# **Logic functions**

### The dataset

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

	А	В	С		
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")



	А	В	С	D		
1	Original average retail prices					
2		Food crop				
3	Crop	March	September	category		
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**



**AND** 

**NOT** 

OR

## Other logical functions



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

Used to evaluate **multiple conditions** and return a value

=IF(logical\_expression, value\_if\_true, value\_if\_false) </>

Ex. =IF(B4<50, "Cheap", "Expensive") → "Cheap"</pre>

that corresponds to the first TRUE condition.

=IFS(condition1, value1, [condition2, value2, ...])

Ex. = IFS(B5<50, "Cheap", B5>70, "Expensive", B5<70,

"Affordable") → "Expensive"





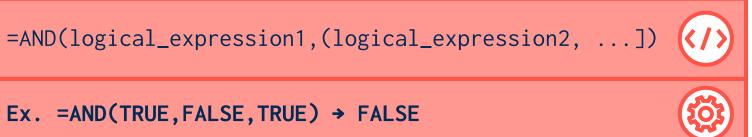


Used to return the opposite of a logical value.

Ex. =AND(TRUE, FALSE, TRUE) → FALSE

Used to return **TRUE** if **all** of the provided arguments are

logically true, and FALSE if any of the provided arguments



### COUNTIFS

COUNTIF

condition.

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

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

=COUNTIFS(criteria\_range1,criterion1, [criteria\_range2,...], [criterion2,...])

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

=SUMIF(range, criterion, [sum\_range])

Ex. =SUMIF(B4:B11, ">50")  $\rightarrow$  268.83

Ex. =COUNTIF(B4:B11, ">50")  $\rightarrow$  4

meet a certain condition.



(/)

=NOT(logical\_expression)

are logically false.



Ex. =NOT(FALSE) → TRUE



(</>)

## **IFERROR**

Used to catch and handle errors in a formula. It returns a



(</>)

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



#### **SUMIFS**

**SUMIF** 

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

Used to **add up** the value of cells within a range that

=SUMIFS(sum\_range, criteria\_range1, criterion1, [criteria\_range2,criterion2,...])



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



#### **XOR**

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

Used to return TRUE if any argument is logically true,

and **FALSE** if **all** arguments are **logically false**.

=OR(logical\_expression1,[logical\_expression2, ...])

=XOR(logical\_expression1,[logical\_expression2, ...])



Ex. =XOR(TRUE, FALSE, TRUE) → FALSE

Ex. =OR(TRUE, FALSE, TRUE) → TRUE



IFS

**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])



→ "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"



