A spreadsheet is a computer program that can be used to create a table of values and then graph the values. It is made up of cells that are identified by column letter and row number, such as A2 or B5. A cell can hold a label, a number, or a formula.

In this assignment, you will be using Microsoft Excel as your spreadsheet program to compare different types of interest (simple vs. compound) as well as comparing different compounding periods.

Part A: Simple vs. Compound Interest

1. Open a Microsoft Excel file. Use columns A – E for Simple Interest and F – J for Compound Interest. Label cell A2 as Years, B2 as Principal, C2 as Rate, D2 as Interest Earned (after typing interest, select "ALT" "Enter" and then type Earned) and E2 as Amount. Repeat the same for cells for Compound Interest.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Simple Interest					Compound Interest									
2	Years	Principle	Rate	Interest Earned	Amount	Years	Principle	Rate	Interest Earned	Amount		Please use correct spelling of Principal on yours!			
3															
4															

2. Enter the initial values for Years, Principal, Rate, Interest Earned and Amount in row 3. You will use $2500 invested at 6.5%/a for 25 years. The compounding period is annually.

	A	B	C	D	E	F	G	H	I	J	K
1	Simple Interest					Compound Interest					
2	Years	Principle	Rate	Interest Earned	Amount	Years	Principle	Rate	Interest Earned	Amount	
3	0	2500	0.065	0	2500	0	2500	0.065	0	2500	
4											

Please use correct spelling of Principal on yours!

3. You will now learn how to add formulas into the spreadsheet in order to have the program automatically calculate values for you. In A4, enter the formula *=A3+1*, in B4, enter the formula *=B3*, in C4, enter the formula *=C3*, in D4, enter the formula *=C4*B4* (Principal X Rate), in E4, enter the formula *=D4+E3*.
Make sure you use the "=" signs, and if done properly the formulas should change to a value after you hit enter.

4. For the Compound Interest columns, the formulas change slightly. Follow the same formula above for column F (Years) and column H. For column G, remember that the Amount in the account at the end of the year becomes the Principal for the following year, so in cell G4, enter the formula *=J3*. In cell I4, enter the formula *=G4*H4,* in cell J4, enter the formula *=G4*(1+H4)* or you can enter *=I4+G4*. After completing steps 3-4, your table should look similar to:

	A	B	C	D	E	F	G	H	I	J	K
1	Simple Interest					Compound Interest					
2	Years	Principle	Rate	Interest Earned	Amount	Years	Principle	Rate	Interest Earned	Amount	
3	0	2500	0.065	0	2500	0	2500	0.065	0	2500	
4	1	2500	0.065	162.5	2662.5	1	2500	0.065	162.5	2662.5	
5											

Please use correct spelling of Principal on yours!

5. You probably don't want to do this typing for all 25 years, so for each cell that has a formula (each cell in row 4), select the cell, click on the box in the bottom right corner of the cell and drag it down. This will copy and update the formula for you.

6. You will notice that some numbers have too many decimal places, to fix this, right click on the column letter and select "Format Cells", then select "Number" as the category and make sure that the number of decimal places is set to 2.

7. Check your values with someone next to you to make sure you are on the right track.

8. Now, you will graph your data using Excel. The X-axis will be Years and the Y-axis will be the Amount (you will graph both Simple and Compound on the same axes). Highlight the years from 0-25, **then** while holding "CTRL", highlight all 25 entries in the Simple Interest Amount column and all 25 entries in the Compound Interest column. Click the "INSERT" tab.

9. Click the button "Scatter", and select the option on the top right. This will create a "Scatter with Smooth Lines and Markers".

10. Your graph should automatically appear on your spreadsheet. You can click and drag the graph anywhere on the spreadsheet. You can also copy and paste it as needed.

11. You will need to change the layout of the graph so that it includes a Title, Axis Labels and a Legend. To do this, there are blue and white buttons that "change layout" from the top toolbar. Choose the option on the top left to change your graph.

12. Add appropriate titles for the graph and for both axes by double clicking on each title. To change the legend names, right click on the legend box, click on "Select Data". Then, choose "Edit" and change "series 1" to "Simple" and change "series 2" to "Compound".

13. Create a new word Document, paste your graph into it and write a 2-3 sentence conclusion about Simple Interest vs Compound Interest being sure to mention what type of relationship each graph makes.

Part B: The Effects of Different Compounding Periods
This time you will use the compound interest formula for your calculations.
For this part of the assignment you will choose and compare TWO different compound periods with compounding annually. Use a $1000 investment with an 8%/a interest rate invested for 25 years. Setup tables in Excel similar to the ones in part A. (You can probably omit the 'Interest Earned' column since you will be graphing the Amount column). Create a line graph that has all 3 types of compounding periods, paste it into your Word document and write a 2-3 sentence conclusion about the effects of different compounding periods.

Note: You will have to be extra careful when dealing with the formula that calculates the amount. For example, let's say one of your choices was quarterly compounding and you have a table that looks similar to:

The formula for the Amount column will have to incorporate the interest rate divided by 4 which is earned 4 times in the year. i.e. =B3*(1+C3/4)^(A3*4)

Please use correct spelling of Principal on yours!