***IF statement Lab***

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**Sample Dataset**

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| **ProductID** | **Product** | **Sales** | **Target** | **Region** |
| 101 | Product A | 120 | 150 | North |
| 102 | Product B | 150 | 140 | South |
| 103 | Product C | 200 | 200 | East |
| 104 | Product D | 90 | 100 | West |
| 105 | Product E | 220 | 210 | North |
| 106 | Product F | 130 | 160 | South |

**1. Use the IF function to evaluate whether each product met its sales target.**

**Steps:**

1. Use the **IF function** to check if Sales ≥ Target.
2. If True, return **"Met Target"**, otherwise return **"Did Not Meet Target"**.
3. Formula in **Excel** (Assume data starts from row 2):

=IF(C2>=D2, "Met Target", "Did Not Meet Target")

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| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Status** |
| 101 | Product A | 120 | 150 | North | Did Not Meet Target |
| 102 | Product B | 150 | 140 | South | Met Target |
| 103 | Product C | 200 | 200 | East | Met Target |
| 104 | Product D | 90 | 100 | West | Did Not Meet Target |
| 105 | Product E | 220 | 210 | North | Met Target |
| 106 | Product F | 130 | 160 | South | Did Not Meet Target |

**2. Use the IF function to determine if a product is eligible for a regional bonus. Products in the "North" region with sales over 200 are eligible.**

**Steps:**

1. Use **IF function** to check if **Region = "North"** and **Sales > 200**.
2. If True, return **"Eligible"**, else return **"Not Eligible"**.
3. Formula:

=IF(AND(E2="North", C2>200), "Eligible", "Not Eligible")

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| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Bonus Eligibility** |
| 101 | Product A | 120 | 150 | North | Not Eligible |
| 102 | Product B | 150 | 140 | South | Not Eligible |
| 103 | Product C | 200 | 200 | East | Not Eligible |
| 104 | Product D | 90 | 100 | West | Not Eligible |
| 105 | Product E | 220 | 210 | North | Eligible |
| 106 | Product F | 130 | 160 | South | Not Eligible |

**3. Use nested IF functions to assign a commission rate based on sales. Sales >= 200 get a 10% commission, sales >= 150 get a 7% commission, and others get a 5% commission.**

**Steps:**

1. Use **Nested IF function** to assign commission:
   * If **Sales ≥ 200**, commission is **10%**.
   * If **Sales ≥ 150**, commission is **7%**.
   * Otherwise, commission is **5%**.
2. Formula:

=IF(C2>=200, 10%, IF(C2>=150, 7%, 5%))

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| --- | --- | --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Commission Rate** |
| 101 | Product A | 120 | 150 | North | 5% |
| 102 | Product B | 150 | 140 | South | 7% |
| 103 | Product C | 200 | 200 | East | 10% |
| 104 | Product D | 90 | 100 | West | 5% |
| 105 | Product E | 220 | 210 | North | 10% |
| 106 | Product F | 130 | 160 | South | 5% |

**4. Use the IF function to calculate a bonus amount. If sales met or exceeded the target, the bonus is 10% of the sales; otherwise, it's 5%.**

**Steps:**

1. If **Sales ≥ Target**, bonus = **10% of Sales**.
2. Otherwise, bonus = **5% of Sales**.
3. Formula:

=IF(C2>=D2, C2\*10%, C2\*5%)

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| --- | --- | --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Bonus Amount** |
| 101 | Product A | 120 | 150 | North | 6 |
| 102 | Product B | 150 | 140 | South | 15 |
| 103 | Product C | 200 | 200 | East | 20 |
| 104 | Product D | 90 | 100 | West | 4.5 |
| 105 | Product E | 220 | 210 | North | 22 |
| 106 | Product F | 130 | 160 | South | 6.5 |

**5. Use the IF function to categorize sales performance as "Excellent" (>=200), "Good" (>=150), or "Needs Improvement" (<150).**

**Steps:**

1. If **Sales ≥ 200**, return **"Excellent"**.
2. If **Sales ≥ 150**, return **"Good"**.
3. Otherwise, return **"Needs Improvement"**.
4. Formula:

=IF(C2>=200, "Excellent", IF(C2>=150, "Good", "Needs Improvement"))

|  |  |  |  |
| --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Performance** |
| 101 | Product A | 120 | Needs Improvement |
| 102 | Product B | 150 | Good |
| 103 | Product C | 200 | Excellent |
| 104 | Product D | 90 | Needs Improvement |
| 105 | Product E | 220 | Excellent |
| 106 | Product F | 130 | Needs Improvement |

**6. Use the IF function to assign a price tier based on the sales value. "High" for sales > 200, "Medium" for sales between 100 and 200, and "Low" for sales < 100.**

**Steps:**

1. Use the **IF function** to classify sales into price tiers:
   * If **Sales > 200**, assign **"High"**.
   * If **Sales between 100 and 200** (inclusive), assign **"Medium"**.
   * If **Sales < 100**, assign **"Low"**.
2. Formula in Excel:

=IF(C2>200, "High", IF(C2>=100, "Medium", "Low"))

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| --- | --- | --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Price Tier** |
| 101 | Product A | 120 | 150 | North | Medium |
| 102 | Product B | 150 | 140 | South | Medium |
| 103 | Product C | 200 | 200 | East | Medium |
| 104 | Product D | 90 | 100 | West | Low |
| 105 | Product E | 220 | 210 | North | High |
| 106 | Product F | 130 | 160 | South | Medium |

**7. Use the IF function to calculate the year-end bonus. If sales >= 150 and region is "North", the bonus is $500, otherwise, it's $300.**

**Steps:**

1. Use the **IF function** to check both conditions:
   * If **Sales ≥ 150** **AND** **Region = "North"**, the bonus is **$500**.
   * Otherwise, the bonus is **$300**.
2. Formula in Excel:

=IF(AND(C2>=150, E2="North"), 500, 300)

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| --- | --- | --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Target** | **Region** | **Year-End Bonus** |
| 101 | Product A | 120 | 150 | North | 300 |
| 102 | Product B | 150 | 140 | South | 300 |
| 103 | Product C | 200 | 200 | East | 300 |
| 104 | Product D | 90 | 100 | West | 300 |
| 105 | Product E | 220 | 210 | North | 500 |
| 106 | Product F | 130 | 160 | South | 300 |

**8. Use the IF function to mark high performers. A product is a high performer if its sales are in the top 25% of all sales.**

**Steps:**

1. Calculate the 75th percentile (Using Excel PERCENTILE function).
2. Mark Sales ≥ 75th percentile as "High Performer".
3. Formula (If threshold is 200):

=IF(C2>=200, "High Performer", "Normal")

|  |  |  |  |
| --- | --- | --- | --- |
| **ProductID** | **Product** | **Sales** | **Performance** |
| 101 | Product A | 120 | Normal |
| 102 | Product B | 150 | Normal |
| 103 | Product C | 200 | High Performer |
| 104 | Product D | 90 | Normal |
| 105 | Product E | 220 | High Performer |
| 106 | Product F | 130 | Normal |