Chapter-12 Working with Data Validation in MS Excel

Data Validation in Excel helps ensure that the data entered into a worksheet meets specific criteria, thereby improving data accuracy and consistency. It allows you to control the type of data, restrict values, and provide helpful input messages or warnings.

1. Overview of Data Validation

Data Validation allows you to:

- **Limit** the types of data that can be entered in a cell (e.g., numbers, dates, text).
- **Define** custom rules for data entry (e.g., numbers between a certain range).
- **Display** input messages to guide users.
- **Create** error alerts when invalid data is entered.

2. Applying Data Validation

Steps to Apply Data Validation:

1. Select the cell or range where you want to apply data validation.
2. Go to the **Data** tab on the Ribbon.
3. In the **Data Tools** group, click **Data Validation**.
4. The **Data Validation** dialog box will appear. You can define validation criteria in the following tabs:
   - **Settings**: Set the data validation criteria.
   - **Input Message**: Display a message when the cell is selected.
   - **Error Alert**: Set up a custom error message when invalid data is entered.

3. Types of Data Validation Criteria

A. Whole Number

This option restricts entries to whole numbers (integers).

- **Steps**:

1. In the **Settings** tab, choose **Whole Number** from the **Allow** dropdown.
2. Set the allowed range (e.g., between 1 and 100).

Example:

- **Data Validation**: Restrict users to entering numbers between 1 and 100.
  - ○ Set **Data** to **between**, and specify **Minimum** = 1, **Maximum** = 100.

B. Decimal

This allows entries to be decimal numbers.

- **Steps**:
  1. In the **Settings** tab, choose **Decimal** from the **Allow** dropdown.
  2. Define the acceptable range (e.g., between 0.1 and 10.5).

C. List

Use a predefined list of valid values.

- **Steps**:
  1. In the **Settings** tab, choose **List** from the **Allow** dropdown.
  2. Enter the items for the list (e.g., "Yes, No").
  3. Use a comma to separate multiple values or select a range of cells containing the values.

Example:

- **Data Validation**: Only allow "Male" or "Female" in a gender column.
  - ○ Set **Allow** to **List** and enter the values **Male, Female** in the **Source** field.

D. Date

This option restricts entries to dates within a specified range.

- **Steps**:
  1. In the **Settings** tab, choose **Date** from the **Allow** dropdown.
  2. Define the date range (e.g., from January 1, 2020 to December 31, 2023).

E. Time

Use this to restrict entries to a specific time or range of times.

- **Steps**:
  1. In the **Settings** tab, choose **Time** from the **Allow** dropdown.
  2. Specify the valid time range.

F. Text Length

Restrict the number of characters entered into a cell.

- **Steps**:
    1. In the **Settings** tab, choose **Text Length** from the **Allow** dropdown.
    2. Specify the **Minimum** and **Maximum** number of characters allowed.

G. Custom

Create custom data validation rules using formulas.

- **Steps**:
    1. In the **Settings** tab, choose **Custom** from the **Allow** dropdown.
    2. Enter a formula that evaluates to TRUE for valid entries and FALSE for invalid ones.

Example:

- **Data Validation**: Allow only even numbers.
    - Formula: `=MOD(A1,2)=0`

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4. Input Message

An **Input Message** appears when the user selects a cell, providing guidance about the data to be entered.

Steps to Create an Input Message:

1. Go to the **Input Message** tab in the Data Validation dialog box.
2. Check **Show input message when cell is selected**.
3. Enter a **Title** (optional) and **Input Message** (e.g., "Enter a number between 1 and 100").

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5. Error Alert

An **Error Alert** is displayed when the user enters invalid data based on the validation criteria. You can customize the error message and set the type of alert.

Types of Error Alerts:

- **Stop**: Prevents invalid data from being entered. The user must correct the data before proceeding.
- **Warning**: Allows the user to enter invalid data but provides a warning.

- **Information**: Provides a message but doesn't prevent the user from entering invalid data.

Steps to Create an Error Alert:

1. Go to the **Error Alert** tab in the Data Validation dialog box.
2. Check **Show error alert after invalid data is entered**.
3. Choose the **Style** (Stop, Warning, or Information).
4. Enter a **Title** (optional) and **Error Message** (e.g., "Invalid entry. Enter a number between 1 and 100").

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6. Managing and Clearing Data Validation

A. To View or Modify Data Validation:

1. Select the cell with validation.
2. Go to the **Data** tab and click **Data Validation**.
3. In the **Data Validation** dialog box, you can adjust the settings, input message, or error alert.

B. To Remove Data Validation:

1. Select the cell(s) with validation.
2. Go to the **Data** tab and click **Data Validation**.
3. In the **Data Validation** dialog box, click **Clear All** to remove the validation.

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7. Best Practices for Using Data Validation

1. **Use Input Messages for Guidance**: Provide clear instructions to users about the expected data format or range.
2. **Use Lists for Consistency**: Using a list of valid entries ensures consistency in data entry.
3. **Combine Validation Rules**: Use multiple validation criteria for more complex scenarios. For example, allow only numbers between 1 and 100, or restrict text length to a maximum of 10 characters.
4. **Use Custom Formulas**: Leverage custom formulas to create complex validation rules based on multiple conditions.

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8. Common Errors in Data Validation

Error	Reason	Solution
Invalid Data Entry	Data entered doesn't meet validation criteria.	Review the validation settings and input the correct data.
Data Validation Rule Overlap	Multiple rules conflict, causing unexpected behavior.	Review and adjust conflicting rules.
Validation Not Applied to New Data	Data validation was applied to part of the range, but new data isn't covered.	Apply data validation to the entire range.