

Spreadsheets 2

Lecture 20 COMPSCI 111/111G SS2018

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"I'm pretty sure Excel doesn't have a 'fudge' function."

IF functions

- **Makes a decision**
 - Different values used in the cell depending on the logical test

• **IF(logical_test , value_if_true, value_if_false)**

Must be either true or false

- value
- condition (test)
- boolean function

This value appears in the cell if the boolean is true

This value appears in the cell if the boolean is false

Example - coffee data

- **Imagine an experiment where we record the number of cups of coffee that we drink, and whether it was morning or afternoon. The table of data might appear as shown below:**

	A	B
1	Cups of Coffee	AM/PM
2	3	am
3	1	pm
4	2	am
5	1	am
6	3	pm
7	5	am
8	1	pm

- **How can we calculate the average number of coffees that we drink in the morning?**

Example - coffee data

- **Add a new column to store the morning coffee data.**
 - If the contents of column B is the text "am" then use the value stored in column A. Otherwise, leave it blank.

	A	B	C
1	Cups Of Coffee	AM/PM	Morning
2	3	am	3
3	1	pm	
4	2	am	2
5	1	am	1
6	3	pm	
7	5	am	5
8	1	pm	
9	Average		2.8

=IF(B2="am" , A2 , "")

Exercises

- Given the wind speed as shown in the table below, write the formula that would appear in cell C2. Note that a Gale Warning is issued when the wind speed exceeds 63 km/hr.

	A	B	C
1	Date	Wind Speed	Warning Issued
2	1/01/2007	3	
3	2/01/2007	57	
4	3/01/2007	89	Gale Warning
5	4/01/2007	60	
6	5/01/2007	5	
7	6/01/2007	84	Gale Warning
8	7/01/2007	87	Gale Warning
9	8/01/2007	8	

Exercises

- IF less than 50 percent of tickets available at a venue were sold, then the venue is too large. To produce the result in cell F7, what formula should you use in this cell?

	A	B	C	D	E	F
1	Ticket Sales					
2						
3	Price	\$10.00				
4						
5	Event	Tickets Available	Tickets Sold	Remaining	Sales	Venue too large?
6	Cycling	4000	2000	2000	\$20,000.00	No
7	Weightlifting	2000	750	1250	\$7,500.00	Yes
8	Triathlon	1000	100	900	\$1,000.00	Yes
9	Football	3000	3000	0	\$30,000.00	No
10	Badminton	5000	4500	500	\$45,000.00	No
11		15000	10350	4650	\$103,500.00	

Exercises

Ticket Sales

- Check if more than 90% of the tickets were sold, or if less than 50% of the tickets were sold. In either case, a new venue is required next time.

	A	B	C	D	E	F	G
1	Ticket Sales						
2							
3	Price	\$10.00					
4							
5	Event	Tickets Available	Tickets Sold	Remaining	Sales	Venue too large?	New venue?
6	Cycling	4000	2000	2000	\$20,000.00	No	No
7	Weightlifting	2000	750	1250	\$7,500.00	Yes	Yes
8	Triathlon	1000	100	900	\$1,000.00	Yes	Yes
9	Football	3000	3000	0	\$30,000.00	No	Yes
10	Badminton	5000	4500	500	\$45,000.00	No	No
11		15000	10350	4650	\$103,500.00		

Looking up values in a table

Often have tables of data

- We want to look up a value
- e.g. given ID number, what is the name?

Student ID	Name	Phone
9100983	Andrew	123-4567
2098382	Albert	234-7654
2289483	Adrienne	321-7839
2109374	Ann	567-8932

Use a lookup formula

- VLOOKUP - looking up values in a vertical table
- HLOOKUP - looking up values in a horizontal table

VLOOKUP

VLOOKUP(value, table, column, [range])

Value.

This is the value we already have written down. We want to use this value to look up a corresponding value in a table.

Range of cells.

This is the table we are using to look up the value in.

Usually we want to use absolute references for the table.

Number.

This specifies which column in the table contains the data we want.

Boolean value.

True if we want to match a range of values

False if we want an exact match.

Example

	A	B	C	D	E	F	G	H
1								
2		Students Enrolled			ID	UPI	Name	
3		ID	Name		199444	jhub001	Jacob	
4		800526	Ethan		303114	mkop032	Michael	
5		952348	William		465336	jjs012	Joshua	
6		303114	Michael		769866	mwen003	Matthew	
7		973748			800526	eupt008	Ethan	
8					812069	acut017	Andrew	
9					887268	dden011	Daniel	
10					952348	whur034	William	
11					973748	jfn002	Joseph	
12					997073	ccau005	Christopher	
13								

=VLOOKUP(value, table, column, range)

	A	B	C	D	E	F	G	H
1								
2		Students Enrolled			ID	UPI	Name	
3		ID	Name		199444	jhub001	Jacob	
4		800526	Ethan		303114	mkop032	Michael	
5		952348	William		465336	jjs012	Joshua	
6		303114	Michael		769866	mwen003	Matthew	
7		973748			800526	eupt008	Ethan	
8					812069	acut017	Andrew	
9					887268	dden011	Daniel	
10					952348	whur034	William	
11					973748	jfn002	Joseph	
12					997073	ccau005	Christopher	
13								

1 2 3

False

Exercises

- Use a VLOOKUP to find the description for a recorded wind speed

	A	B	C	D	E	F	G
23					Beaufort Scale		
24					Speed (km/hr)	Beaufort number	Description
25	Day	Wind Spd	Description		0	0	Calm
26	Mon	27	Moderate breeze		1	1	Light air
27	Tues	5	Light air		7	2	Light breeze
28	Wed	0	Calm		12	3	Gentle breeze
29	Thurs	15	Gentle breeze		20	4	Moderate breeze
30	Fri	20	Moderate breeze		30	5	Fresh breeze
31	Sat	40	Strong breeze		40	6	Strong breeze
32	Sun	78	Strong gale		51	7	Near gale
33					63	8	Gale
34					76	9	Strong gale
35					88	10	Storm
36					103	11	Violent storm
37					118	12	Hurricane

=VLOOKUP(value, table, column, range)

Exercise: ThinkGeek T-Shirts



<http://www.thinkgeek.com/>

Exercises

What formulae should be used in cells D15, E15, F15 and F26?

	A	B	C	D	E	F
1	T-Shirt Sizes				T-Shirt Prints	
2	Size	Price			Code	Description
3	S	\$ 10.99			1001	2 + 2 = 5
4	M	\$ 11.99			1010	geek inside
5	L	\$ 12.99			1011	<BODY>
6	XL	\$ 13.99			1100	man woman
7	XXL	\$ 14.99			1101	obey gravity
8	XXXL	\$ 15.99			1110	I'm blogging this
9					1111	Arrrrrghh...
10						
11						
12						
13	Invoice					
14	Code	Size	Number	Description	Price	Cost
15	1010	M	1	geek inside	\$ 11.99	\$ 11.99
16	1010	L	1	geek inside	\$ 12.99	\$ 12.99
17	1011	S	3	<BODY>	\$ 10.99	\$ 32.97
18	1110	XL	1	I'm blogging this	\$ 13.99	\$ 13.99
19	1001	XL	1	2 + 2 = 5	\$ 13.99	\$ 13.99
20	1101	M	2	obey gravity	\$ 11.99	\$ 23.98
21	1111	M	1	Arrrrrghh...	\$ 11.99	\$ 11.99
22						
23						
24						
25						
26				Total	\$	121.90

D15:

F15:

E15:

F26:

HLOOKUP

- Same as VLOOKUP, but for horizontal tables

HLOOKUP(value, table, row, [range])

Value.

This is the value we already have written down. We want to use this value to look up a corresponding value in a table.

Range of cells.

This is the table we are using to look up the value in.

Usually we want to use absolute references for the table.

Number.

This specifies which row in the table contains the data we want.

Boolean value.

True if we want to match a range of values

False if we want an exact match.

Exercises

- What formula would be used in cell C7?

– Use a HLOOKUP

	A	B	C	D	E	F	G	H
1	Movie Prices							
2	Day	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
3	Price	\$11.00	\$11.00	\$11.00	\$15.00	\$15.00	\$15.00	\$15.00
4								
5	Movie Tickets							
6	Name	Day	Cost					
7	John	Tues	\$11.00					
8	Jane	Thurs	\$15.00					
9	Tom	Sat	\$15.00					

Graphing data

- Start by sorting the data into dependent and independent variables

Independent	Dependant
1	1.5
2	4.9
3	2.4
4	2.6
5	3.3

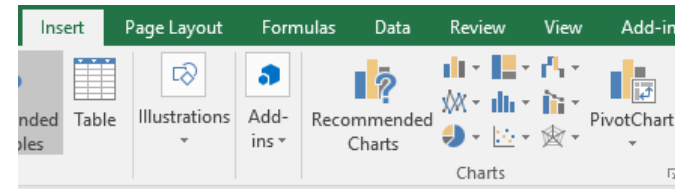
Enter the data

Highlight the data that you wish to graph by holding down the left mouse button & drag over your numbers, then release.

	A	B
1	Platform	Sales (in millions)
2	Wii	101.63
3	Wii U	13.56
4	Xbox 360	84
5	Xbox One	34.2
6	PS3	80
7	PS4	69.6

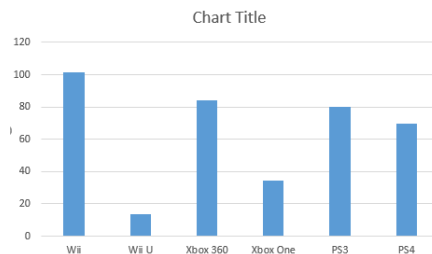
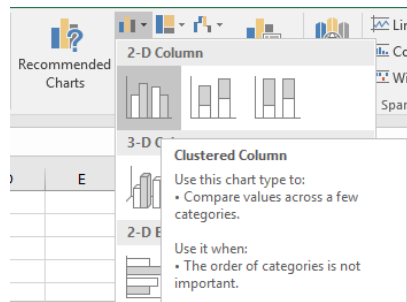
The area highlighted will be graphed. So make sure that you have selected all the data that you want to appear on your graph.

Create a chart

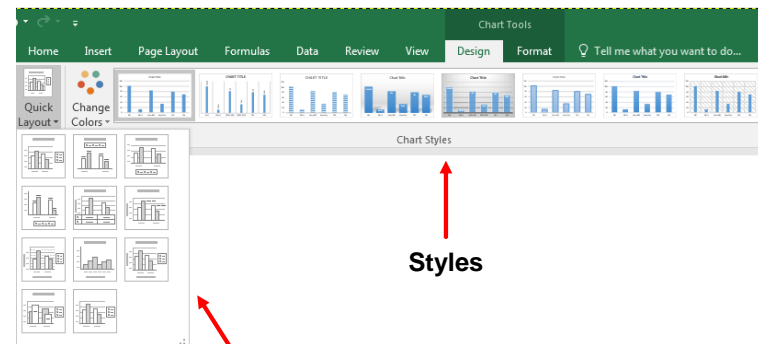


With your data highlighted, click on the "Insert" tab. The "Charts" section of the "Insert" ribbon lets you choose from a variety of different charts.

2-D Clustered Column Chart



Change layout/style

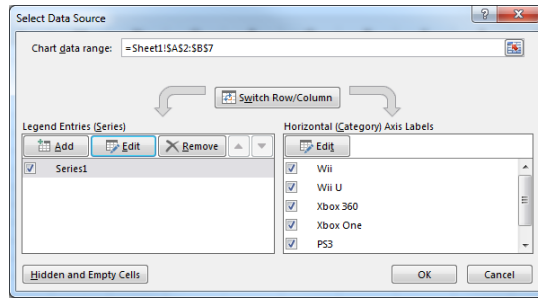


Layouts

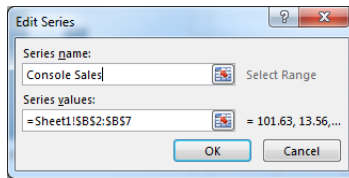
Styles

Naming Your Data

- ▶ Click on "Select Data" in the "Design" ribbon of the "Chart Tools" Tab.

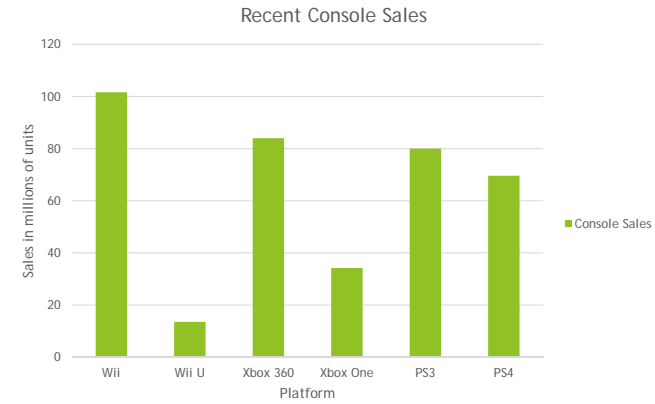


- ▶ Click on edit to provide a label for the data you are charting.



Labelling Data

Click on the title or axes labels and enter your own text



Other Charts

- ▶ Similar procedure required for other types of charts.

