# Conditional Formatting

Use a conditional format to help you visually explore and analyze data, detect critical issues, and identify patterns and trends.

## Conditional formatting makes it easy to:

- highlight interesting cells or ranges of cells,
- emphasize unusual values, and
- visualize data by using
  - data bars,
  - color scales, and
  - icon sets.

## A conditional format changes the appearance of a cell range based on conditions (or criteria):

- If the condition is **true**, the cell range is **formatted** based on that condition;
- If the condition is **false**, the cell range is **not formatted** based on that condition.

## Conditional Formatting breaks down into the following groups:

- **Highlight Cell Rules** allows you to format cells …
  - with numeric values if:
    - a cell numeric value is **greater** than, **greater than or equal** to, **less** than, **less than or equal** to, or **equal** to, or **not equal** to a specified value,
    - a cell numeric value is **between** two specified values
  - containing text if:
    - a cell contain a specified text string
  - with date values if:
    - a cell date value is **greater** than, **less** than, or **equal** to a specified value,
    - a cell date value is **between** two specified values
    - *Remember that dates are stored as serial numbers – today's date has a serial number value **greater than** yesterday's date serial number value.*
  - Values that are duplicated with in a specified cell range
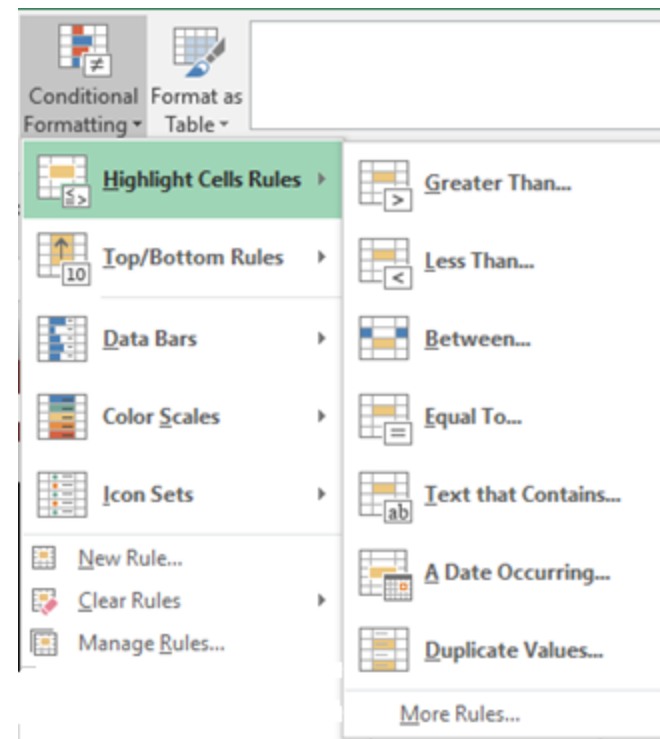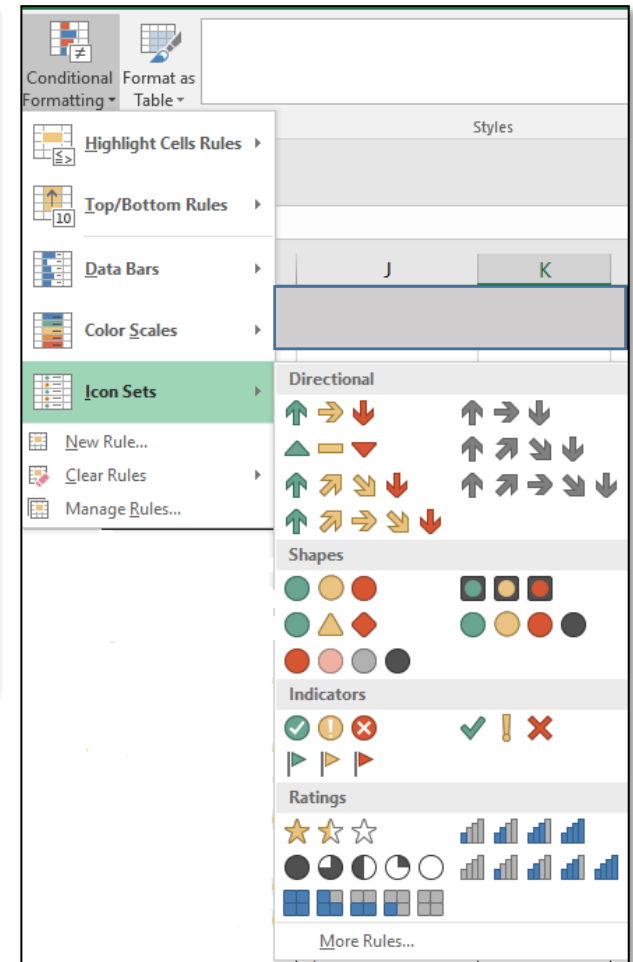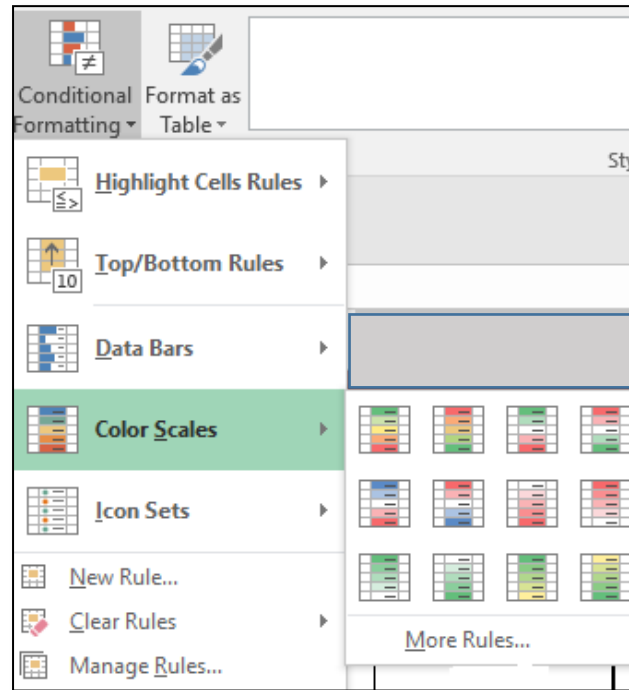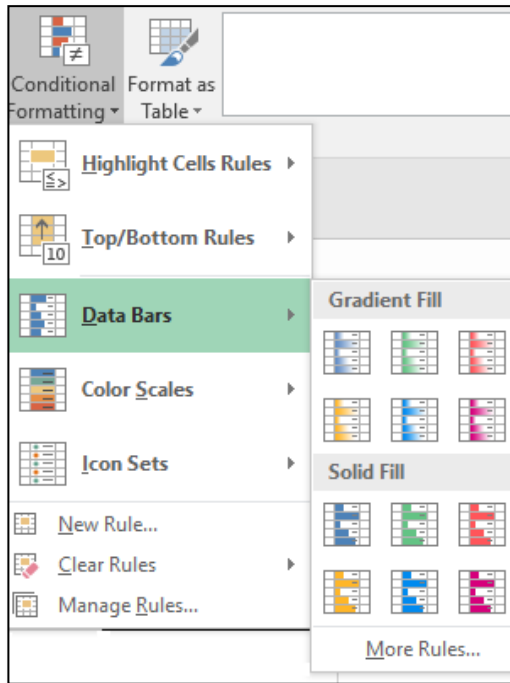
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- **Top/Bottom Rules** allows you to format cells containing numeric values that are the ...
  - top 10 items of a list (as measured from greatest value (top) to least value (bottom)
  - top 10 percent
  - bottom 10
  - bottom 10%
  - Above Average
  - Below Average
  - **These rules can be modified to show**:
    - top/bottom $X$ values, or
    - top/bottom $X$ percentages
    - where you define the value for $X$
    - this allows you to format, for example:
      - Top 5
      - Bottom 3
      - Top 25%
      - Etc....
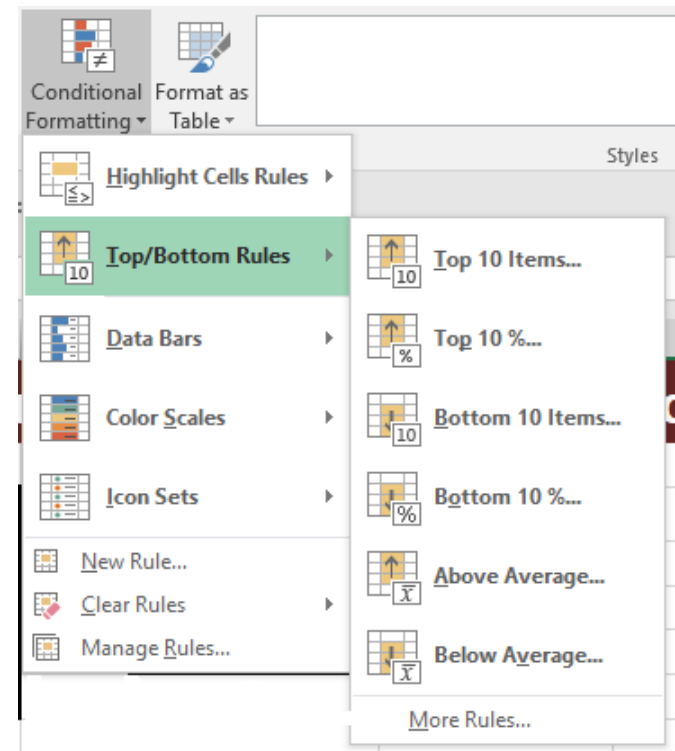
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- **Data Bars**, **Color Scales** and **Icon Sets** allow you to add a variety of data visualization tools to your **numeric** data
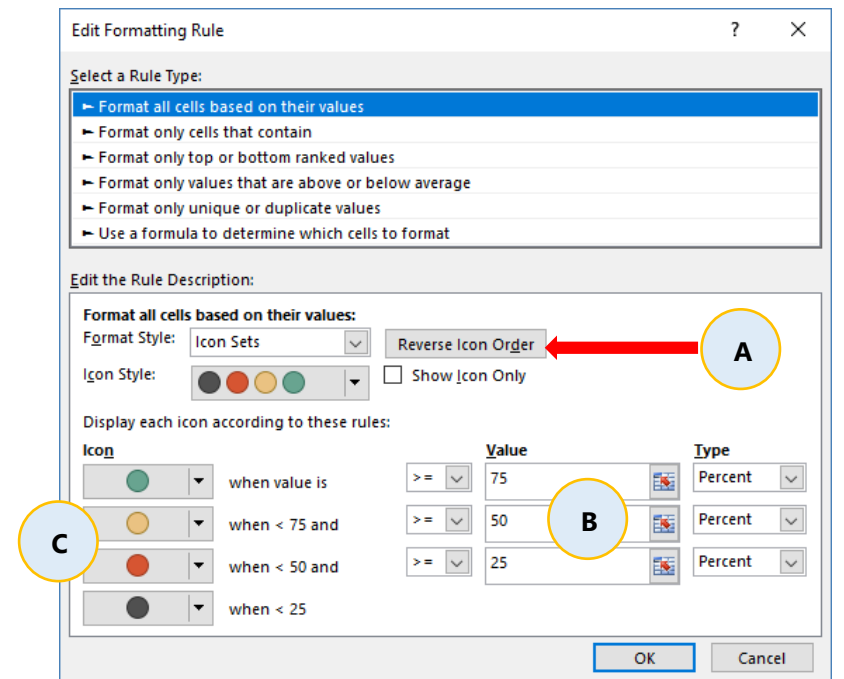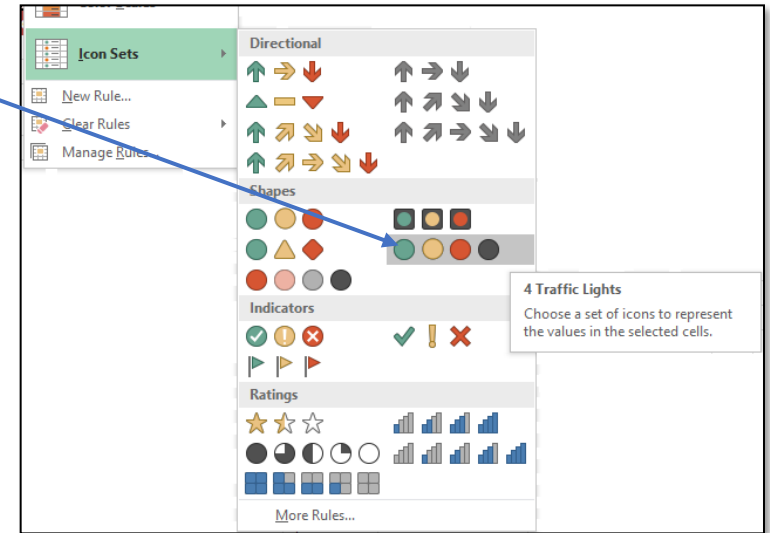
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**Changing Icon Sets' break point values**

1. To the Current Salary column, add an icon set of 4 traffic lights (Home Tab > Styles Group > Conditional Formatting > Icon Sets> Shapes > 4 Traffic Lights)
2. The data will show the highest values in Green, the lowest values in Black
3. To change the break points, go back to Conditional Formatting and this time choose "Manage Rules" at the bottom of the list (See Step 3)
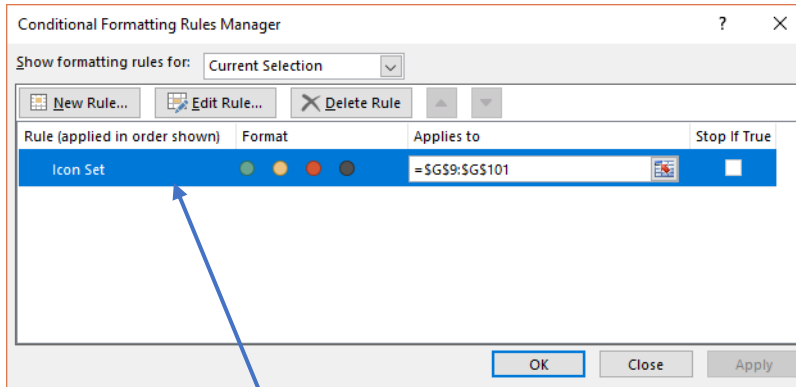
4. Double click on the "Rule" – the blue strip for Icon Set to open the rule.
5. From here, on the Edit Formatting Rule dialog box, we can …
    A. Reverse the Icon Order, or

    B. Change the break points for each color by changing the percentages or values where the break occurs

    C. Assign different icons, shapes or colors to various values

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**Conditional Formatting using a formula - Example One:**

Let's create a conditional formatting rule that highlights the staff members last name for those with a Salary w/Raise of $80,000 or greater

1) **Select the cells to be formatted in the Last Name column**
2) Home Tab > Styles Group > Conditional Formatting > New Rule…
3) Choose "Use a formula to determine which cells to format" from top half of "New Formatting Rule" dialog box
4) Enter the formula =I9 >= 80000
   - A. You can think of this formula as the Logical Test part of an IF function,
   - B. If the formula evaluates to TRUE, the cell will be formatted
   - C. If the formula evaluates to FALSE, the cell will not be formatted
5) Warning → DO NOT USE ABSOLUTE CELL REFERENCING for the staff member's Salary w/Raise – each staff member has his/her own Salary w/Raise
6) Enter a format of bold text on a pale orange background
   - A. Click the Format… button on the New Formatting Rule Dialog Box
   - B. On the Font tab of the Format Cells dialog box choose Bold for Font Style
   - C. On the Fill tab of the Format Cells dialog box choose pale orange, and then click OK to close the Format Cells dialog box
   - D. Click OK to close the New Formatting Rule dialog box and apply Conditional Formatting
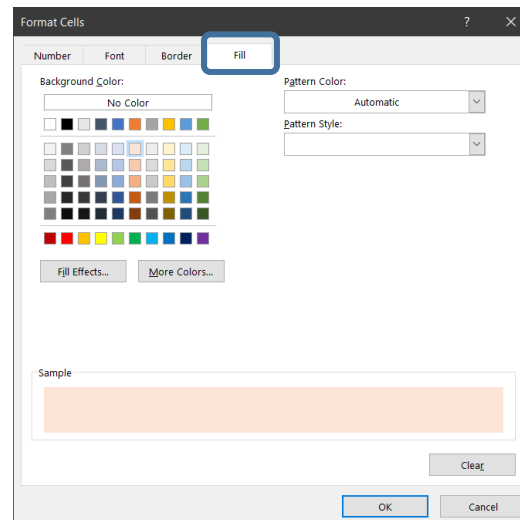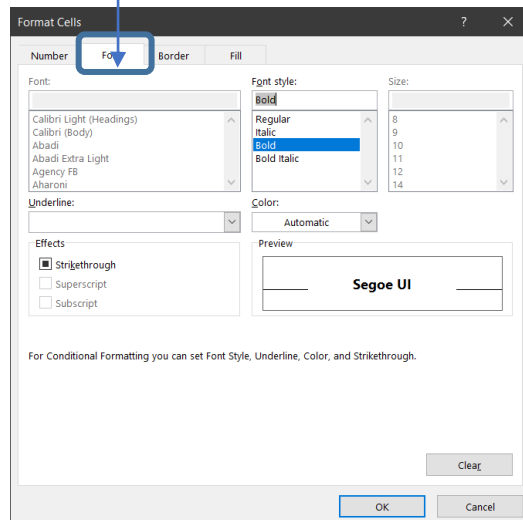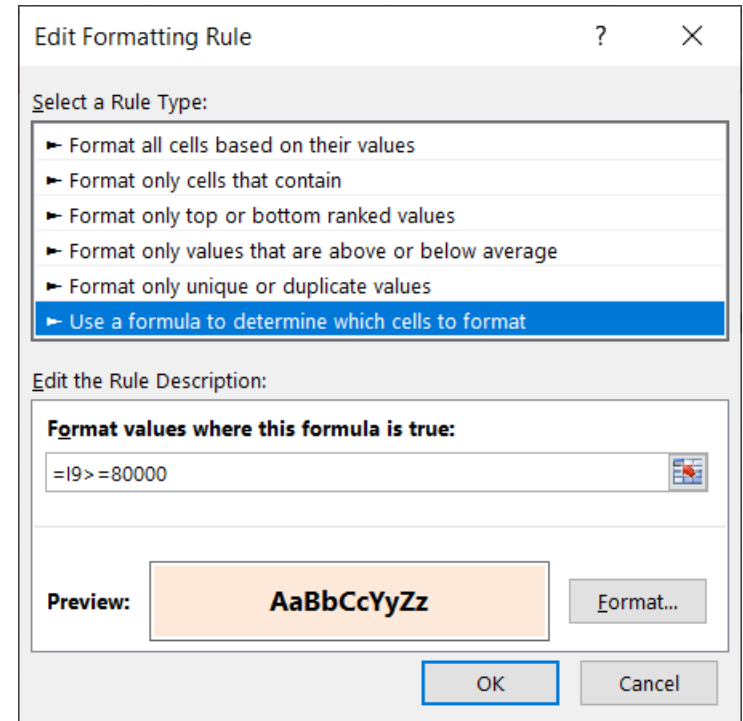


Note that we are using the data from one column to format another column. In this example we are formatting Last Names based on the values in Salary w/Raise.

We could make this even better by choosing a cell for conditional formatting threshold and then using that cell in the formula, rather than the actual number. If we do that, we would need to use absolute cell referencing on the threshold value's cell.

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**Conditional Formatting using a formula - Example Two:**

This time we will format the contents of the ID cells where the Performance is Average and Salary w/Raise is greater than or equal to $65,000 . The cells to be formatted are dependent on values in other cells/columns. For the formatting to apply, **both** conditions (Performance = "Average" and Salary w/Raise >=65000) must be true, so we will use an AND formula.

1) Select the cells to be formatted – those in the ID column
2) Home Tab > Styles Group > Conditional Formatting > New Rule…
3) Choose "Use a formula to determine which cells to format" from top half of "New Formatting Rule" dialog box
4) Enter the formula =AND(H9=$E$5,I9>=65000)
   A. *Remember… the formula can be thought of as the logical test part of an IF function*
   B. =AND( → this starts our AND formula
   C. H9=$E$5 → this compares the value for Performance to the value of "Average" stored in cell E5 – note the use of both relative and absolute cell referencing
      - Relative cell referencing on performance because each staff member has their own performance indicator,
      - Absolute cell referencing on E5 because that cell contains the value, "Average" that we are using for comparison for each staff member
   D. , → the comma divides the first logical test in the AND formula from the second logical test
   E. I9>=65000 → compares each staff members Salary w/Raise to the benchmark of $65,000 (note that in the formula we do not use number "decoration". Again note the type of cell referencing used.
   F. Close the parentheses
5) Enter a format of italic text on a pale purple background
   A. Click the Format… button on the New Formatting Rule Dialog Box
   B. On the Font tab of the Format Cells dialog box choose Italic for Font Style
   C. On the Fill tab of the Format Cells dialog box choose pale purple, and then click OK to close the Format Cells dialog box
   D. Click OK to close the New Formatting Rule dialog box and apply Conditional Formatting