

Chapter - 6 Working with IF-Based Conditions in MS Excel

The `IF` function in Excel allows you to perform logical tests and return different results based on whether the condition is `TRUE` or `FALSE`. It is a powerful tool for creating conditional formulas.

1. Basic Syntax of the IF Function

Syntax:

```
=IF(logical_test, value_if_true, value_if_false)
```

Argument	Description
logical_test	A condition that evaluates to <code>TRUE</code> or <code>FALSE</code> .
value_if_true	The result if the condition is <code>TRUE</code> .
value_if_false	The result if the condition is <code>FALSE</code> .

2. Basic Example

Example 1: Check if a number is greater than 50

- **Formula:**

```
=IF(A1 > 50, "Pass", "Fail")
```

- **Result:**

- If `A1 = 60`, the result is `"Pass"`.
 - If `A1 = 40`, the result is `"Fail"`.
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3. Nested IF Conditions

When you need to check multiple conditions, you can nest multiple `IF` functions.

Example 2: Grade Evaluation

- **Scenario:** Assign grades based on scores.
- **Formula:**

```
=IF(A1 >= 90, "A", IF(A1 >= 80, "B", IF(A1 >= 70, "C", "Fail")))
```

- **Result:**
 - If A1 = 85, the result is "B".
 - If A1 = 65, the result is "Fail".
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4. Using Logical Operators

Operator	Description	Example
=	Equal to	A1 = 50
>	Greater than	A1 > 50
<	Less than	A1 < 50
>=	Greater than or equal to	A1 >= 50
<=	Less than or equal to	A1 <= 50
<>	Not equal to	A1 <> 50

Example 3: Check Multiple Conditions

- **Scenario:** Check if a number is between 50 and 100.
- **Formula:**

```
=IF(AND(A1 >= 50, A1 <= 100), "In Range", "Out of Range")
```

- **Result:**
 - If A1 = 75, the result is "In Range".
 - If A1 = 40, the result is "Out of Range".
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5. Combining IF with Other Functions

Example 4: Use IF with SUM

- **Scenario:** Check if the total sales exceed a target.
- **Formula:**

```
=IF(SUM(A1:A5) > 1000, "Target Achieved", "Target Not Met")
```

6. Using IF with Text

Example 5: Check for Specific Text

- **Scenario:** Verify if a cell contains "Completed".

- **Formula:**

```
=IF(A1 = "Completed", "Done", "Pending")
```

7. Advanced Examples

Example 6: Check for Empty Cells

- **Scenario:** Return "Data Missing" if a cell is empty.
- **Formula:**

```
=IF(A1 = "", "Data Missing", "Data Present")
```

Example 7: Calculate Bonuses

- **Scenario:** Assign a bonus based on sales.
- **Formula:**

```
=IF(A1 > 1000, A1 * 0.1, 0)
```

- **Result:**
 - If A1 = 1200, the bonus is 120.
 - If A1 = 800, the bonus is 0.
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8. Error Handling with IFERROR

Use `IFERROR` to handle errors gracefully.

Example 8: Handle Division by Zero

- **Scenario:** Avoid errors when dividing.
- **Formula:**

```
=IFERROR(A1 / B1, "Error: Division by Zero")
```

9. Dynamic IF with Dropdowns

You can pair `IF` functions with dropdowns for interactive data processing.

Example 9: Conditional Action Based on User Selection

- **Scenario:** Assign a discount based on a dropdown value.

- **Formula:**

```
=IF(A1 = "Gold", 20%, IF(A1 = "Silver", 10%, 5%))
```

10. Best Practices

1. **Simplify Nested IFs:** Use functions like `CHOOSE` or `SWITCH` for better readability in complex conditions.
2. **Combine with Logical Functions:** Use `AND`, `OR`, `NOT` to handle multiple conditions.
3. **Test for Errors:** Use `IFERROR` or `ISERROR` to manage errors gracefully.
4. **Keep It Simple:** Avoid deeply nested IFs when alternatives like `LOOKUP` or `IFS` are available.

By mastering `IF` and its combinations, you can create powerful and flexible conditional formulas in Excel.