Reference card

Logic functions

The dataset

The following dataset will be used to demonstrate the use of some of the logic functions in this document.

	A	B	C
1	Original average retail prices		
2	KSh per Kg		
3	**Crop**	**March**	**September**
4	Maize	38.24	35.47
5	Beans	77.16	74.67
6	Finger Millet	78.90	79.29
7	Sorghum	54.07	54.01
8	Potatoes	31.20	30.33
9	Cabbages	24.67	24.75
10	Tomatoes	58.70	68.11
11	Bananas	42.50	42.46

SWITCH function

Used to evaluate a **logical expression** and **match** it with **one of the cases available**. It then returns the **value** defined in that **case block**. If there is **no matching case**, it returns the **default value**.

```
=SWITCH(expression, case1, value1, [case2_or_default, …], [value2, …])
```

```
Ex. =SWITCH(A4:A11, "Beans", "Legume", "Cabbages", "Vegetable", "Potatoes", "Vegetable",
"Tomatoes", "Fruit", "Bananas", "Fruit", "Grain")
```

	A	B	C	D
1	Original average retail prices			
2	KSh per Kg			Food crop category
3	**Crop**	**March**	**September**	
4	Maize	38.24	35.47	Grain
5	Beans	77.16	74.67	Legume
6	Finger Millet	78.90	79.29	Grain
7	Sorghum	54.07	54.01	Grain
8	Potatoes	31.20	30.33	Vegetable
9	Cabbages	24.67	24.75	Vegetable
10	Tomatoes	58.70	68.11	Fruit
11	Bananas	42.50	42.46	Fruit

IF functions

IF

Used to return one value if a **logical expression** evaluates to **TRUE** and another if it evaluates to **FALSE**.

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

```
Ex. =IF(B4<50, "Cheap", "Expensive") → “Cheap”
```

IFS

Used to evaluate **multiple conditions** and return a value that corresponds to the **first TRUE condition**.

```
=IFS(condition1, value1, [condition2,value2, …])
```

```
Ex. =IFS(B5<50,"Cheap",B5>70,"Expensive",B5<70,
        "Affordable") → “Expensive”
```

IFERROR

Used to **catch and handle errors** in a formula. It returns a **value** if it is not an error, otherwise it returns **[value_if_error]** if present, or a blank if **[value_if_error]** is absent.

```
=IFERROR(value, [value_if_error])
```

```
Ex. =IFERROR(1/0, "Division by zero")
    → “Division by zero"
```

IFNA

Used to **catch and handle errors** in a formula. It returns a **value** if it is not an error, otherwise it returns **value_if_na**.

```
=IFNA(value, value_if_na)
```

```
Ex. IFNA(#N/A, “Na error”) → “Na error”
```

COUNTIF

Used to **count cells** in a range that **meet a single condition**.

```
=COUNTIF(range, criterion)
```

```
Ex. =COUNTIF(B4:B11, ">50") → 4
```

COUNTIFS

Used to **count cells** in a range that **meet multiple conditions**.

```
=COUNTIFS(criteria_range1,criterion1,
        [criteria_range2,…], [criterion2,…])
```

```
Ex. =COUNTIFS(B4:B11,">50",B4:B11,"<70")→ 2
```

SUMIF

Used to **add up** the value of cells within a range that **meet a certain condition**.

```
=SUMIF(range, criterion, [sum_range])
```

```
Ex. =SUMIF(B4:B11, ">50") → 268.83
```

SUMIFS

Used to **add up** the value of cells within a range that **meet multiple** conditions.

```
=SUMIFS(sum_range,criteria_range1,criterion1,
[criteria_range2,criterion2,...])
```

```
Ex. =SUMIFS(B4:B11, B4:B11, ">50" , B4:B11, "<70")
    → 112.77
```

Other logical functions

AND

Used to return **TRUE** if **all** of the provided arguments are **logically true**, and **FALSE** if **any** of the provided arguments are **logically false**.

```
=AND(logical_expression1,(logical_expression2, ...])
```

```
Ex. =AND(TRUE,FALSE,TRUE) → FALSE
```

NOT

Used to return the **opposite of a logical value**.

```
=NOT(logical_expression)
```

```
Ex. =NOT(FALSE) → TRUE
```

OR

Used to return **TRUE** if any argument is **logically true**, and **FALSE** if **all** arguments are **logically false**.

```
=OR(logical_expression1,[logical_expression2, …])
```

```
Ex. =OR(TRUE,FALSE,TRUE) → TRUE
```

XOR

Used to return **TRUE** if an **odd number** of arguments are **logically true**, and **FALSE** otherwise.

```
=XOR(logical_expression1,[logical_expression2, …])
```

```
Ex. =XOR(TRUE, FALSE, TRUE) → FALSE
```

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