commerce undergraduate society

COMMERCE MENTORSHIP PROGRAM

MIDTERM REVIEW SESSION

COMM 205

Please have the excel sheet ready for practice problems!

PREPARED BY
Nika Karimi Seffat

TABLE OF CONTENTS

Data Types in Excel

- **Logical Type**
  - TRUE or FALSE
- **Number Type**
  - Integers (ex -1, 4, -16) or decimals (0.98, -7.4893)
- **Text Type**
  - String of characters - including capital letters (A-Z), lowercase (a-z), symbols (&^%#%), and even numbers (0-9)
    - Anything that is not a Logical or Number Type
- **Error Type**
  - The value of a cell when Excel encounters an error

Common Logical Operators

= Equal to
<> Not Equal to
< Less than
> Greater than
<= Less than or equal to
>= Greater than or equal to

Numerical Operators

+ addition
- subtract
***** multiplication
/ division

IF Function

Syntax: =IF(logical_test, value_if_true, value_if_false)

Used to test for specific conditions (i.e. greater/less than, equal to, etc)

MUST evaluate to either TRUE or FALSE

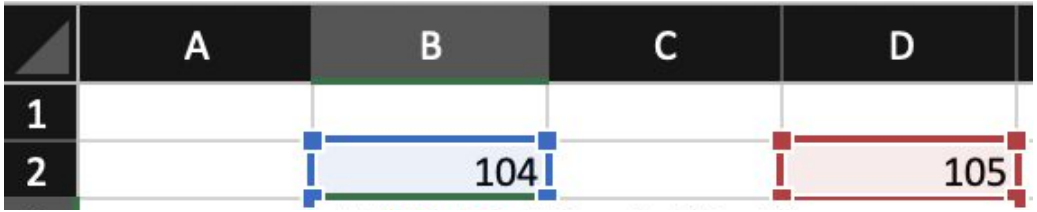
The value returned if the logical test is true

The value returned if the logical test is false

2 Possible Results:

- The value when the condition is satisfied (TRUE)
- The value when the condition is not satisfied (FALSE)

IF Function - Example



=IF(B2 > D2, “Good”, “Bad”) → **What’s the output?** **Answer: Bad**

- This IF function has a logical test of B2>D2 that evaluates if the cell value in B2 is greater than the cell value in D2.
- If this is true (B2 is greater than D2), the IF function will return the text Good.
- If this is false, the IF function will return the text Bad.

NESTED IF FUNCTION

- Using a combination of IF within each other if there are *more than 2 results*
- Using a function *within another function* is valid, as long as the output of the *inner* function can be used as an *input for the outer function*

NESTED IF FUNCTION - EXAMPLE

Lucy wants to buy a shirt, but the quality she will buy depends on how much money is in her bank account.

If she has **30 or more dollars, she will buy a “High” quality shirt.**
If she has **15 or more dollars, she will buy a “Medium” quality shirt.**
If she has **less than 15 dollars, she will buy a “Low” quality shirt.**

What’s the formula in cell B2?

	A	B
1	Money	Quality
2	8	
3	45	
4	15	
5	25	
6	98	

Answer:

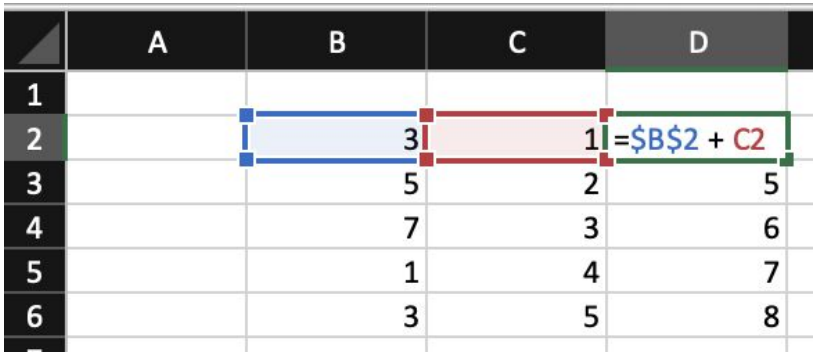
=IF(A2>=30,"High",IF(A2>=15,"Medium","Low"))

Practice Problem

Refer to the Excel Spreadsheet in the tab ‘IF AND NESTED IF’

CELL REFERENCE

- By default, when you refer to a cell, the reference is relative
  - Ex. formula in C1 is A1+B1
  - Copy and paste the formula into C2 -> becomes A2+B2
- Want to keep original cell reference -> make it absolute by putting a dollar sign ($) before the columns and rows - **this is absolute reference**



	A	B	C	D
1				
2		3	1	=B2 + C2
3		5	2	5
4		7	3	6
5		1	4	7
6		3	5	8

Mixed cell reference: putting the dollar sign either before the row (number) or column (letter) you want to lock -> ex. B$2

MAX/MIN/SUM FUNCTIONS

- **MAX:** returns largest value in a set of values
  - SYNTAX: =MAX(number1, [number2], […])
- **MIN:** returns smallest value in a set of values
  - SYNTAX: =MIN(number1, [number2], […])
- **SUM:** returns sum of values in a set of values
  - SYNTAX: =SUM(number1, [number2], […])

* [ ] means that argument is optional for that function

Values can be numbers (ex. 10), a cell reference that contains numbers (e.g. B2), a cell range/array that contains numbers (A8:A10), or a combination of all 3.

MAX/MIN/SUM EXAMPLE

	A
1	3
2	4
3	7
4	10
5	2

What is the output for these functions?

= MAX(A1:A5)
10

= MIN(A1:A5)
2

= SUM(A1:A5)
26

Break Time!

We hope you have been enjoying the review session so far! When you have a chance, please fill out our survey. We appreciate your feedback. You can be entered to win a $20 giftcard of your choice!

AND Function

- Used to evaluate if ALL of the arguments/logicals are TRUE or FALSE
- Will return TRUE, if all arguments are true
- Will return false, if even one of the arguments is false

Syntax: = AND(logical_test1, [logical_test2], ...)

	A	B	C	D
1	50	2	65	
2	80	5	87	
3				
4	=AND(A2>A1, B2>B1, C1>C2)			

What's the output?

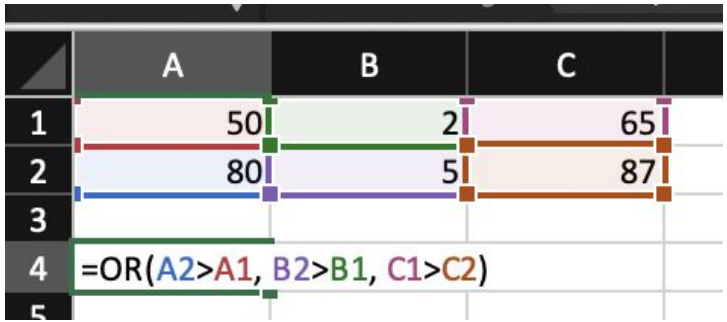
FALSE

OR Function

- Used to evaluate if <u>at least one of the arguments/logicals</u> are TRUE or FALSE
- Will return TRUE, **as long as at least one of the arguments is TRUE**
- Will return false, **if all arguments are false**

Syntax: = OR(logical_test1, [logical_test2], ...)

*AND and OR functions are usually used in conjunction with IF functions.



What's the output?

TRUE

Practice Problem

Refer to the Excel Spreadsheet in the tab “AND & OR”

COUNTIFS Function

- Gives a set of criteria, then counts **HOW MANY CELLS** satisfy that criteria
- Asking excel a question -> how many cells follow this constraint?

Syntax: = COUNTIFS(criteria_range1, “criteria1”, [criteria_range2], [“criteria2”], …)

This can be a single cell or a range of cells.

The criteria can be a logical test for a numerical value, or checking to see if the criteria range has a certain string of characters. MUST be enclosed in quotations.

These are optional, but if you do more than 1 set of criteria, the criteria range **must be the same size.** COUNTIFS will say a cell fulfills the conditions only if it meets BOTH constraints.

SUMIFs Function

- Adds values in a specific range or multiple ranges that meet a specified criteria.

Syntax: = SUMIFS(sum_range, criteria_range1, criteria1, ...)

Contains the numerical values you would be adding.

The range of cells that are being logically tested to see if they meet a certain criteria.

The criteria you are testing (logical test). MUST be enclosed in quotations.

Practice Problem

Refer to the Excel Spreadsheet in the tab “COUNTIFS and SUMIFS”

VLOOKUP

- To find a corresponding match of a certain value from a table. This can be either **approximate** or **exact.**

Syntax: = VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

Cell reference that contains the value to look up.

Range of the lookup table.

The column number that has the return values in the lookup table.

Default = TRUE. This means it will look for an approximate match. If you want an exact match, set this to FALSE.

APPROXIMATE VS EXACT MATCH

Approximate

Searching for the nearest value that is **less than or equal to the search value**

VLOOKUP table must be sorted from lowest to highest (top to bottom)

If value is below the lowest (in this case, 0) then it will be an **error**. However there is no limit to how high the given value can be (no upper bound).

Grade Lookup Table	
Lower Bound	Letter
0	F
50	D
55	C-
60	C
64	C+
68	B-
72	B
76	B+
80	A-
85	A
90	A+

Exact

Excel will look for an **exact match** (has to be the same). There is no 'range.'

Ex. looking up postal codes - must be a perfect match.

Postal Code	City
V6H9P0	West Vancouver
V6H2F1	Vancouver
V5DG2A	North Vancouver
V9O0L8	Surrey
V1S3D3	Burnaby

Practice Problem

Refer to the Excel Spreadsheet in the tab “VLOOKUP EXACT” & “VLOOKUP APPROXIMATE”

Break Time!

We hope you have been enjoying the review session so far! When you have a chance, please fill out our survey. We appreciate your feedback. You can be entered to win a $20 giftcard of your choice!

INDEX FUNCTION

Returns the value of the cell in that specified location.

Syntax: = INDEX(array, row_num, column_num)

The range of cells to look for the value in. Does NOT just have to be 1 column or 1 row - can be a table.

The row number you are looking to get the value from.

The column number you are looking to get the value from.

If the array is 1 column -> you can omit the 3rd argument.
If the array is 1 row -> you can omit the 2nd argument.

MATCH FUNCTION

Returns a number that specifies the relative position of a value in a range of cells.

Syntax: = MATCH(lookup_value, lookup_array, [match_type])

The value you are looking to get its relative position for.

The range of cells to look for the look_up value. This **must** be one dimensional (either 1 column or 1 row).

Optional
1 means approximate match (the array MUST be in ascending order). This is the default.
0 means exact match.

You can also put TRUE for 1 and 0 for FALSE.

Practice Problem

Refer to the Excel Spreadsheet in the tab “INDEX MATCH”

LEFT

Syntax: = LEFT(text, num_chars)

Can be a cell or actual quotations of text.

For example, this could be C2 or “Hello”

The first number of character(s) from the given text.

For example if this were 3, it would return the first 3 characters of the given text.

RIGHT

Syntax: = RIGHT(text, num_chars)

Can be a cell or actual quotations of text.

For example, this could be C2 or “Hello”

The last number of character(s) from the given text.

For example if this were 3, it would return the last 3 characters of the given text (in the order of the original text).

MID FUNCTION

Syntax: = MID(text, start_num, num_chars)

Can be a cell or actual quotations of text.

For example, this could be C2 or “Hello”

Start at this character of the text (inclusive).

If the text were “Hello” and start_num = 2, you would start from the ‘e’.

The number of characters to extract from the text.

LEFT/RIGHT/MID EXAMPLES

What will be the output of these functions?

=LEFT(A1, 4)
Cont

=RIGHT(A1, 5)
gious

=MID(A1, 4, 2)
ta

Practice Problem

Refer to the Excel Spreadsheet in the tab “LEFT RIGHT MID”

CONCATENATE (CONCAT) FUNCTION

To combine multiple strings of text into a single string of text.

Syntax: = CONCAT(text1, [text2], ...)

First string of given text. This can be a cell (B2) that has a text value in it, or a text string (i.e. “Hello”).

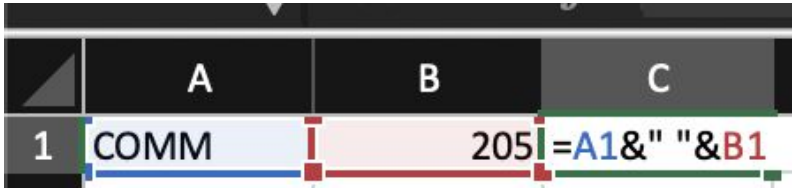
(Optional) second piece of text you would attach to the prior given text (text1).

You can join up to 255 strings of text using the CONCAT() function.

AMPERSAND OPERATOR

Another way we could join 2+ strings of text into 1.

It is **not** a function, just an operator.



C1 would give the output ‘COMM 205’.

For the ampersand operator and concatenate function, you should consider the spaces. You can simply insert a space by inputting “ “.

Or else, the output will be squished together.

=A1&B2 would give ‘COMM205’

Practice Problem

Refer to the Excel Spreadsheet in the tab “CONCAT”

Break Time!

We hope you have been enjoying the review session so far! When you have a chance, please fill out our survey. We appreciate your feedback. You can be entered to win a $20 giftcard of your choice!

LEN

Syntax: = LEN(text)

Can be a cell or actual quotations of text.

Returns the number of characters in a text string (including spaces).

The output is a number.

TRIM

Syntax: = TRIM(text)

Can be a cell or actual quotations of text.

Removes all spaces from text strings, except for **single** spaces between words.

This function trims:

- All spaces before the first word
- Trailing (end) spaces after last word
- Spaces in between words so there's 1 space between words.

@ubccmp

@ubccmp

cmp.cus.ca

Practice Problem

Refer to the Excel Spreadsheet in the tab “LEN TRIM”

SUBSTITUTE FUNCTION

Syntax: = SUBSTITUTE(text, old_text, new_text, [instance_num])

Can be a cell or actual quotations of text.

For example, this could be C2 or “Hello”.

In quotations, the subtext within the first argument that you want to change.

In quotations, the new text you are replacing the old_text with.

Optional - if the old_text occurred multiple times, this is the instance of it for which you wish to substitute.

Substitutes a string of old text for a string of new text.

This is **case sensitive. Capitalization matters** and will make a difference.

REPLACE FUNCTION

Syntax: = REPLACE(old_text, start_num, num_chars, new_text)

Can be a cell or actual quotations of text.

For example, this could be C2 or “Hello”.

Start at this character of the text (inclusive).

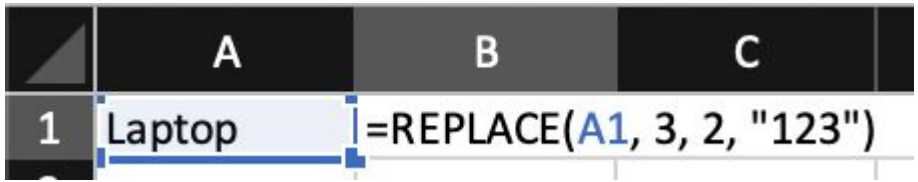
If the text were “Hello” and start_num = 2, you would start from the ‘e’.

The number of characters you want to replace (from that starting character).

The new text you want to replace the old text with.

Replaces a old text string with a new text string, **starting from a specific location of text string** and based on a specified number of characters.

REPLACE EXAMPLE



	A	B	C
1	Laptop	=REPLACE(A1, 3, 2, "123")	

What will be the output of cell B1?

***NOTE:** the number of characters in new_text (4th argument) does NOT need to be equal to the num_chars in the 3rd argument.

ANSWER: La123op

Practice Problem

Refer to the Excel Spreadsheet in the tab “SUBSTITUTE REPLACE”

FIND FUNCTION

Syntax: = FIND(find_text, within_text, [start_num])

The certain string of text you are looking for.

The full text string (either a cell reference or string in quotations).

Optional - the character number for which you start looking for the find_text value.

Looks for one text string (find_text) inside a second text_string (within_text), then returns the **character number** of the *starting position of the first text string that is in the second text string.*

Case sensitive. If the find_text is NOT in the within_text, it will return the error #VALUE!

FIND EXAMPLE

	A
1	Messiness

What will be the output of these functions?

=FIND(“ss”, A1)
3

=FIND(“SS”, A1)
#VALUE!

=FIND(“ss”, A1, 5)
8

SEARCH FUNCTION

Syntax: = SEARCH(find_text, within_text, [start_num])

The certain string of text you are looking for.

The full text string (either a cell reference or string in quotations).

Optional - the character number for which you start looking for the find_text value.

SEARCH CONT'D

It has the same syntax as FIND(). What are the differences?

SEARCH() is NOT case sensitive.

SEARCH() allows for wildcard characters:

- ? is used to find any single character. One ? = One character.
- * can be used to find any number of characters. One * = any amount of characters.
- Put ~ in front of these characters to look for actual ? or *
  - ~? looks for ?
  - ~* looks for *
  - ~~ looks for ~

BOTH FIND() and SEARCH() have numbers as outputs.

SEARCH EXAMPLE

	A
1	Messiness

What will be the output of these functions?

=SEARCH(“ss”, A1)
3

=SEARCH(“SS”, A1, 5)
8

=SEARCH(“n?s”, A1)
6

=SEARCH(“i*s”, A1)
5

Practice Problem

Refer to the Excel Spreadsheet in the tab “FIND SEARCH”

Thank you for listening, and good luck on your midterm!

@ubccmp

@ubccmp

cmp.cus.ca