

# 5. EXCEL LOGIC & IF FUNCTION

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Fall 2017



# Built-in IF Function

- The IF function allows our spreadsheet to make a decision when analyzing the data
- The function asks the question: Is some condition true or false?
- Perform one action for true or a different action for false
- Our task: choose the correct conditions to check

# IF Function Syntax

- =IF(**condition**, **action\_if\_true**, **action\_if\_false**)
- Examples:
  - =IF(**speed**>55, **"TICKET"**, **"SAFE"**)
    - where speed is a named cell
  - =IF(**average(A1:D1) >= 60**, **"PASS"**, **"FAIL"**)
  - =IF(**speed**>55, **100**, **0**)
- Note that the double quotes **"** are only used when displaying text. If you are displaying a number or formula, then do not use quotes.

# P5.1

- Create a sheet like the one below, which contains a bank account statement where a W implies an amount of money withdrawn and a D is a deposit.

	A	B	C	D	E
1	Initial Balance	\$3,874.00			
2					
3	<b>Date</b>	<b>Amount</b>	<b>Type</b>	<b>Balance</b>	<b>Amount Over \$50?</b>
4	1/12/2016	\$34.50	W		
5	2/12/2016	\$100.00	D		
6	2/29/2016	\$20.00	W		

- Write the formula needed in E4 to display Yes or No, then fill this formula down to E6
- Write the formula for column D

# Logical Operators

- Logical OR
  - `OR(condition#1, condition#2)`
- A value of TRUE is returned if EITHER of the logical tests returns a value of TRUE; otherwise, a value of FALSE is returned
  - `=IF( OR(temperature > 90, weather = "RAIN") , "Yuck", "Pleasant")`
- Note: You can have more than two logical tests

# Logical Operators

- Logical AND
  - AND(condition#1, condition#2)
- A value of TRUE is returned if BOTH of the logical tests return a value of TRUE; otherwise, a value of FALSE is returned

**=IF( AND(temperature > 90, weather = "RAIN") , "Awful", "could be worse")**

# If / And / Or

- What decision do you need to make?
- What data will you base your decision on?
- How can you write the decision as a condition?
- What actions will you take?



Inspect the data!

# P5.2

- Import the following data from:
  - <http://zeus.cs.pacificu.edu/ryand/cs130/fall17/Problem52.html>

	A	B	C	D	E
1	Name	District	Sales	Emp. Yrs	Job Level
2	Linda	East	\$20,000.00	2	
3	Joe	West	\$42,302.00	9	
4	Bill	East	\$53,001.00	3	
5	Mary	South	\$12,000.00	12	
6	Mark	South	\$ 2,050.00	6	
7	John	North	\$9,000.00	0	
8	Ted	East	\$40,000.00	4	

- Write a formula in column E that will assign a job level based on two different criteria:
- Salespeople who have been employed for more than 5 years AND have annual sales of more than \$10,000 should be assigned a job level code of 2. All others should have a job level code of 1.

## P5.2 continued


- Add a Bonus column to the right of the table
  - An employee gets a 10% bonus if they have either worked for more than 5 years or achieved more than \$7,000 in sales
  - Otherwise they get a 1% bonus
- The bonus column should display the bonus amount in dollars (10% of \$20,000 is \$2,000)

# P5.3 Soccer Scores

<http://zeus.cs.pacificu.edu/ryand/cs130/fall17/Problem53.html>

Use an If() to fill in this column!

Calculate these columns!

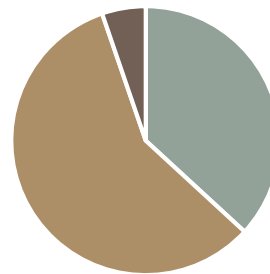


	A	B	C	D	E	F	G
1	Opponent	Pacific's Score	Opponent's Score	Win/Loss/Tie	Win	Loss	Tie
2	Warner Pacific	4	3	Win	1	0	0
3	Trinity Lutheran	3	1	Win	2	0	0
4	Walla Walla	5	0	Win	3	0	0
5	Cal Lutheran	2	1	Win	4	0	0
6	UC Santa Cruz	0	0	Tie	4	0	1
7	Whitworth	2	1	Win	5	0	1
8	Whitman	4	0	Win	6	0	1
9	Linfield	1	0	Win	7	0	1
10	Willamette	2	1	Win	8	0	1
11	Puget Sound	0	0	Tie	8	0	2
12	Pacific Lutheran	0	1	Loss	8	1	2
13	George Fox	2	0	Win	9	1	2
14	Willamette	1	0	Win	10	1	2
15	Linfield	4	0	Win	11	1	2
16	Whitman	1	2	Loss	11	2	2
17	Whitworth	0	0	Tie	11	2	3
18	Pacific Lutheran	2	1	Win	12	2	3
19	Puget Sound	1	0	Win	13	2	3
20	George Fox	4	0	Win	14	2	3
21	Trinity (Texas)	1	3	Loss	14	3	3

## 5.3 Pie Chart

- Build a Pie Chart of the final Wins/Losses/Ties
- Y Values are the numeric values
  - Bottom of the chart
- Horizontal (Category) Axis Labels are the Labels Wins, Losses, Ties

Wins, Losses, Ties for Men's Soccer



■ Wins ■ Losses ■ Ties