**C2W4 Analyzing Data Using Spreadsheets**

## Contents



# 4/ Analyzing Data Using Spreadsheets

## *Data Analysis Basics, Filtering and Sorting Data*

### *Summary and Highlights*

In this lesson, you have learned the following information:

Before shaping your data, you need to visualize the final output, and ask yourself the following questions:

- How big is the dataset?
- What type of filtering is required to find the necessary information?
- How should the data be sorted?
- What type of calculations are needed?

There are several advantages to formatting your data as a table:

- Automatic calculations even when filtering
- Column headings never disappear
- Banded rows to make reading easier

- Tables will automatically expand when adding new rows

The most basic way of shaping your data is to sort and filter it:

- Sorting data helps you to organize it by a specified criterion, such as numerically, alphabetically, or chronologically.
- Filtering our data makes it easier to control what data is displayed and what is hidden, based on filtered fields.

Excel Functions:

- Functions in Excel are arranged into multiple categories; including mathematical, statistical, logical, financial, and date and time-based.
- Common functions for a data analyst include IF, IFS, COUNTIF, SUMIF, VLOOKUP, HLOOKUP

**Hands-on Lab 6: Filtering and Sorting Data**

https://www.coursera.org/learn/excel-basics-data-analysis-ibm/ungradedWidget/qqhWW/hands-on-lab-6-filtering-and-sorting-data

In this lab, first you will learn how to use the Filter and Sort tools in Excel to filter and sort our data to enable us to control what information is displayed, and how it is displayed in our worksheets. Next, you will learn how to use some of the most common functions a Data Analyst might use; namely IF, IFS, COUNTIF, and SUMIF. Finally, you will learn how to use the VLOOKUP and HLOOKUP functions in Excel to reference data contained in both vertical and horizontal lookup tables.

**Objectives**

After completing this lab, you will be able to:

- Use the Filter and Sort tools
- Use IF, IFS, COUNTIF, and SUMIF functions for data analysis
- Use the VLOOKUP and HLOOKUP reference functions

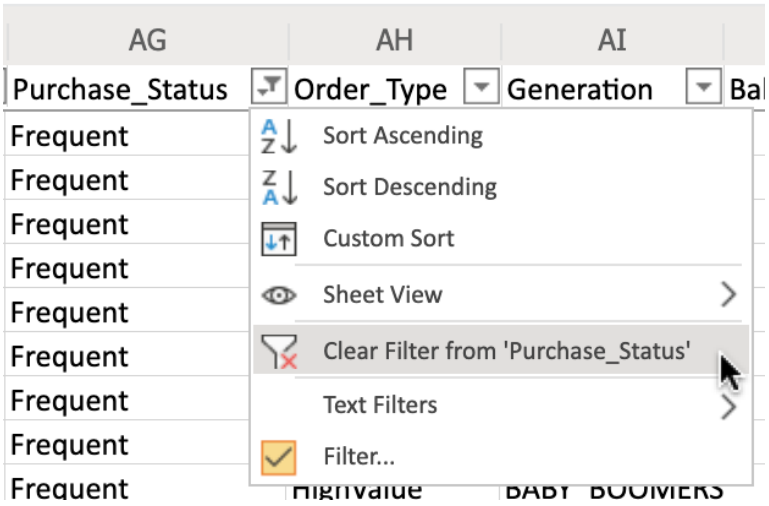
## *Exercise 1: Filtering and Sorting Data*

In this exercise, you will learn how to use the Filter and Sort tools in Excel to filter and sort our data to enable us to control what information is displayed, and how it is displayed in our worksheets.

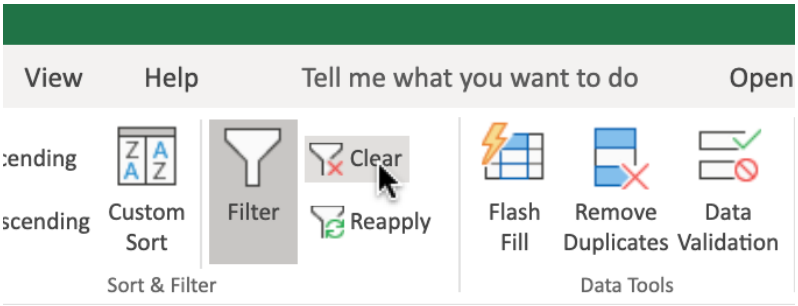
### *Task A: Filtering data →hàm filter*

To use Auto Filters to filter data:

1. Download the file **Customer_demographics_and_sales_Lab6.xlsx**. Upload and open it using Excel for the web.
2. Select **any cell** in the data, and click the **Data** tab, then click **Filter**.
3. Click the **filter drop-down** in column **AG (Purchase_Status)**, and select **Filter...**.
4. In the list, only select **Frequent** and click **OK**.
5. Click the **filter drop-down** in the column **AG**, and click **Clear Filter From "Purchase_Status"**.




6. Click the **filter drop-down** in column **AE (T_Type)**, and select **Filter...**.
7. In the list, only select **Cancelled** and click **OK**.
8. Click the **filter drop-down** in column **AF (Purchase_Touchpoint)**, and select **Filter...**.
9. In the list, only select **Desktop** and click **OK**.
10. On the **Data** tab, click **Clear**.

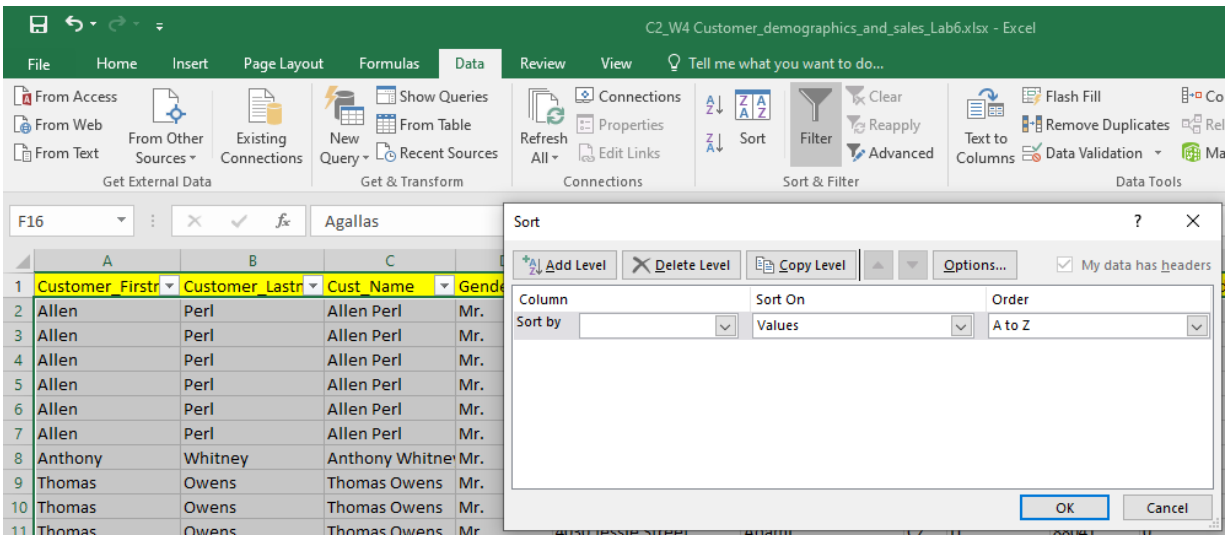



To use Custom Filters to filter data:

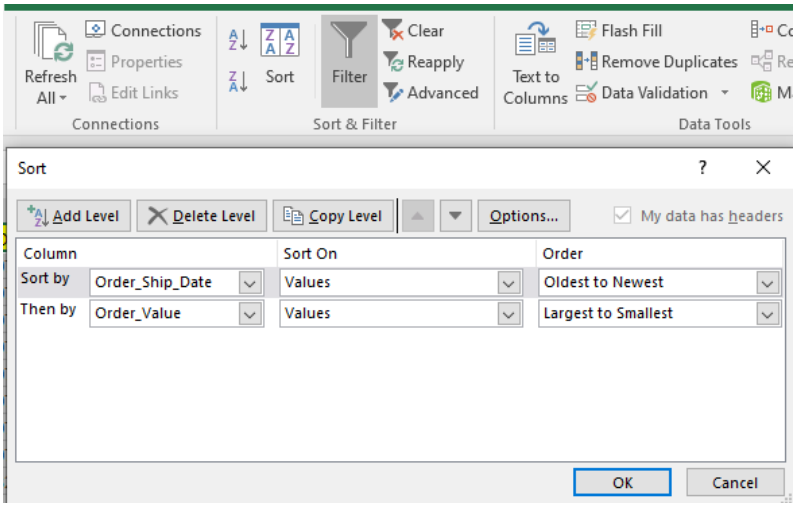
1. Click the **filter drop-down** in column **AD (Order_Value)**, then **Number Filters>Top 10...**.
2. Change the value from **10 to 50** and Click **OK**.
3. Click the **filter drop-down** in the column **AD**, and click **Clear Filter From "Order_Value"**.

## *Task B: Sorting data → Data/Sort*

1. On the **Data** tab, click **Custom Sort** to open a dialog box like below.




2. Click the **Column drop-down** of row **Sort By**, select **Order_Ship_Date**.
3. Click the **Order drop-down** of row **Sort By**, select **Sort Ascending →Oldest to Newest**.
4. Click **Add**.
5. Click the **Column drop-down** of row **Then By**, select **Order_Value**.
6. Click the **Order drop-down** of row **Then By**, select **Sort Descending →**Largest to Smallest
7. Click **OK**.




## *Exercise 2: Useful Functions for Data Analysis*

In this exercise, you will learn how to use some of the most common functions a Data Analyst might use; namely IF, IFS, COUNTIF, and SUMIF.

### *Task A: Use of IF to apply one condition*

1. Select column **AF**, right-click, **Insert**.
2. In cell **AF1**, type **Complete?**.
3. In cell **AF2**, type **=IF(AE2="Complete","Yes","No")** and press Enter.
4. Double-click the **Fill Handle** **of AF2** to copy down the column.

### *Task B: Use of Nested IF to apply multiple conditions*

1. Select column **AE**, right-click, **Insert**.
2. In cell **AE1**, type **Order Size (IF)**.

3. In cell **AE2**,
   type **=IF(AD2>300,"Large",IF(AD2>100,"Medium",IF(AD2>0,"Small")))** an d press **Enter**.
4. Double-click the **Fill Handle of AE2** to copy down the column.

### *Task C: Use of IFS to apply multiple conditions (alternative of Nested IF) →~~Excel 2016~~*

1. Select column **AE**, right-click, **Insert**.
2. In cell **AE1**, type **Order Size (IFS)**.
3. In cell **AE2**,
   type **=IFS(AD2>300,"Large",AD2>100,"Medium",AD2>0,"Small")** and press **Enter**.
4. Double-click the **Fill Handle of AE2** to copy down the column.

### *Task D: Use of COUNTIF to count the number of cells that meet a specified criterion*

1. Select cell **BX2** and type **count VISA card**.
2. Select cell **BY2** and type **=COUNTIF(N2:N195,"VISA")** and press **Enter**.

### *Task E: Use of SUMIF function to sum the values within a specified range that meet a specified criterion*

1. Select cell **BX3** and type **sum Large order**.
2. Select cell **BY3** and type **=SUMIF(AE2:AE195,"Large", AD2:AD195)** and press **Enter**.
   - Formula: **=SUMIF(range, criteria, [sum range])**.

### *Task F: Use of SUMIFS function to sum the values within a specified range that meet multiple specified criteria*

1. Select cell **BX4** and type **sum Large order with Baby Gen**.
2. Select cell **BY4** and type **=SUMIFS(AD2:AD195, AE2:AE195,"Large", AL2:AL195,"*BABY_BOOMERS*")** and press **Enter**.
   - Formula: **=SUMIFS ([sum range], range1, criteria1, range2, criteria2, ...)**.

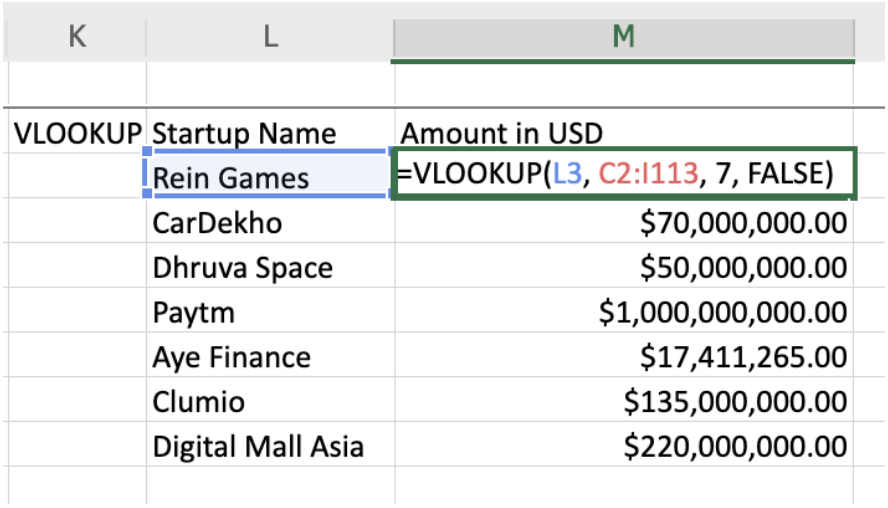
## *Exercise 3: Using the VLOOKUP and HLOOKUP Functions*

In this exercise, you will learn how to use the VLOOKUP and HLOOKUP functions in Excel to reference data contained in both vertical and horizontal lookup tables.

### *Task A: Use of VLOOKUP to look up data in a table organized vertically*

1. Download the file **indian_startup_funding_Lab6.xlsx**. Upload and open it using Excel for the web.
2. In cell **K2,L2,M2,** type **VLOOKUP, Startup Name, Amount in USD** respectively.
3. Select and copy cells from **C9 to C15** and paste in cell **L3**.
4. In cell **M3**, type **=VLOOKUP(L3, C2:I113, 7, FALSE)** and press **Enter**.
   - Formula: **=VLOOKUP (value, table, col_index, [range_lookup])**.

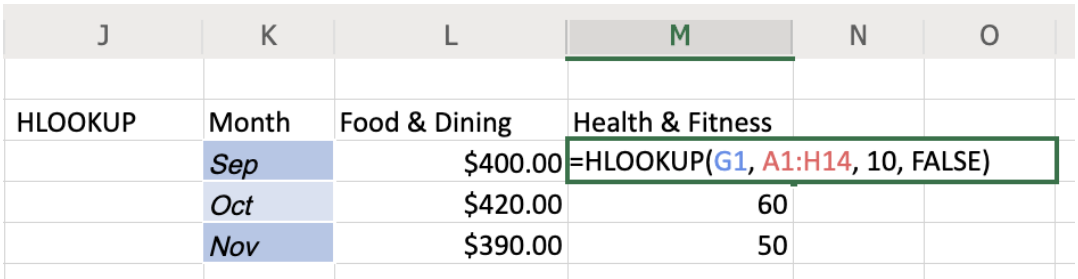
5. Hover over the bottom-right corner of cell **M3**, and drag the Fill Handle down to the cell **M9**.
6. Select cells from **M3 to M9** and **select Number Format>Currency**.



| | K | L | M |
|---|---|---|---|
| | | | |
| | VLOOKUP | Startup Name | Amount in USD |
| | | Rein Games | =VLOOKUP(L3, C2:I113, 7, FALSE) |
| | | CarDekho | $70,000,000.00 |
| | | Dhruva Space | $50,000,000.00 |
| | | Paytm | $1,000,000,000.00 |
| | | Aye Finance | $17,411,265.00 |
| | | Clumio | $135,000,000.00 |
| | | Digital Mall Asia | $220,000,000.00 |
| | | | |

## *Task B: Use of HLOOKUP to look up data in a table organized horizontally*

1. Download the file **Personal_Monthly_Expenditure_Lab6.xlsx**. Upload and open it using Excel for the web.
2. In cell **J2,K2,L2,M2,** type **HLOOKUP, Month, Food & Dining, Health & Fitness** respectively.
3. Select and copy cells from **A10 to A12** and paste in cell **K3**.
4. In cell **L3**, type **=HLOOKUP(D1, A1:H14, 10, FALSE)** and press **Enter**.
    - Formula: **=HLOOKUP (value, table, row_index, [range_lookup])**.
5. Hover over the bottom-right corner of cell **L3**, and drag the Fill Handle down to the cell **L5**.
6. Select cells from **L3 to L5** and **select Number Format>Currency**.
7. In cell **M3**, type **=HLOOKUP(G1, A1:H14, 10, FALSE)** and press **Enter**.
8. Hover over the bottom-right corner of cell **M3**, and drag the Fill Handle down to the cell **M5**.
9. Select cells from **M3 to M5** and **select Number Format>Currency**.



| | J | K | L | M | N | O |
|---|---|---|---|---|---|---|
| | | | | | | |
| | HLOOKUP | Month | Food & Dining | Health & Fitness | | |
| | | *Sep* | $400.00 | =HLOOKUP(G1, A1:H14, 10, FALSE) | | |
| | | *Oct* | $420.00 | 60 | | |
| | | *Nov* | $390.00 | 50 | | |