|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Product Id | Product | Category | Jan Sales | Feb Sales | Mar Sales | Apr Sales | May Sales |
| 101 | PRODA | Electronics | 120 | 130 | 140 | 150 | 160 |
| 102 | PRODB | Furniture | 150 | 160 | 170 | 180 | 190 |
| 103 | PRODC | Electronics | 200 | 210 | 220 | 230 | 240 |
| 104 | PRODD | Clothing | 90 | 110 | 110 | 120 | 130 |
| 105 | PRODE | Furniture | 220 | 230 | 240 | 250 | 260 |
| 106 | PRODF | Electronics | 130 | 140 | 140 | 160 | 170 |

**Index and Match lab**

**Annu Kumari**

**1.Use INDEX and MATCH to find the sales for Product C in March.**

**Step1:** Use the MATCH function to locate the row for "PRODC" in column **C**.

**Step2:** Use the INDEX function to pull the value from column **G** (March Sales) corresponding to the matched row.

**Step3: Formula**:

=INDEX (G22:G27, MATCH ("PRODC", C22:C27, 0))

=G22:G27 → Range for March Sales.

**Step4:** MATCH ("PRODC", C22:C27, 0) → Finds the row number where "PRODC" exists.

|  |  |
| --- | --- |
| Product | Mar Sales |
| PRODC | 220 |

**2. Use INDEX and MATCH to find the category for Product E.**

**Step1:** Use the MATCH function to locate the row for "PRODE" in column **C**.

**Step2:** Use the INDEX function to return the value from column **D** (Category).

**Step3: Formula**:

=INDEX (D22:D27, MATCH ("PRODE", C22:C27, 0))

* 1. D22:D27 → Range for Category.
  2. MATCH ("PRODE", C22:C27, 0) → Finds the row for "PRODE."

|  |  |
| --- | --- |
| Product | Category |
| PRODE | Furniture |

**3. Use INDEX and MATCH to find the maximum sales for Product B across all months.**

**Step1:** Use the MATCH function to find the row for "PRODB" in column **C**.

**Step2:** Use the INDEX function to get all sales values for that row across columns **E** to **I**.

**Step3:** Use the MAX function to get the maximum sales.

**Formula**:

=MAX (INDEX (E22:I27, MATCH ("PRODB", C22:C27, 0), 0))

* 1. E22:I27 → Range for all sales data.
  2. MATCH ("PRODB", C22:C27, 0) → Finds the row for "PRODB."
  3. INDEX (..., ..., 0) → Returns the entire row for the product.

|  |  |
| --- | --- |
| Product | Maximum sale |
| PRODB | 190 |

**4. Use INDEX and MATCH to find the month with the maximum sales for Product A.**

**Step1:** Use the MATCH function to locate the row for "PRODA."

**Step2:** Use the INDEX function to get all sales data for that row (columns **E** to **I**).

**Step3:** Use the MATCH and MAX functions to determine the column where the maximum sales occur.

**Step4:** Return the header (month) using INDEX.

* **Formula**:

=INDEX (E21:I21, MATCH (MAX (INDEX (E22:I27, MATCH ("PRODA", C22:C27, 0), 0)), INDEX (E22:I27, MATCH ("PRODA", C22:C27, 0), 0), 0))

* 1. E21:I21 → Header row (months).
  2. MATCH (MAX(...), ...) → Finds the position of the maximum value.

|  |  |
| --- | --- |
| Product | Month |
| PRODE | May Sales |

**5. Use INDEX, MATCH, and SUMIF to sum the sales for all products in the "Electronics" category for April.**

**Step1:** Use SUMIF to filter based on "Electronics" in column **D**.

**Step2:** Sum the values in column **H** (April Sales).

**Step3: Formula**:

=SUMIF (D22:D27, "Electronics", H22:H27)

* 1. D22:D27 → Category column.
  2. "Electronics" → Condition.
  3. H22:H27 → April Sales.

|  |  |
| --- | --- |
| Product category | Sum sales |
| electronics | 540 |

**6. Use INDEX and MATCH to calculate the average sales for Product D across all months.**

**Step1:** Use MATCH to find the row for "PRODD."

**Step2:** Use INDEX to fetch the row's sales data (columns **E** to **I**).

**Step3:** Use AVERAGE to calculate the average.

* **Formula**:

=AVERAGE (INDEX (E22:I27, MATCH ("PRODD", C22:C27, 0), 0))

* 1. E22:I27 → Sales range.
  2. MATCH ("PRODD", C22:C27, 0) → Finds the row.
  3. INDEX (..., ..., 0) → Returns all monthly sales.

|  |  |
| --- | --- |
| Product | Avg sales |
| PRODD | 112 |

**7. Use INDEX and MATCH to find the sales for Product ID 105 in May.**

**Step1:** Use MATCH to find the row for Product ID 105 in column **B**.

**Step2:** Use INDEX to pull the value from column **I** (May Sales).

**Step3: Formula**:

=INDEX (I22:I27, MATCH (105, B22:B27, 0))

* 1. I22:I27 → May Sales range.
  2. MATCH (105, B22:B27, 0) → Finds the row for ID 105.

|  |  |  |
| --- | --- | --- |
| Product id | Month | Sales |
| 104 | May Sales | 130 |

**8. Use INDEX and MATCH to create a dynamic lookup where the user can input a product and a month, and the formula returns the corresponding sales.**

**Step1:** Assume:

* + - Product input is in cell L1 (e.g., "PRODA").
    - Month input is in cell L2 (e.g., "Mar Sales").

**Step2:** Use MATCH to locate the row for the product in column **C**.

**Step3:** Use MATCH to find the column for the selected month in row **21**.

**Step4:** Use INDEX to pull the value.

**Formula**:

=INDEX (E22:I27, MATCH (L1, C22:C27, 0), MATCH (L2, E21:I21, 0))

* 1. L1 → Product input.
  2. L2 → Month input.
  3. E22:I27 → Sales data.
  4. MATCH (L1, C22:C27, 0) → Row match for product.
  5. MATCH (L2, E21:I21, 0) → Column match for month.

|  |  |  |
| --- | --- | --- |
| Product | Month | Sales |
| PRODA | Mar Sales | 140 |