sales ID | Business | Amount | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 6/5/2017 | Monday | 4 | Group Home | 295.05 | | | | |
| 17 | 6/5/2017 | Monday | 4 | Individual | 197.19 | | | | |
| 18 | 6/6/2017 | Tuesday | 1 | Restaurant | 380.65 | | | | |
| 19 | 6/6/2017 | Tuesday | 1 | Residential Care | 308.04 | | | | |
| 20 | 6/6/2017 | Tuesday | 1 | Group Home | 221.11 | | | | |
| 21 | 6/6/2017 | Tuesday | 1 | Individual | 192.05 | | | | |
| 22 | 6/7/2017 | Wednesday | 5 | Restaurant | 346.84 | | | | |

# Creating an Excel Table

- Saving Time with Excel Tables
  - Format quickly using a table style
  - Add new rows and columns that automatically expand the range
  - Add a Total row to calculate a summary function (SUM, AVERAGE, COUNT, MIN, MAX)
  - Enter a formula in a cell that is automatically copied to all other cells in the column
  - Create formulas that reference cells in a table by using table and column names

# Creating an Excel Table

- Renaming an Excel Table
  - Each Excel table in a workbook must have a unique name
  - Descriptive names make it easier to identify a table by its content
  - Table names must start with a letter or an underscore but can use any combination of letters, numbers, and underscores for the rest of the name
  - Table names cannot include spaces

# Modifying an Excel Table

- Can modify an Excel table by adding or removing table elements or by changing the table's formatting
- Can display or hide the following:
  - Header row
  - Total row
  - First column
  - Last column
  - Banded rows
  - Banded columns
  - Filter buttons

# Maintaining Data in an Excel Table

- As you develop a worksheet with an Excel table, you may need to:
  - Add new records to the table
  - Find and edit existing records in the table
  - Delete records from the table
- Adding Records
  - Add a record in the first blank row
  - Add a record in a specific location by inserting a row within the table for the new record

# Maintaining Data in an Excel Table

- Finding and Editing Records
  - You can manually scroll through the table to find a specific record
  - Quicker way to locate a record is to use the Find command
  - When using the Find or Replace command, it is best to start at the top of a worksheet to ensure that all cells in the table are searched

# Maintaining Data in an Excel Table

- Deleting a Record
  - Three ways to delete records:
    - Select a cell in each record you want to delete, click the Delete button arrow in the Cells group on the HOME tab, and then click Delete Table Rows
    - Delete a field by selecting a cell in the field you want to delete, clicking the Delete button arrow, and then clicking Delete Table Columns
    - Use the Remove Duplicates dialog box to locate and remove records that have the same data in selected columns

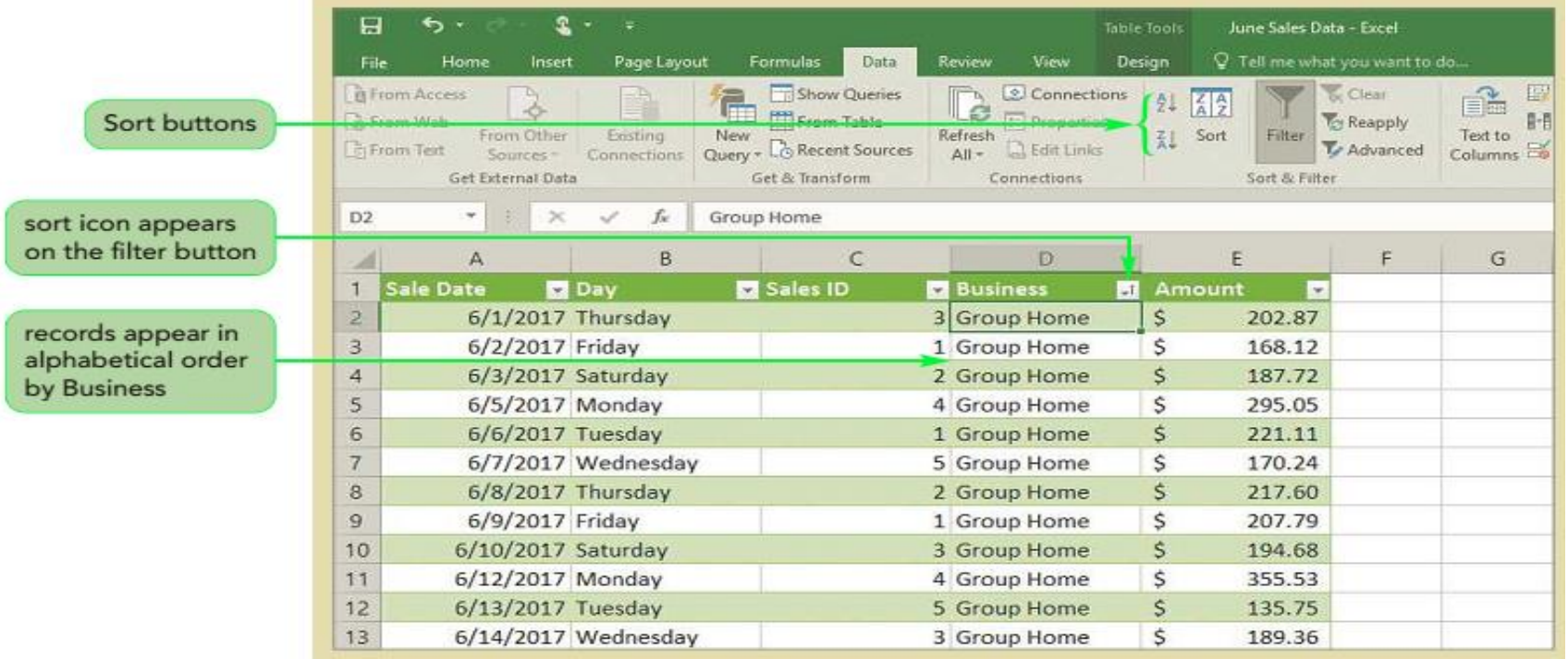
# Sorting Data

- The records in an Excel table initially appear in the order they were entered; you can view the same records in a different order
- **Ascending order** arranges text alphabetically from A to Z, numbers from smallest to largest, and dates from oldest to newest
- **Descending order** arranges text in reverse alphabetical order from Z to A, numbers from largest to smallest, and dates from newest to oldest

# Sorting Data

- Sorting One Column Using the Sort Buttons
  - Use the Sort A to Z button or the Sort Z to A button to sort data quickly with one sort field

**Figure 5-11** JuneTbl table sorted by the Business field

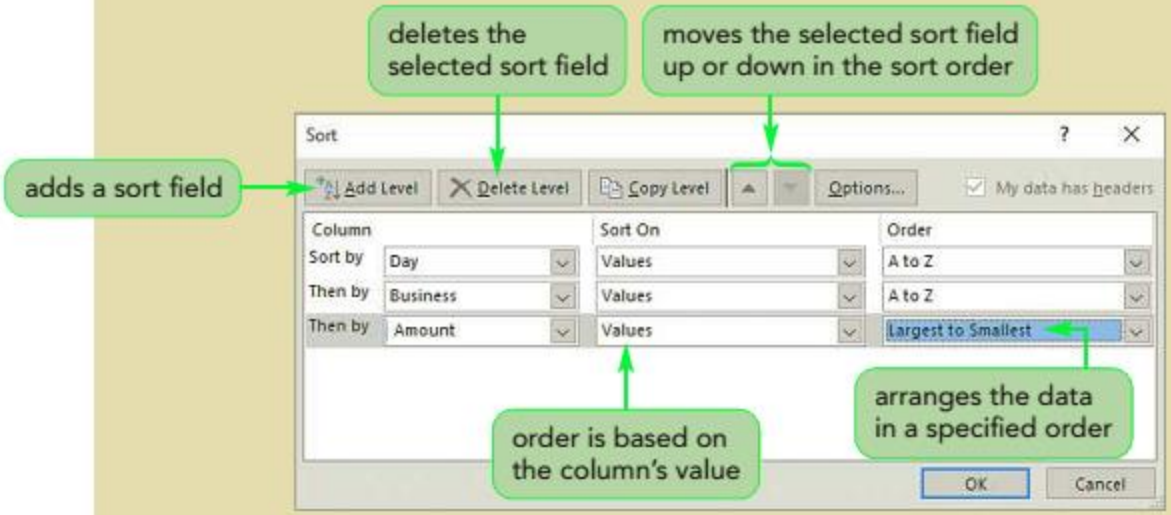



| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Sale Date | Day | Sales ID | Business | Amount | | |
| 2 | 6/1/2017 | Thursday | 3 | Group Home | $ 202.87 | | |
| 3 | 6/2/2017 | Friday | 1 | Group Home | $ 168.12 | | |
| 4 | 6/3/2017 | Saturday | 2 | Group Home | $ 187.72 | | |
| 5 | 6/5/2017 | Monday | 4 | Group Home | $ 295.05 | | |
| 6 | 6/6/2017 | Tuesday | 1 | Group Home | $ 221.11 | | |
| 7 | 6/7/2017 | Wednesday | 5 | Group Home | $ 170.24 | | |
| 8 | 6/8/2017 | Thursday | 2 | Group Home | $ 217.60 | | |
| 9 | 6/9/2017 | Friday | 1 | Group Home | $ 207.79 | | |
| 10 | 6/10/2017 | Saturday | 3 | Group Home | $ 194.68 | | |
| 11 | 6/12/2017 | Monday | 4 | Group Home | $ 355.53 | | |
| 12 | 6/13/2017 | Tuesday | 5 | Group Home | $ 135.75 | | |
| 13 | 6/14/2017 | Wednesday | 3 | Group Home | $ 189.36 | | |

# Sorting Data

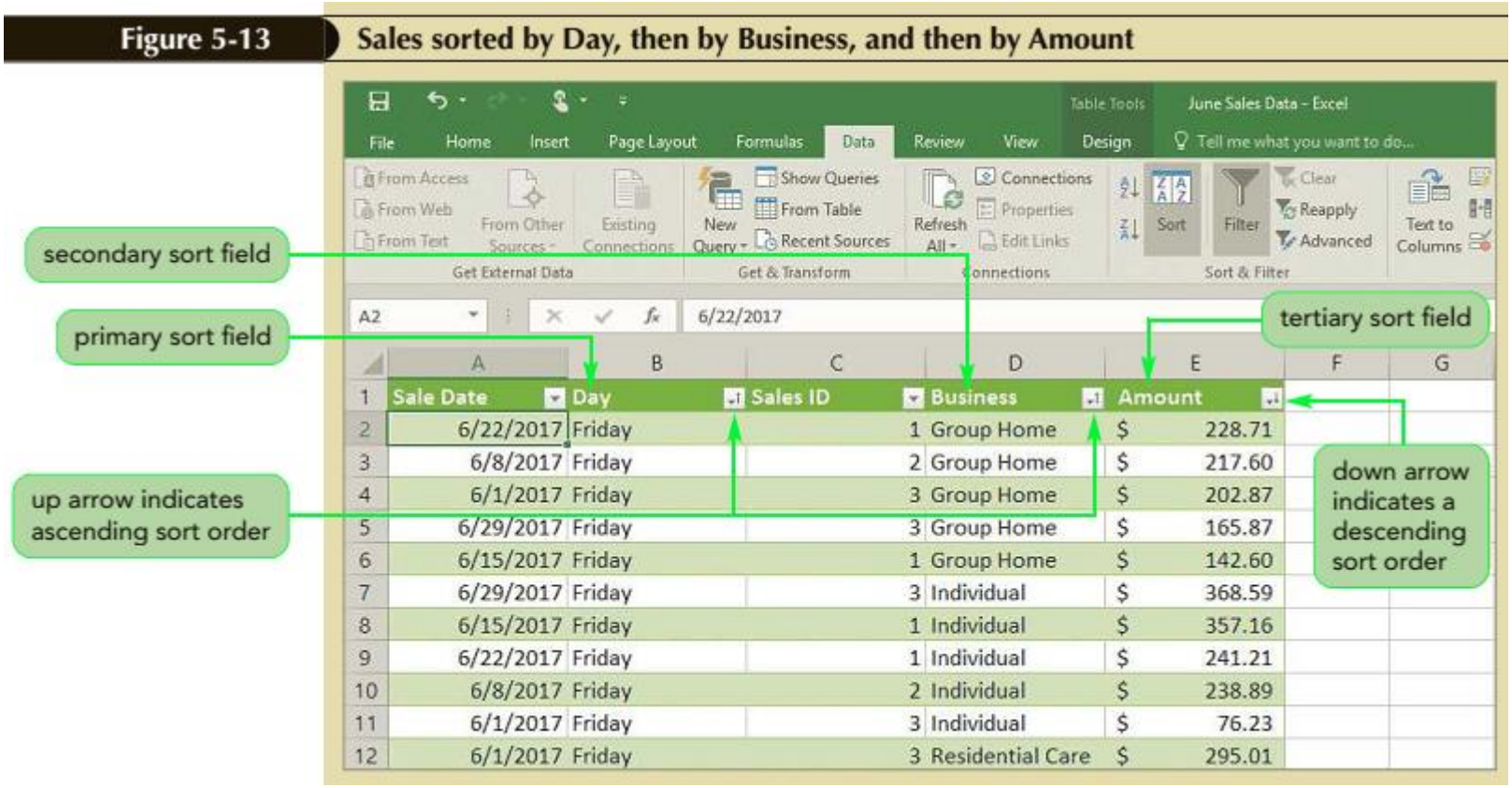
- Sorting Multiple Columns Using the Sort Dialog Box
  - The first sort field is called the **primary sort field**
  - The second sort is called the **secondary sort field**
  - Up to 64 sort fields possible

**Figure 5-12** Sort dialog box with three sorted fields



# Sorting Data

**Figure 5-13** Sales sorted by Day, then by Business, and then by Amount



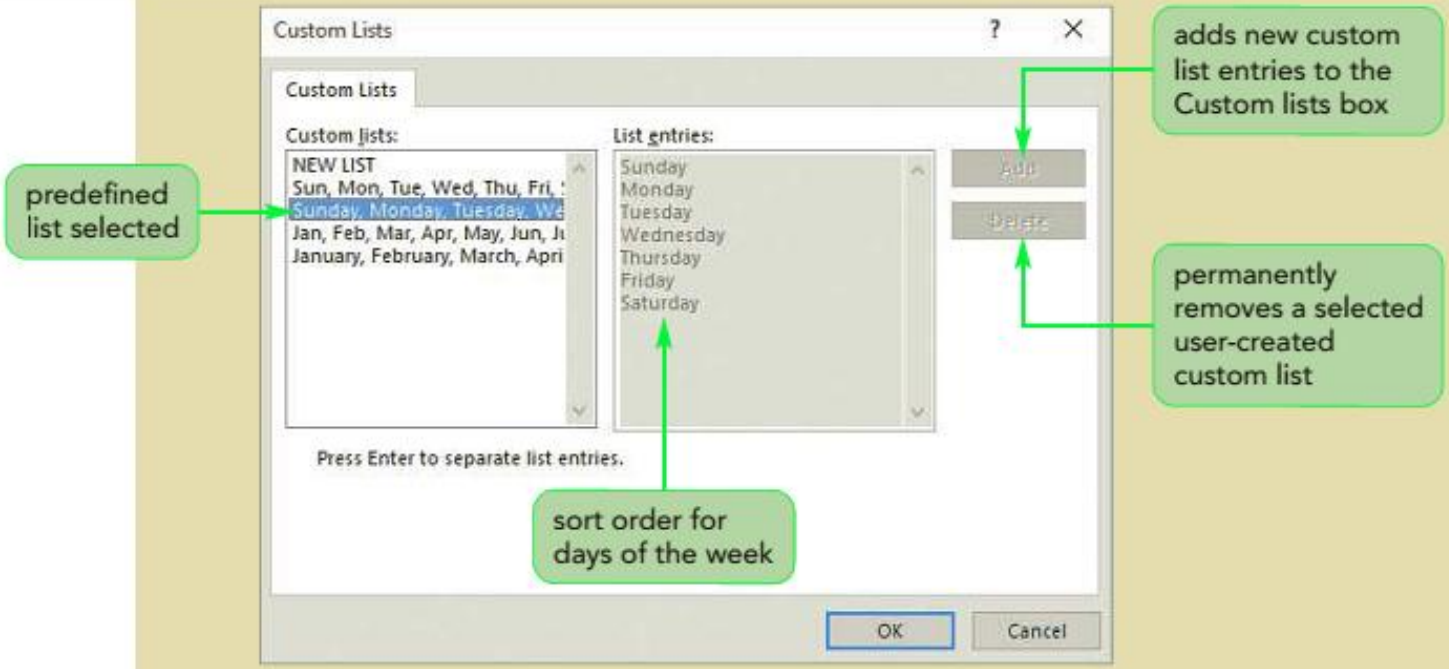

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Sale Date | Day | Sales ID | Business | Amount | | |
| 2 | 6/22/2017 | Friday | 1 | Group Home | $ 228.71 | | |
| 3 | 6/8/2017 | Friday | 2 | Group Home | $ 217.60 | | |
| 4 | 6/1/2017 | Friday | 3 | Group Home | $ 202.87 | | |
| 5 | 6/29/2017 | Friday | 3 | Group Home | $ 165.87 | | |
| 6 | 6/15/2017 | Friday | 1 | Group Home | $ 142.60 | | |
| 7 | 6/29/2017 | Friday | 3 | Individual | $ 368.59 | | |
| 8 | 6/15/2017 | Friday | 1 | Individual | $ 357.16 | | |
| 9 | 6/22/2017 | Friday | 1 | Individual | $ 241.21 | | |
| 10 | 6/8/2017 | Friday | 2 | Individual | $ 238.89 | | |
| 11 | 6/1/2017 | Friday | 3 | Individual | $ 76.23 | | |
| 12 | 6/1/2017 | Friday | 3 | Residential Care | $ 295.01 | | |

# Sorting Data

- Sorting Using a Custom List
  - A **custom list** indicates sequence to order data
  - Two predefined custom sort lists
    - Day-of-the-week custom list
    - Month-of-the-year custom lists
  - Can create a custom list to sort records in a sequence you define

# Sorting Data

**Figure 5-14** Custom Lists dialog box



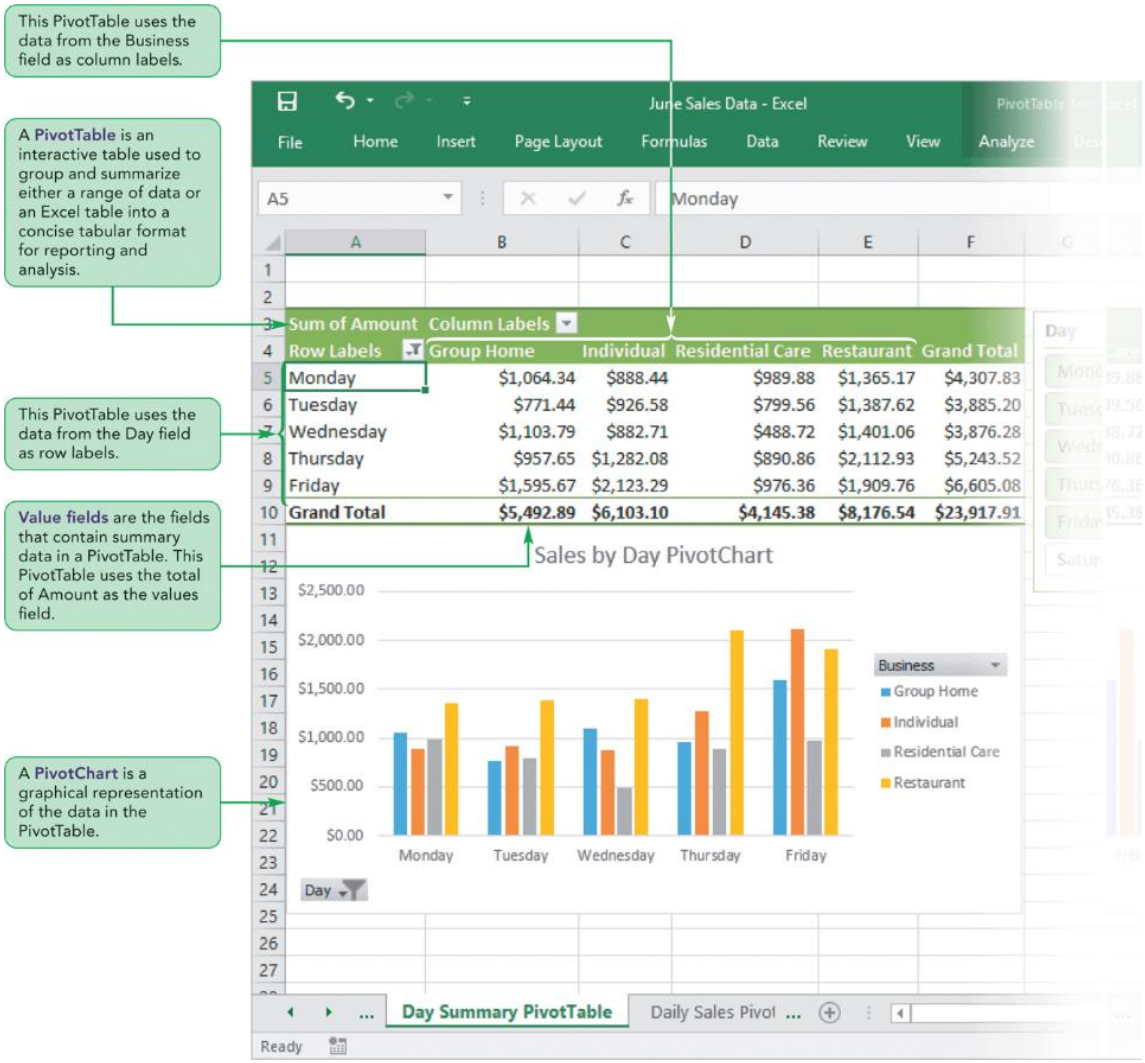
# Tutorial Activities

- Filtering Data
  - Filtering temporarily hides any records that do not meet specified criteria
  - Filtering Using One Column
  - Filtering Using Multiple Columns
  - Clearing Filters
  - Selecting Multiple Filter Items
  - Creating Criteria Filters to Specify More Complex Criteria
  - Creating a Slicer to Filter Data in an Excel Table
- Using the Total Row to Calculate
- Splitting the Worksheet Window into Panes
- Inserting Subtotals

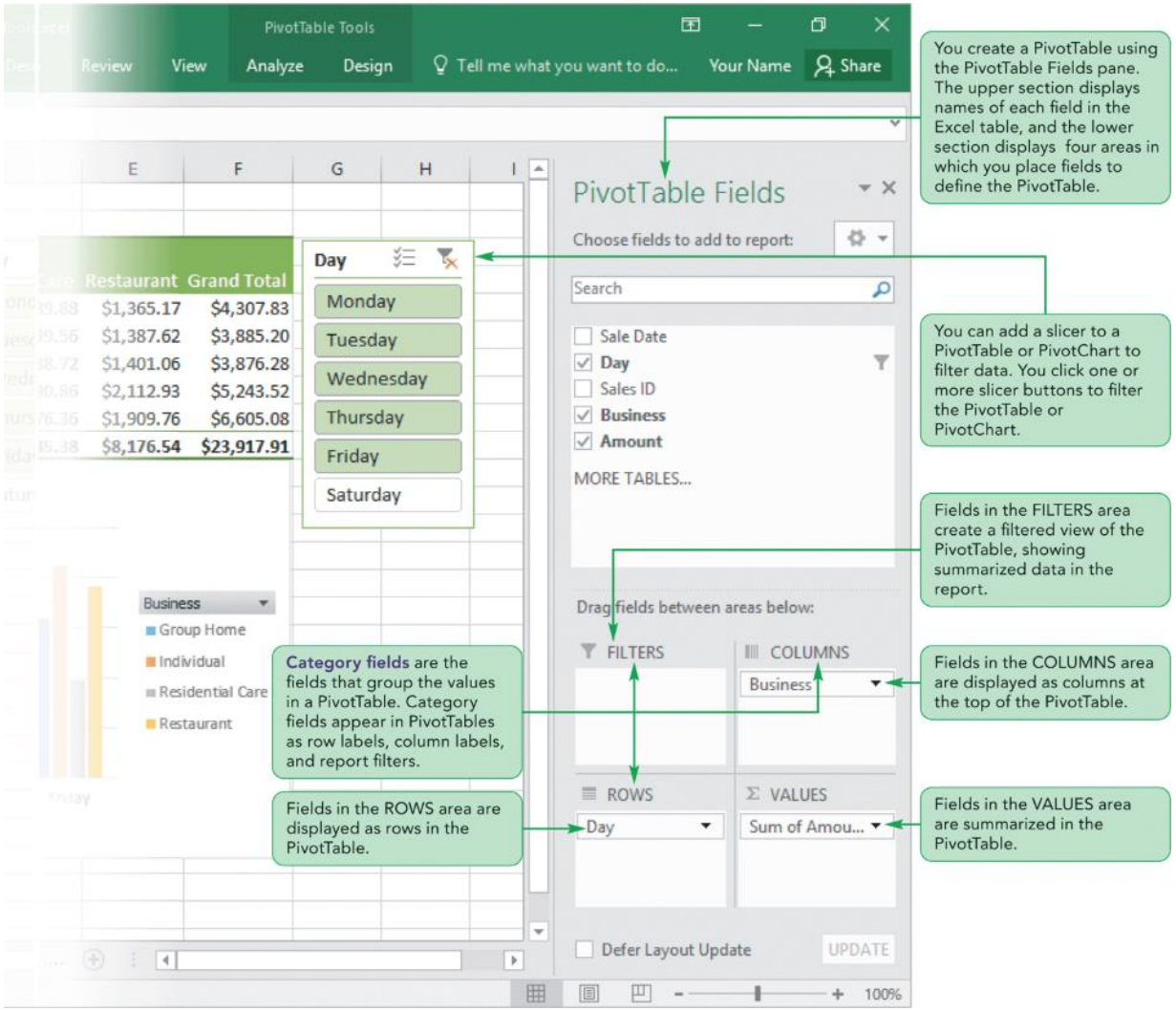
# Analyzing Data with PivotTables

- When a table contains large amounts of data, it often becomes difficult to obtain a clear view of that information
- PivotTables help organize data by summarizing data into categories using Functions (COUNT, SUM, AVERAGE, MAX, MIN)
- Provide ability to “pivot” the table (rearrange, hide, and display different category fields to provide alternative views of the data)

# Visual Overview: PivotTable and PivotChart



# Visual Overview: PivotTable and PivotChart



# Tutorial Activities

- Creating a PivotTable
- Filtering a PivotTable
- Refreshing a PivotTable
- Creating a PivotChart

# Summary

- Excel tables
- Pivot Tables and Pivot Charts
- Homework
  - Go through Module 5 of Excel textbook
  - Check out Tableau software
- Next week
  - Advanced Functions (Excel Module 8)