***EXCEL PRACTICES WITH SOLUTION***

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**Conditional Formatting Practice Questions for the dataset:**

**Value-Based Rules**

Question-1: Highlight students with **marks above 80** in green.

Solution:

1. Select the range of column containing marks.
2. Then click on conditional formatting tab.
3. After that to select Highlight cells rule,to select greater than.
4. In greater than enter 80 in field value.
5. From with Dark Green text ,( or to apply custom format to apply a green fill) ,Then OK.

Question-2: Highlight employees with **marks below 40** in red.

Solution:

1-Select the range of column containing marks.

2- Then click on conditional formatting. ,after that Highlight cells rule.

3- choose Less than ,enter value 40,then From with Dark Red text to apply.

Question-3: Shade rows where **age > 35**.

Solution:;

1. To select entire row and column.
2. Then select conditional formatting , to choose new rule.
3. After that to select the “Use a formula to determine which cells to format”.
4. Then enter “=$E2>35” in section format values where this formula true.
5. After that select format,Fill choose color then apply.

Question-4: Highlight salaries **greater than ₹70,000**.

Solution:

1. To select entire column which contain salary data .
2. To choose conditional formatting,to choose highlight cells with rule.
3. Select greater than to enter values 70000,with custom format select Green color then ok.

Question-5: Highlight employees whose **salary < 30,000**.

Solution:

1. To select Column salary,choose conditional formatting , to highlight cells rule.
2. After that to select less than.
3. Then enter values 30000. After that select with custom format,Fill choose color then apply.

Question-6: Shade joining dates that are **before 2022**.

Solution:

1. SELECT Column JOINING DATE,to choose the highlight cells rule,then create new rule.
2. Use a formula “=$F2<DATE(2022,1,1),after that to format fill colour,then apply ok.

Question-7: Highlight employees who **joined this year**.

Solution:

1. TO SELECT DATA A2 TO G100 FOR ENTIRE ROW.
2. SELECT highlight cells rule,to choose New rule,then use formula.
3. Enter value”=YEAR($F2)=YEAR(TODAY())”,After that format and choose fill color then apply ok.

**Duplicate / Unique**

Question-1: Highlight **duplicate names**.

Solution:

1. SELECT name column which containing data ,to be choose conditional formatting ,then select highlight cells rule,
2. After to select duplicate,and choose a format then ok.

Question-2: Highlight **duplicate salaries**.

1. Solution: To select Salary column which contain data, choose conditional formatting ,then select highlight cells rule,
2. After to select duplicate,and choose a format then ok.

Question-3: Highlight **unique employee IDs**.

Solution:

1. to select Name column which contain data ,then select conditional formatting ,after that to choose highlight cells rules,select Duplicate values.
2. To choose unique ,with select custom fill color then apply ok.

**Top / Bottom Rules**

Question-1: Highlight top 10% marks.

Solution:

1. To select the marks column which contain data, choose Conditional formatting.
2. After that to select the TOP-BOTTOM RULES , then choose top 10%.
3. To select value then with custom format fill color then apply ok.

Question-2:Highlight bottom 10% salaries.

Solution:

1. To select the marks column which contain data, choose Conditional formatting.
2. After that to select the TOP-BOTTOM RULES , then choose bottom10%.
3. To select value then with custom format fill color then apply ok.

Question-3: Highlight top 5 highest salaries.

Solution:

1. To select the marks column which contain data, choose Conditional formatting.
2. After that to select the TOP-BOTTOM RULES , then choose Top item.
3. To select value “5 then with custom format fill color then apply ok.

Question-4:Highlight lowest 5 marks.

Solution:

1. To select the marks column which contain data, choose Conditional formatting.
2. After that to select the TOP-BOTTOM RULES , then choose bottom item.
3. To select value 5 then with custom format fill color then apply ok.

**Custom Formula Rules**

Question-1: Highlight rows where **Department = "IT" and Marks > 70**.

Solution:

1. To select entire data ,choose the conditional formatting.
2. After that select New rule,Then use a formula”=AND($C2=”IT”,$D2>70)
3. To format ,fill color then apply ok.

Question-2: Highlight rows where **Department = "Sales" and Salary < 40,000**.

Solution:

1. To select AGE column which contain data ,choose the conditional formatting.
2. After that select Highlight cells rules,Then Choose Between .
3. Enter value 25 AND 30 .
4. with format ,fill color then apply ok.

Question-3: Highlight employees with **Age between 25 and 30**.

Solution:

1. To select entire data ,choose the conditional formatting.
2. After that select New rule,Then use a formula”=AND($C2=”Sales”,$G2<40000)
3. To format ,fill color then apply ok.

Question-4: Highlight employees whose **joining date is on a weekend**.

Solution:

1. To select the entire rows which contains data, to choose on conditional formatting.
2. To select highlight cells rules,after that to choose the A Date Occuring.
3. To select drop down option “This WEEK”, with custom format,fill colour then apply ok.

Question-5: Highlight employees where **first name starts with 'A'**.

Solution:

1. TO select the entire row which contain data,To select conditional formatting.
2. To choose new rule , after that to select format only cells that contains .
3. In edit rule description, in cell value select specific text,in containing to choose beginning with, to enter value which text”A”.
4. To format and select the fill color then apply ok.

Question-6: Highlight employees whose **marks < 50 AND salary > 50,000**.

Solution:

1. To select the entire row which conatin data ,after that to select the conditional formatting.
2. TO Select new rule ,choose the Use a formula to determine which cells to format.
3. After that to enter value is “=AND($D2<50,$G2>50000)” ,then format and fill color then apply ok.

**Practice Questions for Data Validation:**

Input Restrictions

**Numeric Restrictions**

**1. Allow only numbers between 0 and 100 in the Marks column**

* Select the range in the Marks column (e.g., D2:D101, assuming row 1 is headers).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Whole number.
* Set Data: between, Minimum: 0, Maximum: 100.
* Optionally, add Input Message and Error Alert for user guidance (e.g., Error: "Marks must be between 0 and 100").

**2. Restrict Age to values between 20 and 40**

* Select the range in the Age column (e.g., E2:E101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Whole number.
* Set Data: between, Minimum: 20, Maximum: 40.
* Optionally, add Error Alert: "Age must be between 20 and 40".

**3. Restrict Salary to values between 20,000 and 90,000**

* Select the range in the Salary column (e.g., G2:G101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Whole number.
* Set Data: between, Minimum: 20000, Maximum: 90000.
* Optionally, add Error Alert: "Salary must be between 20,000 and 90,000".

**4. Ensure Joining Date is not earlier than 01-Jan-2020**

* Select the range in the Joining Date column (e.g., F2:F101). Note: The provided data uses serial numbers (e.g., 44225 represents a date; Excel interprets these as dates from 1900 epoch).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Date.
* Set Data: greater than or equal to, Start date: 1/1/2020.
* Optionally, add Error Alert: "Joining Date cannot be earlier than 01-Jan-2020".

**5. Prevent blank entries in the Name field**

* Select the range in the Name column (e.g., B2:B101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =LEN(B2)>0 (adjust for your starting cell).
* Uncheck "Ignore blank".
* Optionally, add Error Alert: "Name cannot be blank".

**Dropdown Lists**

For all dropdowns, first create the source lists in a separate sheet (e.g., Sheet2) or use named ranges for better management. Then apply validation.

**1. Create a dropdown for Department (HR, IT, Finance, Sales, Marketing)**

* In a helper range (e.g., Sheet2!A1:A5), enter: HR, IT, Finance, Sales, Marketing.
* Select the Department column range (e.g., C2:C101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: List.
* Source: =Sheet2!$A$1:$A$5 (or use a named range like "Departments").
* Optionally, check "In-cell dropdown".

**2. Create a dropdown for City (Delhi, Lucknow, Varanasi, Kanpur, Jaipur, Patna, Agra, Chandigarh, Bhopal, Gurgaon)**

* In a helper range (e.g., Sheet2!B1:B10), enter the cities as listed.
* Select the City column range (e.g., H2:H101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: List.
* Source: =Sheet2!$B$1:$B$10 (or named range "Cities").
* Optionally, check "In-cell dropdown".

**3. Create a dropdown for Grade (A, B, C, D, F)**

* Note: The provided sheet does not have a Grade column. Add a new column (e.g., J for Grade).
* In a helper range (e.g., Sheet2!C1:C5), enter: A, B, C, D, F.
* Select the Grade column range (e.g., J2:J101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: List.
* Source: =Sheet2!$C$1:$C$5 (or named range "Grades").
* Optionally, check "In-cell dropdown".

**4. Create a dropdown for Employment Type (Full-Time, Part-Time, Contract)**

* Note: The provided sheet does not have an Employment Type column. Add a new column (e.g., K for Employment Type).
* In a helper range (e.g., Sheet2!D1:D3), enter: Full-Time, Part-Time, Contract.
* Select the Employment Type column range (e.g., K2:K101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: List.
* Source: =Sheet2!$D$1:$D$3 (or named range "EmploymentTypes").
* Optionally, check "In-cell dropdown".

**5. Create a dropdown for Gender (Male, Female, Other)**

* Note: The provided sheet does not have a Gender column. Add a new column (e.g., L for Gender).
* In a helper range (e.g., Sheet2!E1:E3), enter: Male, Female, Other.
* Select the Gender column range (e.g., L2:L101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: List.
* Source: =Sheet2!$E$1:$E$3 (or named range "Genders").
* Optionally, check "In-cell dropdown".

**Custom Formulas**

**1. Ensure Email contains “@gmail.com”**

* Select the Email column range (e.g., I2:I101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =ISNUMBER(SEARCH("@gmail.com",I2)) (adjust for your starting cell).
* Optionally, add Error Alert: "Email must contain '@gmail.com'".

**2. Prevent duplicate entries in the Email column**

* Select the Email column range (e.g., I2:I101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =COUNTIF($I$2:$I$101,I2)=1 (locks the range for absolute reference).
* Optionally, add Error Alert: "Duplicate email not allowed".

**3. Allow only names with at least two words (First + Last)**

* Select the Name column range (e.g., B2:B101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =LEN(B2)-LEN(SUBSTITUTE(B2," ",""))>=1 (counts spaces; >=1 ensures at least one space for two words).
* Optionally, add Error Alert: "Name must have at least two words (First + Last)".

**4. Ensure Marks > 40 if Department = IT**

* Select the Marks column range (e.g., D2:D101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =IF(C2="IT",D2>40,TRUE) (references Department in C2; adjust columns as needed).
* Optionally, add Error Alert: "Marks must be greater than 40 for IT Department".

**5. Restrict Salary > 50,000 only if Department = Finance**

* Select the Salary column range (e.g., G2:G101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =IF(C2="Finance",G2>50000,TRUE) (references Department in C2).
* Optionally, add Error Alert: "Salary must be greater than 50,000 for Finance Department".

**Date & Time Validation**

Note: Current date is October 06, 2025, for reference in formulas.

**1. Restrict Joining Date to weekdays only**

* Select the Joining Date column range (e.g., F2:F101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =WEEKDAY(F2,2)<6 (2 starts week on Monday; <6 excludes Sat/Sun).
* Optionally, add Error Alert: "Joining Date must be a weekday".

**2. Allow Joining Date only within the last 5 years**

* Select the Joining Date column range (e.g., F2:F101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Date.
* Set Data: between, Start date: =TODAY()-1826 (approx. 5 years; 365\*5 +1 for leap), End date: =TODAY().
* Optionally, add Error Alert: "Joining Date must be within the last 5 years".

**3. Ensure Joining Date is earlier than today’s date**

* Select the Joining Date column range (e.g., F2:F101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Date.
* Set Data: less than, End date: =TODAY().
* Optionally, add Error Alert: "Joining Date must be earlier than today's date (October 06, 2025)".

**Dependent Validation**

**1. If Department = Sales, then City must be from (Delhi, Jaipur, Lucknow)**

* First, create a helper list for Sales cities in Sheet2 (e.g., F1:F3: Delhi, Jaipur, Lucknow; name it "SalesCities").
* Select the City column range (e.g., H2:H101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom (or List with formula).
* Formula: =IF(C2="Sales",COUNTIF(SalesCities,H2)>0,COUNTIF(Cities,H2)>0) (assumes "Cities" is the full city named range from earlier).
* Optionally, add Error Alert: "For Sales Department, City must be Delhi, Jaipur, or Lucknow".

**2. If Age < 25, restrict Salary to less than 40,000**

* Select the Salary column range (e.g., G2:G101).
* Go to Data > Data Validation > Data Validation.
* Under Settings tab, set Allow: Custom.
* Formula: =IF(E2<25,G2<40000,TRUE) (references Age in E2).
* Optionally, add Error Alert: "If Age < 25, Salary must be less than 40,000".

**V-LOOKUP,HLOOKUP,AND X-LOOKUP PRACTICE QUESTIONS:**

* Column references: Students and Sample\_20 sheets (A: ID, B: Name, C: Age, D: Marks, E: City); ID\_Name (A: ID, B: Name); ID\_Marks (A: ID, B: Marks); ID\_City (A: ID, B: City).
* All VLOOKUP formulas use exact match (FALSE) unless otherwise noted.
* If VLOOKUP cannot directly retrieve the value (e.g., due to needing to look left of the lookup column), I've noted this and provided an alternative using INDEX/MATCH, as it's a common companion for such cases in lookup practice.
* If the value is not found, the formula would return #N/A; I've indicated "Not found" based on the data.

1. Find the Age of the student with ID = 10. Formula: =VLOOKUP(10, Students!A:C, 3, FALSE) Result: 30
2. Find the Marks of the student with ID = 25. Formula: =VLOOKUP(25, Students!A:D, 4, FALSE) Result: 54
3. Find the City of the student with ID = 40. Formula: =VLOOKUP(40, Students!A:E, 5, FALSE) Result: Agra
4. Find the Name of the student with ID = 7. Formula: =VLOOKUP(7, Students!A:B, 2, FALSE) Result: Suresh Yadav
5. Find the Marks of the student named Rohit Sharma. Formula: =VLOOKUP("Rohit Sharma", Students!B:D, 3, FALSE) Result: 52
6. Find the Age of the student named Anjali Gupta. Formula: =VLOOKUP("Anjali Gupta", Students!B:C, 2, FALSE) Result: Not found
7. Find the City of the student named Neha Singh. Formula: =VLOOKUP("Neha Singh", Students!B:E, 4, FALSE) Result: Not found
8. Using ID\_Marks sheet, fetch the marks of ID = 18. Formula: =VLOOKUP(18, ID\_Marks!A:B, 2, FALSE) Result: 85
9. Using ID\_City sheet, find the city of ID = 12. Formula: =VLOOKUP(12, ID\_City!A:B, 2, FALSE) Result: Patna
10. From ID\_Name sheet, find the student name with ID = 30. Formula: =VLOOKUP(30, ID\_Name!A:B, 2, FALSE) Result: Komal Sharma
11. From Students sheet, return the city of ID = 5. Formula: =VLOOKUP(5, Students!A:E, 5, FALSE) Result: Lucknow
12. Return the marks of student whose ID = 33. Formula: =VLOOKUP(33, Students!A:D, 4, FALSE) Result: 82
13. Find the Name of student whose ID = 49. Formula: =VLOOKUP(49, Students!A:B, 2, FALSE) Result: Vivaan Jha
14. Find the Marks of student who lives in Lucknow (first match). Note: VLOOKUP cannot directly retrieve this because Marks (column D) is to the left of City (column E). Use INDEX/MATCH instead for the first match. Formula: =INDEX(Students!D:D, MATCH("Lucknow", Students!E:E, 0)) Result: 62
15. From Sample\_20 sheet, fetch the Age of student with ID = 22. Formula: =VLOOKUP(22, Sample\_20!A:C, 3, FALSE) Result: 28
16. From Sample\_20, find City of ID = 37. Formula: =VLOOKUP(37, Sample\_20!A:E, 5, FALSE) Result: Not found
17. Find the Age of the student named Arjun Yadav. Formula: =VLOOKUP("Arjun Yadav", Students!B:C, 2, FALSE) Result: Not found
18. Return the City of the student named Pooja Verma. Formula: =VLOOKUP("Pooja Verma", Students!B:E, 4, FALSE) Result: Not found
19. Using VLOOKUP, return Marks of ID = 15 from ID\_Marks. Formula: =VLOOKUP(15, ID\_Marks!A:B, 2, FALSE) Result: 51
20. Using VLOOKUP, return Name of ID = 28 from ID\_Name. Formula: =VLOOKUP(28, ID\_Name!A:B, 2, FALSE) Result: Harsh Gupta

**Text Functions Practice Solutions**

**Below are the solutions for each question based on the data in "**Text\_Functions\_Practice.xlsx" (Sheet1). For each, I've provided the appropriate Excel formula (assuming application starting from row 2, with headers in row 1). I've also included an example result using the data from row 2 (ID 1) for illustration. Formulas treat Phone and Salary as numbers but can be applied directly (Excel coerces them to text in text functions). Joining Date is an Excel serial date (e.g., 45348 = February 26, 2024).

1. Use LEFT() to extract the first 4 characters of the Phone number. Formula: =LEFT(F2, 4) Example (row 2): "9892"
2. Use RIGHT() to extract the last 3 characters of the Emp Code. Formula: =RIGHT(G2, 3) Example (row 2): "001"
3. Use LEFT() to extract the first 3 letters of the First Name. Formula: =LEFT(B2, 3) Example (row 2): "Sun"
4. Use RIGHT() to extract the last 2 letters of the Last Name. Formula: =RIGHT(C2, 2) Example (row 2): "av"
5. Use MID() to extract characters 3 to 6 from the Phone number. Formula: =MID(F2, 3, 4) Example (row 2): "9246"
6. Use MID() to extract first name from the Full Name. Formula: =MID(D2, 1, FIND(" ", D2) - 1) Example (row 2): "Sunil"
7. Use LEN() to count the number of characters in the Full Name. Formula: =LEN(D2) Example (row 2): 11
8. Use LEN() to count digits in the Phone number. Formula: =LEN(F2) (Phone is already numeric digits only) Example (row 2): 10
9. Use TRIM() to clean spaces from the Messy Name. Formula: =TRIM(E2) Example (row 2): "Sunil Yadav"
10. Use UPPER() to convert City to uppercase. Formula: =UPPER(H2) Example (row 2): "CHANDIGARH"
11. Use LOWER() to convert First Name to lowercase. Formula: =LOWER(B2) Example (row 2): "sunil"
12. Use PROPER() to capitalize properly the Messy Name. Formula: =PROPER(TRIM(E2)) (TRIM first to clean spaces) Example (row 2): "Sunil Yadav"
13. Use CONCAT() to join First Name and Last Name into one cell. Formula: =CONCAT(B2, " ", C2) Example (row 2): "Sunil Yadav"
14. Use TEXTJOIN(" ", TRUE, …) to join First Name, Last Name, City. Formula: =TEXTJOIN(" ", TRUE, B2, C2, H2) Example (row 2): "Sunil Yadav Chandigarh"
15. Use TEXT() to display Salary in Indian currency format (₹ ##,###). Formula: =TEXT(I2, "₹ ##,###") (Note: In some Excel versions, use "₹ #,##0" for proper formatting) Example (row 2): "₹ 55,994"
16. Use TEXT() to display Joining Date in DD-MMM-YYYY format. Formula: =TEXT(J2, "dd-mmm-yyyy") Example (row 2): "26-feb-2024"
17. Use TEXT() to display Joining Date in Month YYYY format. Formula: =TEXT(J2, "mmmm yyyy") Example (row 2): "february 2024"
18. Extract the year from Joining Date using TEXT(). Formula: =TEXT(J2, "yyyy") Example (row 2): "2024"
19. Create an email ID using CONCAT(LOWER(First Name), ".", LOWER(Last Name), "@gmail.com"). Formula: =CONCAT(LOWER(B2), ".", LOWER(C2), "@gmail.com") Example (row 2): "[sunil.yadav@gmail.com](mailto:sunil.yadav@gmail.com)"
20. Create an employee tag using CONCAT(Emp Code, "-", LEFT(City,3)). Formula: =CONCAT(G2, "-", LEFT(H2, 3)) Example (row 2): "EMP1001-CHA"

**Excel Text Functions – Detailed Guide**

1. LEFT(text, num\_chars)

* Definition: Extracts a given number of characters from the left side of a text string.
  + Syntax: =LEFT(text, num\_chars) text → The cell or string from which characters are extracted.
  + num\_chars → Number of characters to extract (default is 1 if omitted).
  + Use Cases: Extracting prefix codes (e.g., product code starting letters).
  + Getting initials of names.
  + Example: If A2 = "ExcelFunctions" =LEFT(A2, 5) → "Excel"

2. RIGHT(text, num\_chars)

* Definition: Extracts a given number of characters from the right side of a text string.
  + Syntax: =RIGHT(text, num\_chars) text → The string or cell reference.
  + num\_chars → Number of characters from the right side.
  + Use Cases: Extracting last 4 digits of mobile number.
  + Getting file extensions (e.g., “.jpg”, “.xlsx”).
  + Example: If B2 = "9876543210" =RIGHT(B2, 4) → "3210"

3. MID(text, start\_num, num\_chars)

* Definition: Returns a specific number of characters from the middle of a text string.
  1. Syntax: =MID(text, start\_num, num\_chars) text → The string or cell reference.

start\_num → Position of the first character to extract.

* 1. num\_chars → Number of characters to return.
  2. Use Cases: Extracting middle codes like PIN/branch code inside an ID.
  3. Picking part of names.
  4. Example: If C2 = "AB123CD456" =MID(C2, 3, 3) → "123"
  5. 4. LEN(text)
  6. Definition: Returns the total number of characters in a string (including spaces).
  7. Syntax: =LEN(text)
  8. Use Cases: Count characters in passwords/usernames.
  9. Validate mobile numbers (10 digits).
  10. Example: If D2 = "Excel 2025" =LEN(D2) → 10 (spaces included)
  11. 5. TRIM(text)
  12. Definition: Removes extra spaces from text, leaving only single spaces between words.
  13. Syntax: =TRIM(text)
  14. Use Cases: Cleaning imported data with irregular spacing.
  15. Preparing data for lookup or matching.
  16. Example: If E2 = " Hello World " =TRIM(E2) → "Hello World"
  17. 6. UPPER(), LOWER(), PROPER()
  18. Definition: Change the text case.
  19. Syntax: =UPPER(text) → Converts text to ALL CAPITALS.
  20. =LOWER(text) → Converts text to all lowercase.
  21. =PROPER(text) → Converts text to Title Case (first letter capitalized).
  22. Use Cases: Standardizing text formatting (e.g., names, addresses).
  23. Examples: If F2 = "anuj kumar" =UPPER(F2) → "ANUJ KUMAR"
  24. =LOWER(F2) → "anuj kumar"
  25. =PROPER(F2) → "Anuj Kumar"
  26. 7. CONCAT() / TEXTJOIN()
  27. Definition: Combine multiple text strings.
  28. Syntax: =CONCAT(text1, [text2], …)
  29. =TEXTJOIN(delimiter, ignore\_empty, text1, [text2], …)
  30. Key Difference: CONCAT → Just combines text (no delimiter option).
  31. TEXTJOIN → Allows a delimiter (comma, space, dash) and can ignore empty cells.
  32. Use Cases: Merging first and last names.
  33. Creating full addresses from multiple cells.
  34. Examples: If G2 = "Anuj", H2 = "Kumar" =CONCAT(G2," ",H2) → "Anuj Kumar"
  35. =TEXTJOIN(" ", TRUE, G2, H2) → "Anuj Kumar"
  36. 8. TEXT(value, format\_text)
  37. Definition: Converts a number, date, or time into text in a specified format.
  38. Syntax: =TEXT(value, format\_text)
  39. Use Cases: Format dates as "January 2025", "DD/MM/YYYY".
  40. Format numbers as currency or percentage.
  41. **Examples**: If I2 = 01-01-2025 =TEXT(I2,"dd-mmm-yyyy") → "01-Jan-2025"
  42. =TEXT(I2,"mmmm yyyy") → "January 2025" If J2 = 1234.567
  43. =TEXT(J2,"$#,##0.00") → "$1,234.57"
  44. Excel Date Functions – Detailed Description
  45. 1. TODAY()
  46. Definition: Returns the current system date (without time).
  47. Syntax: =TODAY()
  48. Parameters: None.
  49. Use Cases: Automatically insert today’s date.
  50. Calculate age, due dates, or deadlines dynamically.
  51. Example: If today is 27-Sep-2025, =TODAY() → 27-Sep-2025
  52. 2. NOW()
  53. Definition: Returns the current system date and time.
  54. Syntax: =NOW()
  55. Parameters: None.
  56. Use Cases: Track timestamp of entry.
  57. Show real-time clock in dashboards.
  58. Example: If current date & time = 27-Sep-2025 06:15 AM, =NOW() → 27-Sep-2025 06:15
  59. 3. DAY(), MONTH(), YEAR()
  60. Definition: Extract specific parts of a date.
  61. Syntax: =DAY(date) → Returns day (1–31).
  62. =MONTH(date) → Returns month (1–12).
  63. =YEAR(date) → Returns year (4-digit).
  64. Use Cases:
  65. Extract day/month/year for reports.
  66. Build custom date formats.
  67. Example: If A2 = 15-Aug-2025: =DAY(A2) → 15
  68. =MONTH(A2) → 8
  69. =YEAR(A2) → 2025
  70. 4. EDATE(start\_date, months)
  71. Definition: Adds or subtracts months from a date.
  72. Syntax: =EDATE(start\_date, months) start\_date → The original date.
  73. months → No. of months to add (positive) or subtract (negative).
  74. Use Cases: Calculate maturity dates for loans.
  75. Add/subtract billing cycle months.
  76. Example: If B2 = 01-Jan-2025: =EDATE(B2, 3) → 01-Apr-2025
  77. =EDATE(B2, -2) → 01-Nov-2024
  78. 5. EOMONTH(start\_date, months)
  79. Definition: Returns the last day of the month after adding/subtracting months.
  80. Syntax: =EOMONTH(start\_date, months) start\_date → The base date.
  81. months → No. of months to add/subtract.
  82. Use Cases: Get last day of billing cycle.
  83. Find month-end deadlines.
  84. Example: If C2 = 15-Jan-2025:
  85. =EOMONTH(C2, 0) → 31-Jan-2025
  86. =EOMONTH(C2, 1) → 28-Feb-2025
  87. 6. DATEDIF(start\_date, end\_date, unit)
  88. Definition: Calculates difference between two dates in years, months, or days.
  89. Syntax: =DATEDIF(start\_date, end\_date, unit) unit can be: ▪ "Y" → Difference in years.
  90. ▪ "M" → Difference in months.
  91. ▪ "D" → Difference in days.
  92. ▪ "YM" → Months ignoring years.
  93. ▪ "YD" → Days ignoring years.
  94. ▪ "MD" → Days ignoring months & years.
  95. Use Cases: Calculate age in years.
  96. Find exact difference in months or days.
  97. Example: If D2 = 01-Jan-2000, E2 = 27-Sep-2025: =DATEDIF(D2, E2, "Y") → 25
  98. =DATEDIF(D2, E2, "M") → 309
  99. =DATEDIF(D2, E2, "D") → 9406
  100. 7. WEEKDAY(serial\_number, [return\_type])
  101. Definition: Returns a number representing the day of the week.
  102. Syntax: =WEEKDAY(date, [return\_type]) return\_type (optional): ▪ 1 → Sunday=1, Monday=2 … Saturday=7 (default).
  103. ▪ 2 → Monday=1, Tuesday=2 … Sunday=7.
  104. ▪ 3 → Monday=0, Tuesday=1 … Sunday=6.
  105. Use Cases:
  106. Identify weekdays vs weekends.
  107. Schedule tasks based on weekdays.
  108. Example: If F2 = 27-Sep-2025 (Saturday): =WEEKDAY(F2,1) → 7
  109. =WEEKDAY(F2,2) → 6
  110. 8. NETWORKDAYS(start\_date, end\_date, [holidays])
  111. Definition: Returns the number of working days (Mon–Fri) between two dates, excluding weekends and optional holidays.
  112. Syntax: =NETWORKDAYS(start\_date, end\_date, [holidays]) holidays → Optional range of dates to exclude.
  113. Use Cases: Calculate project deadlines.
  114. Count business days for payroll.
  115. Example: If start = 01-Jan-2025, end = 10-Jan-2025: =NETWORKDAYS("01-Jan-2025","10-Jan-2025") → 8 (excludes weekends). If holidays = 01-Jan-2025,
  116. =NETWORKDAYS("01-Jan-2025","10-Jan-2025", { "01-Jan-2025" }) → 7
  117. **Date Function Practice Question**

1. Use TODAY() to display the current date. Formula: =TODAY() Example (row 2): 10/6/2025
2. Use NOW() to display current date and time. Formula: =NOW() Example (row 2): 10/6/2025 12:00 AM (time depends on when executed; date is 10/6/2025)
3. Extract the day from the Joining Date. Formula: =DAY(D2) Example (row 2): 1
4. Extract the month from the Birth Date. Formula: =MONTH(C2) Example (row 2): 4
5. Extract the year from the Joining Date. Formula: =YEAR(D2) Example (row 2): 2022
6. Use EDATE() to calculate a date 6 months after Joining Date. Formula: =EDATE(D2, 6) Example (row 2): 9/1/2022
7. Use EDATE() to calculate a date 12 months before Project Start. Formula: =EDATE(E2, -12) Example (row 2): 9/25/2023
8. Use EOMONTH() to find the last day of the month for the Joining Date. Formula: =EOMONTH(D2, 0) Example (row 2): 3/31/2022
9. Use EOMONTH() to find the last day of the month for the Birth Date. Formula: =EOMONTH(C2, 0) Example (row 2): 4/30/2000
10. Use DATEDIF() to calculate the age in years from the Birth Date. Formula: =DATEDIF(C2, TODAY(), "Y") Example (row 2): 25
11. Use DATEDIF() to calculate the experience in years from the Joining Date. Formula: =DATEDIF(D2, TODAY(), "Y") Example (row 2): 3
12. Use DATEDIF() to calculate the difference in months between Project Start and Project End. Formula: =DATEDIF(E2, F2, "M") Example (row 2): 5
13. Use DATEDIF() to calculate the difference in days between Project Start and Project End. Formula: =DATEDIF(E2, F2, "D") Example (row 2): 172
14. Use WEEKDAY() to find which day of the week the Joining Date falls on. Formula: =WEEKDAY(D2, 2) (returns 1 for Monday to 7 for Sunday) Example (row 2): 2 (Tuesday)
15. Use WEEKDAY() to find the day of week for the Birth Date. Formula: =WEEKDAY(C2, 2) Example (row 2): 6 (Saturday)
16. Use NETWORKDAYS() to calculate working days between Project Start and Project End. Formula: =NETWORKDAYS(E2, F2) (assumes standard weekends; no custom holidays) Example (row 2): 123
17. Use NETWORKDAYS() to calculate working days from Joining Date to today. Formula: =NETWORKDAYS(D2, TODAY()) Example (row 2): 940
18. Calculate the employee’s next birthday using Birth Date and TODAY(). Formula: =DATE(YEAR(TODAY())+IF(TODAY()>=DATE(YEAR(TODAY()),MONTH(C2),DAY(C2)),1,0),MONTH(C2),DAY(C2)) Example (row 2): 4/1/2026
19. Calculate the number of days remaining until the next birthday. Formula (assuming G2 has the next birthday from question 18): =G2 - TODAY() Example (row 2): 177
20. Calculate the number of working days between today and project end date. Formula: =NETWORKDAYS(TODAY(), F2) (negative if project end is in the past) Example (row 2): -146

**POWER-BI CONCEPT**

* Column chart: Average Salary by Department (clustered column chart to show comparisons).
* Pie chart: Distribution of employees by City (to show proportions).

If you want different fields visualized, adjust accordingly.

Step 1: Load the Data into Power BI

1. Open Power BI Desktop.
2. Click Get data (or Home > Get data) > Excel workbook.
3. Browse and select the file "Data\_Validation\_Practice1.xlsx" (save the provided document content as an .xlsx file first if it's text).
4. In the Navigator window, select Sheet1 (and optionally Sheet2 if needed for reference).
5. Click Load (or Transform Data if you need to clean—e.g., convert Joining Date serial numbers to dates using Power Query: right-click the column > Change Type > Date).
   * Power BI will import the data as a table. Sheet1 has columns: id, Name, Department, Marks, Age, Joining Date, Salary, City, Email.

Step 2: Prepare the Data (Optional but Recommended)

1. In Power BI, go to Model view (left sidebar) to ensure relationships if needed (not required here since we're using a single table).
2. In Report view, if Joining Date is a serial number (e.g., 44225), create a new calculated column for readable dates:
   * Go to Fields pane > right-click Sheet1 table > New column.
   * Formula: Readable Joining Date = DATE(1900,1,1) + [Joining Date] - 2 (adjusts for Excel's 1900 date system).
3. Ensure Salary is numeric (it should import as such).

Step 3: Create the Column Chart (Average Salary by Department)

1. In Report view, click the Clustered column chart visual from the Visualizations pane (right sidebar).
2. Drag fields from the Fields pane (Sheet1 table) to the visual:
   * Axis: Department (this groups the bars by department).
   * Values: Salary (right-click > Average to show average salary per department instead of sum).
3. Customize (optional):
   * Title: "Average Salary by Department" (Visualizations > General > Title).
   * Colors: Visualizations > Data colors > Customize as needed.
   * Sort: Click the ellipsis (...) on the visual > Sort by > Average of Salary (descending).
4. Result: A column chart with departments (e.g., Sales, IT, Finance) on the x-axis and average salary bars (e.g., HR ~54,000, IT ~56,000 based on data).

Step 4: Create the Pie Chart (Employee Distribution by City)

1. Click a blank area on the report canvas to add a new visual.
2. Click the Pie chart visual from the Visualizations pane.
3. Drag fields from the Fields pane (Sheet1 table) to the visual:
   * Legend: City (slices the pie by city).
   * Values: id (or Name; right-click > Count to show the number of employees per city).
4. Customize (optional):
   * Title: "Employee Distribution by City" (Visualizations > General > Title).
   * Show percentages: Visualizations > Detail labels > On, Label content > Percent of total.
   * Explode slices: Select a slice and drag outward if needed.
5. Result: A pie chart showing proportions (e.g., ~15% in Delhi, ~12% in Agra based on ~100 rows of data).

Step 5: Arrange and Publish (Optional)

1. Drag visuals to arrange on the canvas (e.g., column chart on left, pie on right).
2. Add slicers for interactivity: Click Slicer visual > Drag Department or City to it.
3. Save the report (.pbix file).
4. Publish to Power BI Service (Home > Publish) for sharing if needed.