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Use Of Comparison Operators in a Worksheet in MS Excel

Microsoft Excel

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Module 17 - Use of Comparison Operators in a Worksheet in MS Excel

A Comparison operator is used in Excel to compare two values. Logical operators are sometimes called Boolean operators because the result of the comparison in any given case can only be either TRUE or FALSE.

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Comparison operators in MS Excel play a crucial role in decision-making by evaluating conditions and returning TRUE or FALSE values. They help in performing logical tests, applying conditions, and automating calculations in formulas.

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Six logical operators are available in Excel. The following table explains what each of them does and illustrates the theory with formula examples.

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Using "Equal to" Comparison operator in Excel:

The Equal to Comparison operator (=) can be used to compare all data types - numbers, dates, text values, Booleans, as well as the results returned by other Excel formulas. For example:

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=A1=B1	Returns TRUE if the values in cells A1 and B1 are the same, FALSE otherwise.
=A1="oranges"	Returns TRUE if cells A1 contain the word "oranges", FALSE otherwise.
=A1=TRUE	Returns TRUE if cells A1 contain the Boolean value TRUE, otherwise it returns FALSE.
=A1=(B1/2)	Returns TRUE if a number in cell A1 is equal to the quotient of the division of B1 by 2, FALSE otherwise.

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Using "Not equal to" logical operator in Excel:

You use Excel's Not equal to operator (<>) when you want to make sure that a cell's value is not equal to a specified value. The use of the Not equal to operator is very similar to the use of Equal to that we discussed a moment ago.

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Summary of Not Equal To (<>) in Excel:

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1. Functionality: The <> operator checks if two values are not equal.
2. Returns: TRUE if the values are different or FALSE if the values are the same.
3. Common Uses:

- Conditional Logic: Used in IF statements to return different outcomes based on inequality.
- Conditional Formatting: Highlights cells where values are not equal to a certain value.
- COUNTIF, SUMIF: Useful in COUNTIF and SUMIF to count or sum values that don't meet a condition.
- Data Filtering: Filter data where values do not equal a specific criterion.

The <> operator is versatile and can be used across many Excel functions to handle conditions where you need to exclude specific values or check for inequality. The results returned by the Not equal to operator are analogous to the results produced by the Excel NOT function that reverses the value of its argument. The following table provides a few formula examples.

Not equal to operator	NOT function	Description
=A1<>B1	=NOT(A1=B1)	Returns TRUE if the values in cells A1 and B1 are not the same, FALSE otherwise.
=A1<>"oranges"	=NOT(A1="oranges")	Returns TRUE if cell A1 contains any value other than "oranges", FALSE if it contains "oranges" or "ORANGES" or "Oranges", etc.
=A1<>TRUE	=NOT(A1=TRUE)	Returns TRUE if cell A1 contains any value other than TRUE, FALSE otherwise.
=A1<>(B1/2)	=NOT(A1=B1/2)	Returns TRUE if a number in cell A1 is not equal to the quotient of the division of B1 by 2, FALSE otherwise.
=A1<>DATEVALUE("12/1/2014")	=NOT(A1=DATEVALUE("12/1/2014"))	Returns TRUE if A1 contains any value other than the date of 1-Dec-2014, regardless of the date format. FALSE otherwise.

Greater than, less than, greater than or equal to, less than or equal to:

In Excel, the Greater Than (>) and Less Than (<) operators are fundamental comparison operators used to compare two values. These operators are frequently employed in formulas to evaluate conditions, sort data, and automate decision-making processes. Let's dive into a theoretical understanding of how the Greater Than and Less Than operators work in Excel, their significance, and how they are commonly used. You use these logical operators in Excel to check

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how one number compares to another. Microsoft Excel provides 4 comparisons operate whose names are self-explanatory:

- Greater than (>)
- Greater than or equal to (>=)
- Less than (<)
- Less than or equal to (<=)

Most often, Excel comparison operators are used with numbers, date and time values. For example:

=A1>20	Returns TRUE if a number in cell A1 is greater than 20, FALSE otherwise.
=A1>=(B1/2)	Returns TRUE if a number in cell A1 is greater than or equal to the quotient of the division of B1 by 2, FALSE otherwise.
=A1<DATEVALUE("12/1/2014")	Returns TRUE if a date in cell A1 is less than 1-Dec-2014, FALSE otherwise.
=A1<=SUM(B1:D1)	Returns TRUE if a number in cell A1 is less than or equal to the sum of values in cells B1:D1, FALSE otherwise.

Uses of Comparison Operators in MS Excel:

- Arithmetic Operators - Perform basic mathematical calculations like addition, subtraction, multiplication, and division.
- Comparison Operators - Compare two values and return TRUE or FALSE, useful in conditional formatting and filtering.
- Logical Operators - Used in functions like IF, AND, and OR to make logical decisions based on conditions.
- Text Concatenation Operator - Joins multiple text values into a single string, useful for creating full names or addresses.
- Reference Operators - Define and manipulate cell ranges in formulas, used in functions like SUM and AVERAGE.
- Used in Conditional Formatting - Highlight cells based on conditions using comparison and logical operators.
- Used in Data Validation - Restrict user inputs by applying conditions through logical and comparison operators.
- Used in Filtering and Sorting - Helps in applying advanced filters and sorting data based on specific criteria.

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Use Of Comparison Operators in a Worksheet in MS Excel

- Used in Financial Calculations - Assist in interest, tax, and loan calculations using arithmetic and logical operators.

Assignment

Employee ID	Name	Age	Department	Salary (₹)	Experience (Years)	Performance Score	Eligible for Bonus?
101	Aditi	28	HR	50,000	5	85	?
102	Rajesh	35	IT	75,000	10	92	?
103	Sunita	30	Finance	65,000	7	78	?
104	Vikram	40	IT	90,000	15	88	?
105	Neha	26	HR	48,000	3	80	?
106	Anil	45	Finance	95,000	20	95	?
107	Sneha	29	IT	70,000	6	90	?
108	Arjun	50	HR	55,000	25	70	?
109	Meera	31	Finance	60,000	8	75	?
110	Tarun	38	IT	85,000	12	82	?

Practice Exercises Using Logical Operators:

- Check Salary Eligibility - Find out if an employee's salary is ₹60,000 or more. If yes, mark them as "Eligible", otherwise "Not eligible".
- Check Experience Level - Identify if an employee has more than 5 years of experience. If yes, label them as "Experienced", otherwise "Fresher".
- Determine Bonus Eligibility - Check if an employee's performance score is 80 or more. If yes, mark "Yes", otherwise "No".
- Find Young Employees - See which employees are younger than 30 years. If they are under 30, mark "Young", otherwise "Experienced".
- Highlight IT Department Employees - Identify employees working in the IT department. If they belong to IT, mark "Tech Team", otherwise "Other".

Perform the above and check the results.