cus commerce undergraduate society

COMM 205

MIDTERM REVIEW SESSION

Raymond Situ

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INTRODUCTION

Hello, I'm Raymod Situ

- 5th Year BUCS student
- Internships as a software developer
- Research experience in big data

Goals of this package

- This package is a comprehensive overview for the Excel portion (Part B) Midterm Exam, condensed into a two-hour review session. Going to the review session and studying this package will be a tremendous aid in your academic success for COMM 205. The review session is **INTERACTIVE**. The best way to learn Excel is by doing it yourself!

- At the bottom of this package is a practice problem that covers most of the main topics of the course. A good understanding of the question should prepare you for the exam.

IMPORTANT: THIS SHOULD NOT BE YOUR ONLY STUDY RESOURCE BUT IS A GOOD STARTING POINT FOR UNDERSTANDING THE KEY CONCEPTS

You will need to know the following Excel functions:

IF, AND, OR, COUNTIFS, SUMIFS, VLOOKUP, CONCATENATE, LEN, TRIM, SUBSTITUTE,

REPLACE, FIND, SEARCH

IF AND NESTED IFS

SYNTAX:

=IF(logical_test, [value_if_true], [value_if_false])

LOGICAL TEST OPERATORS:

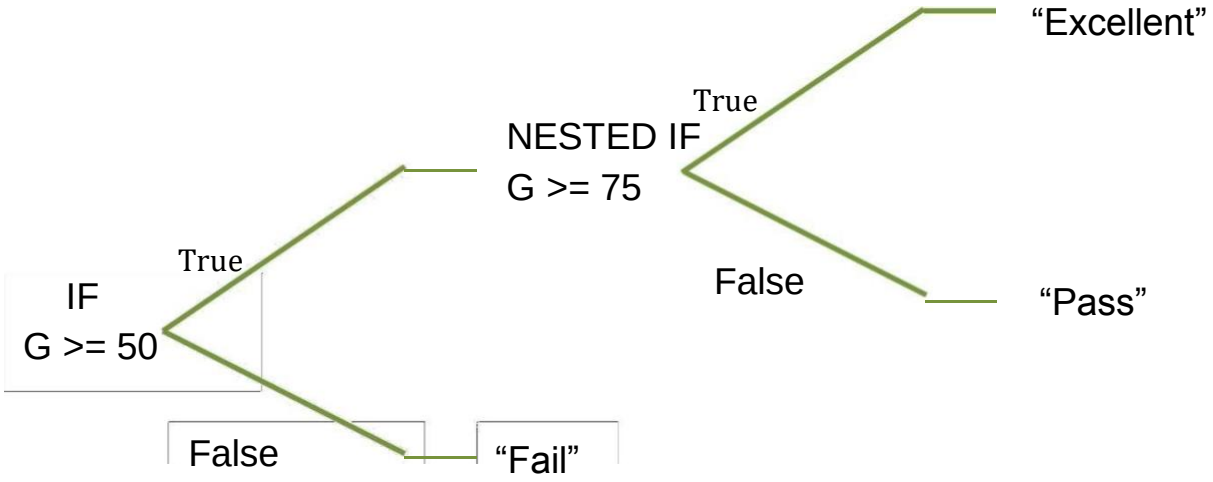
- "=" (equals to)
- "<>" (not equals to)
- "<" (less than), "<=" (less than or equal to)
- ">" (greater than), ">=" (greater than or equal to)

FUNCTION DYNAMICS:

- The IF statement is used to test for specific conditions, constraints, etc and will return either a true value, or false value (two results).
- Example: IF(G >= 50, "Pass" , "Fail")

NESTED IFS:

- Nested IF statements are used when you have **more than two** possible results. Use a TREE DIAGRAM to understand the logic of a Nested If.
- Example: IF(G >= 50, IF(G >= 75, "Excellent", "Pass"), "Fail")



ALWAYS DRAW A TREE DIAGRAM!!!

AND, OR

SYNTAX:

=AND(logical1, [logical2], …)

=OR(logical1, [logical2],…)

*AND and OR are logical operators (returns true or false)

AND:

If ALL logical tests are true, then AND returns TRUE, otherwise FALSE

OR:

If ANY of the logical tests are true, then OR returns TRUE, otherwise

FALSE USAGE WITH IF STATEMENTS:

- AND, OR can be used with IF and Nested IF statements as their logical expression.

EXAMPLE:

	A	B	C	D	E
1	**GPA**	**Specialization**	**AND**	**OR**	**NESTED IF-AND**
2	50	BTM	FALSE	TRUE	You didn't meet the criteria
3	67	Finance	FALSE	FALSE	You didn't meet the criteria
4	53	Accounting	FALSE	FALSE	You didn't meet the criteria
5	84	BTM	TRUE	TRUE	You are a deans list BTM student
6	92	Marketing	FALSE	TRUE	You didn't meet the criteria

Write the formula in C2, drag down to C6

Write the formula in D2, drag down to D6

Write the formula in E2, drag down to E6

COUNTIFS AND SUMIFS

SYNTAX:

=**COUNTIFS**(criteria_range1, criteria1, criteria_range2, criteria2 …)

*up to 127 criterias can be tested
*numbers must have quotation marks “” i.e. “5”, “4”, “36”
*each criteria_range must be the SAME size, otherwise 0

=**SUMIFS**(sum_range, criteria_range1, criteria1, …)

*like COUNTIFS, you must enclose numbers with quotation marks

COUNTIFS:

Counts the number of cells in [criteria_range] that are TRUE based on [criteria]

SUMIFS:

Returns the sum of all numbers in [sum_range] where the corresponding [criteria_range] meets [criteria]

	A	B	C	D	E
1	**GPA**	**Year**			**COUNTIFS**
2	50	1		# of year 1	2
3	67	2		# of year 2	3
4	53	2			**SUMIFS**
5	84	1		above 80	176
6	92	2		below 80	170

Write the COUNTIFS formula to count the # of students in Year 1.

Write the SUMIFS formula to sum the total grade of students above 80.

IMPORTANT:

- The sum range MUST be a numerical range. You cannot sum strings.
- Sum range and Criteria range can be the same range, but must be the same size.
- Quotation marks MUST be used for all criteria constraints, even numerical operators.
- Criteria format does not need a logical operator if you are checking if it is equals to. I.e. COUNTIFS year = 2. You can just enter in the value 2, otherwise, you have to use quotation marks “=2”.
- COUNTIFS can have multiple criteria ranges but MUST be the same size.

VLOOKUP

SYNTAX:

=VLOOKUP(lookup_value, table_array, col_index-num, [range_lookup])

VLOOKUP: Looks in the first column of the table_array for the lookup_value,

then returns the value found within the column index number.

	A	B	C	D	E	F
1	**Name**	**Mark On Test**	**Letter Grade**		**RUBRIC**	
2	Stan	3.1	C		**Mark**	**Grade**
3	Natalie	4.6	C		1	D
4	Arnold	1.3	D		3	C
5	Katherine	4.1	C		5	B
6	Evan	5	B		7	A
7	Stanley	7	A			

Write the VLOOKUP formula that can be entered into C2 and dragged down to C7.

What would happen if the Mark's were listed in descending order.

IMPORTANT NOTES OF VLOOKUP

- Looks up value in the FIRST column then returns col index of the lookup table.
- If using an approximate match, the first column of the table_array must be sorted in ascending order
- Each value in the first column must be unique, else it will just return the first one it comes across
- If looking up through a range, the range values must only be the lower bound of the range (e.g. Range: 90, Grade: A+ instead of Range 90-100, Grade A+ •
- Not case sensitive

INDEX, MATCH

SYNTAX:

=INDEX(array, row_num)

=INDEX(array, row_num, column_num) **if more than one column**

=MATCH(lookup_value, lookup_array, [match_type])

INDEX: returns the **value** based on its relative position to an array

MATCH: returns the **relative position** of a value within an array.

	A	B	C
1	**Student ID**	**Name**	**Year**
2	18097155	Jason	3
3	25963435	Michael	2
4	74833468	Darren	1
5	19394443	Sylvia	5
6	30555332	Ashley	3

Write a formula to return the value “Darren”
Write a formula to return position of the ID 19394443 in Student ID
Write a formula to return the position of the Name for a student in Year 5.
Write a formula to return the Student ID of Jason
Write a formula to return the name of a student in Year 2

USES:

INDEX and MATCH are used together when VLOOKUP can’t do the job (because it requires the lookup to be the leftmost column). If you want to look up a matrix (row and column) you can use INDEX with two MATCH functions for the row and column.

LEFT, RIGHT, MID, CONCATENATE

SYNTAX:
=LEFT(text,num_chars)

=RIGHT(text,num_chars)

=MID(text,start_num,num_chars)

=CONCATENATE(text1,[text2],...)

=text1&[text2]…

LEFT, RIGHT, MID are used to manipulate text, and return substrings (text within text).

NOTE: THE START_NUM OF MID IS INCLUSIVE.
Cell A1 contains the string "JC19971228" , where the first 2 characters are your initial, and

the following characters is your birthdate in YYYY/MM/DD notation.

What will the following functions return?
=LEFT(A1,50)
=RIGHT(A1,50)
=LEFT(A1,2)
=RIGHT(A1,8)
=LEFT(RIGHT(A1,4),2)
=MID(A1,1,6)
=MID(A1,3,50)

CONCATENATE allows you to join strings together. It can be used interchangeably with the ampersand **(&)**.

EXAMPLE: Add dashes to the string "JC19971228" to be come "JC-1997-12-28" How do you approach this? Get each appropriate substring and concatenate together with a dash!

=CONCATENATE(LEFT(A1,2),"-",MID(A1,3,4), "-", LEFT(RIGHT(A1,4),2), "-", RIGHT(A1,2))
=LEFT(A1,2) & "-" & MID(A1,3,4) & "-" & MID(A1,7,2) & "-" & RIGHT(A1,2)

LEN, TRIM, SUBSTITUTE, REPLACE

SYNTAX:

=LEN(TEXT)

=TRIM(TEXT)

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

=REPLACE(old_text,start_num,num_chars,new_text)

LEN returns the number of characters in a string, inclusive of spaces.

TRIM removes *repeated* spaces. Great for cleaning data.

	A	B
1		
2	JASON	5
3	JASON	9
4		=LEN(TRIM(A3))

Why did LEN produce different outputs?

SUBSTITUTE vs REPLACE.

SUBSTITUTE is used when you know the specific string you are trying to swap out.

	A	B	C
1	**StudentID(old)**	**StudentID(new)**	
2	M Jason	Male Jason	
3	M Michael	Male Maleichael	

Example, substitute the letter "M" with "Male'.

=SUBSTITUTE(A2,"M","Male")

WHAT WENT WRONG FOR MICHAEL?

***IMPORTANT*: You have to specify the INSTANCE NUMBER.**

REPLACE is used to insert strings into other strings based on character position. Unlike SUBSTITUTE, it relies on WHERE (the character position) vs WHAT (the character to replace).

	A	B	C	D
1	**Fragment**	**Noun**	**Sentence**	
2	I am a	human	I am a human	
3	Here is my	dog	Here is my dog	

=REPLACE(A2, 8, 1, " " & B2) =REPLACE(A2, LEN(A2)+1, 1, " " & B2)

WHICH FORMULA IS BETTER?

Trick: a generalizable way to insert a word at the end of a string can be combining LEN and REPLACE by making the start point LEN(text) + 1.

Remember: In SUBSTITUTE, you need to provide the [instance_num] if you are dealing with multiple cases of the string your looking at. In REPLACE, you need to know your start point and the number of characters you wish to replace.

FIND, SEARCH

SYNTAX:
=FIND(find_text,within_text,[start_num])
=SEARCH(find_text,within_text,[start_num])

FIND and **SEARCH** both allow you to find the position of a specified string. They are similar, but also have a few key differences.

SIMILARITIES:

- Returns position of [find_text] based on [start_num]. If start_num > find_text, returns #VALUE.
- If start_num is negative, returns #VALUE!
- If find_text is not found, returns #VALUE!
- Start_num, if not specified, is 1.

SEARCH	FIND
Not Case Sensitive Allow Wildcards	Case Sensitive Does not allow Wildcards

WILDCARDS:

- **?** : can be used to replace a single character, Example: p?t will match with any three letter string beginning with a p and ending in a t (pet, pat, pot, pit, etc.)
- ***** : can be used to replace any (including 0) number of characters, Example: p*t will match with (pt, part, pet, port, parrot, etc.)
- **~** : Used to identify wildcard characters in a string. Example: find “why?”. In your [find_text] for FIND or SEARCH, you must denote it as “why~?” otherwise it will treat it as a wildcard character.

PRACTICE PROBLEMS

Sarah is a hiring manager for Google. She is currently undergoing her university hiring pipeline for next year's intern class. The past year, she has been visiting universities in BC and building a database of candidates who have applied for an intern position. The actual spreadsheet has over 1500 candidates.

Use the following candidate information for the next few questions.

	A	B	C	D	E	F	G
1	**Name**	**University**	**Year**	**GPA**	**Resume Score /10**	**Referral?**	**Short-List**
2	Jason	UBC	4	95%	10	Y	
3	Nick	UBC	3	77%	9	N	
4	Galen	SFU	2	75%	9	N	
5	Raymond	UVIC	4	80%	7	Y	
6	Samantha	CAP	1	83%	4	N	
7	Kelly	SFU	2	88%	6	Y	
8	Derek	UVIC	3	79%	7	Y	
9	Ashley	SFU	3	92%	8	Y	
10	Kylie	UBC	2	85%	8	N	
11	Linda	UBC	3	81%	6	N	

Sarah wants to create a formula that can automatically Short -List candidates (typed in G2, dragged down) . Her current criteria is that they must have a 80% average, and have a resume score of at least 7. If they are Short-listed, they will be labeled with a Yes, otherwise No.

1. Write a formula to Short-List candidates
2. Write a formula to count the number of candidates who are successfully shortlisted

Sarah wants to revise her current formula such that anyone who has a Referral, regardless of the current criteria, will be short-listed. If they are not referred, criteria stands.

3. What is the revised formula?

At a networking event, Sarah met Ashley who she really liked, but couldn't remember what year she was in. She wants to write a formula to find out.

4. Write a formula to extract Ashley's Year.

Sarah is running a new campaign where the 1000th candidate who applied gets Google swag regardless of his/her success in being Short-listed. She wants to find the candidates name and university. She will have this information in two cells.

5. Write the formula to get the 1000th candidates name

6. Which of these formulas will get the 1000th candidates university

a. =INDEX(B1:B1501, 1000)
b.=INDEX(A1:B1501,1000)
c. =INDEX(A2:B1051, 1000, 2)
d.=INDEX(A1:B1051, 1000, 2)