Write Up for Part One

Executive Summary

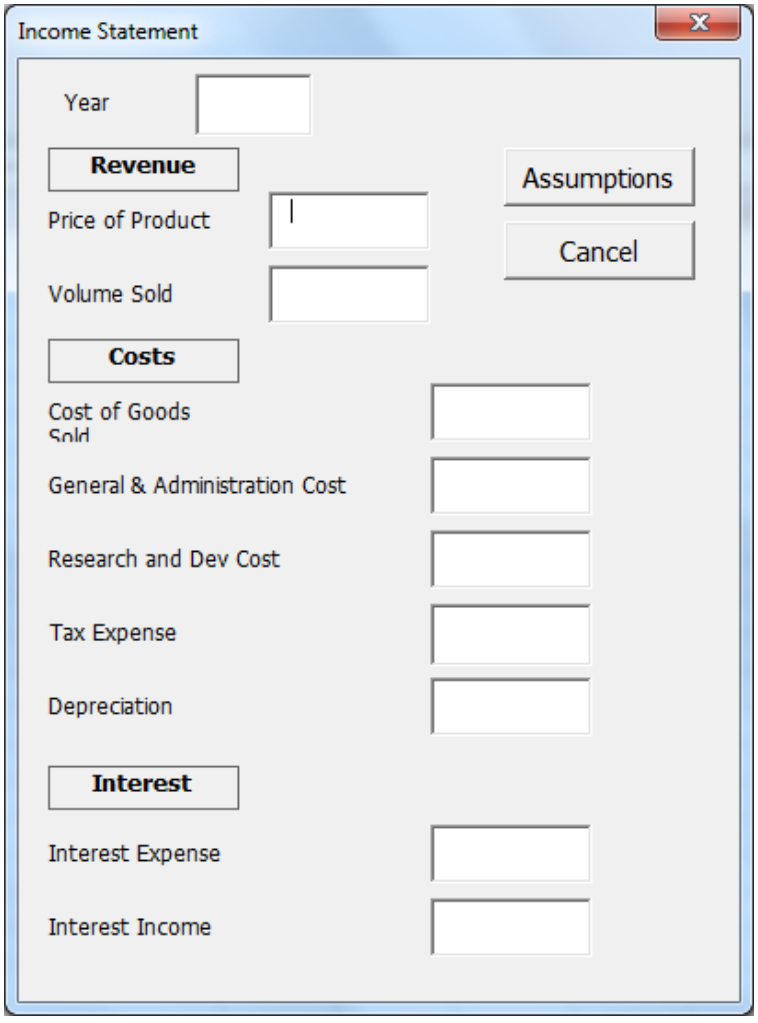
Part three of my project is inspired by the difficulty that BUS M 401 students have been facing when first start building financial models in excel. The requirement from the teacher was to forecast the future performance of a company according to the current year's income statistics. The model has to be interactive and interconnected, meaning the whole model should change when one assumption input is changed.

This program will build a simple model, using one year's income statement and three assumptions. It will be beneficial for students, because this program offers a quick way for students to see how the change in assumption will affect evaluation of the company.

Implementation Documentation

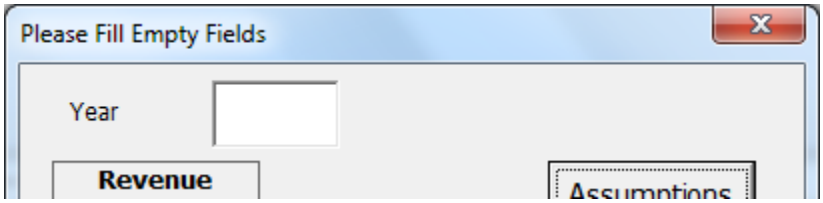
User Form

When the user clicks on the forecast button from ribbon, a user form will pop up, looking like the picture below.

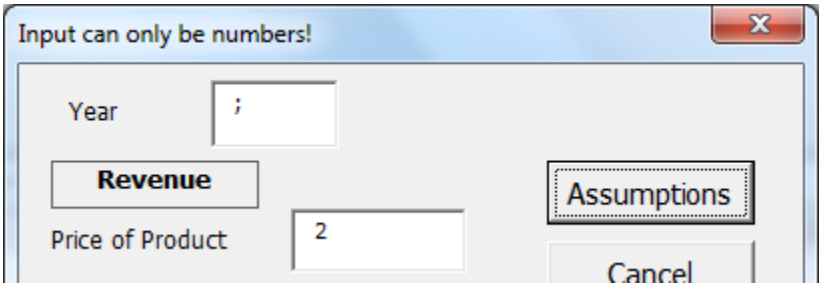


User should enter the year, followed by the income statement data related to that year. If the user clicks “cancel” button, all fields will be cleared, all cells in excel will be cleared and the user form will hide.

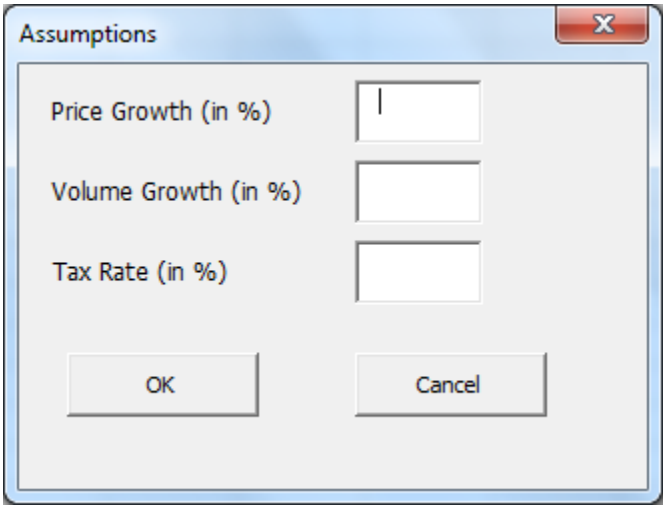
If any field is left empty when the “assumption” button is clicked, a warning will be displayed, as shown below.



If the “assumption” button is clicked when a non-numerical character is entered, a different warning will be displayed, as shown below.

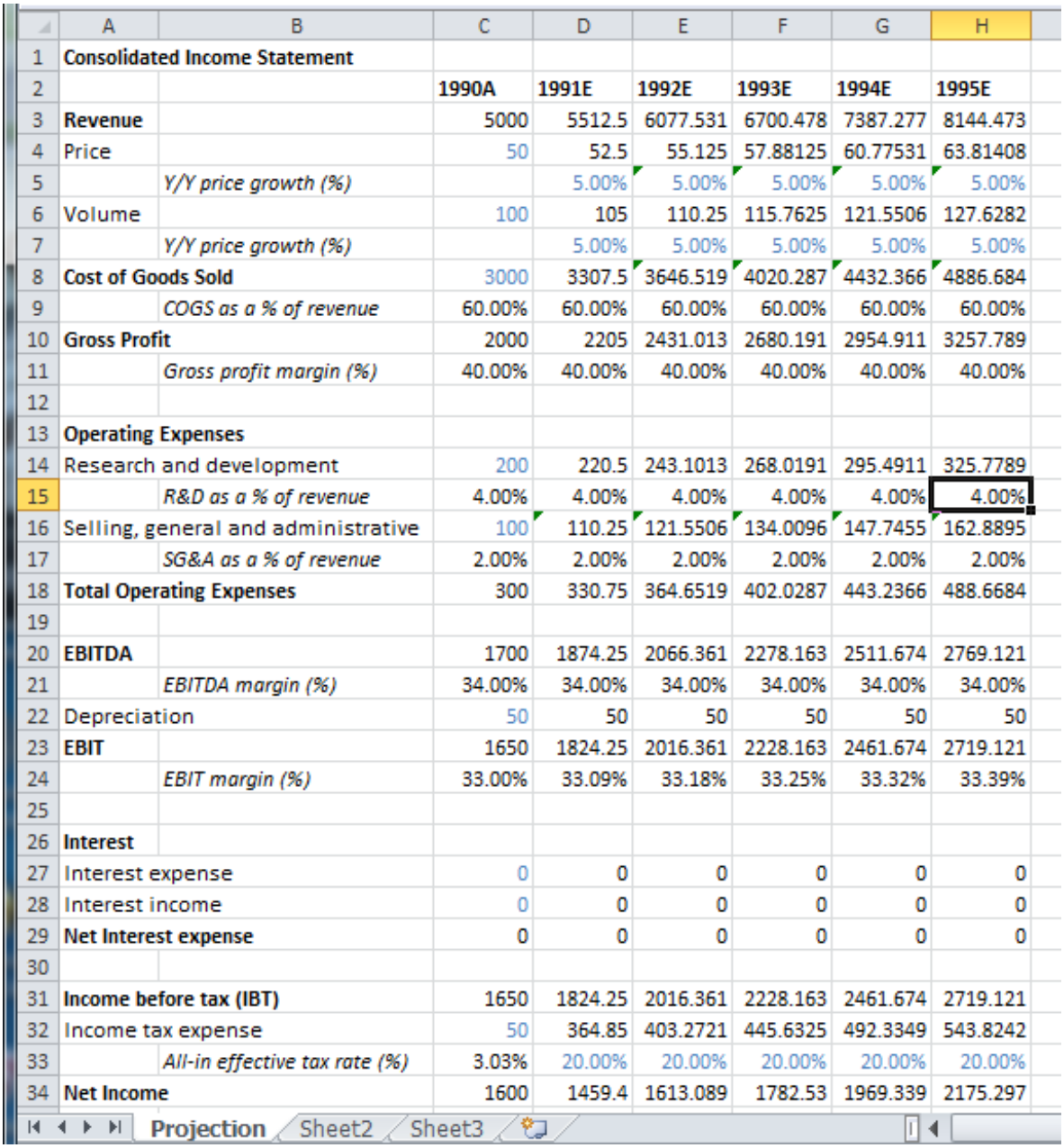


After the user fills in all required information correctly, he/she can click on the “assumption” button to enter the assumptions. Once the button is clicked, this user form will hide, and a new user form will be displayed, as the picture below.



Both warnings from the first user form are applicable here when the “OK” button is clicked. If the user clicks “Cancel”, all fields are cleared. At the same time, the second user form will hide, while the first user form will be displayed again.

If a user enters all information in the correct format, a model will be built in the “Projection” sheet of this workbook. Below is an example of how the model will look like. All areas in blue are either hard coded or are assumptions entered by the user. All cells in black contain a formula.



	A	B	C	D	E	F	G	H
1	**Consolidated Income Statement**							
2			**1990A**	**1991E**	**1992E**	**1993E**	**1994E**	**1995E**
3	**Revenue**		5000	5512.5	6077.531	6700.478	7387.277	8144.473
4	Price		50	52.5	55.125	57.88125	60.77531	63.81408
5		*Y/Y price growth (%)*		5.00%	5.00%	5.00%	5.00%	5.00%
6	Volume		100	105	110.25	115.7625	121.5506	127.6282
7		*Y/Y price growth (%)*		5.00%	5.00%	5.00%	5.00%	5.00%
8	**Cost of Goods Sold**		3000	3307.5	3646.519	4020.287	4432.366	4886.684
9		*COGS as a % of revenue*	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
10	**Gross Profit**		2000	2205	2431.013	2680.191	2954.911	3257.789
11		*Gross profit margin (%)*	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
12								
13	**Operating Expenses**							
14	Research and development		200	220.5	243.1013	268.0191	295.4911	325.7789
15		*R&D as a % of revenue*	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
16	Selling, general and administrative		100	110.25	121.5506	134.0096	147.7455	162.8895
17		*SG&A as a % of revenue*	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
18	**Total Operating Expenses**		300	330.75	364.6519	402.0287	443.2366	488.6684
19								
20	**EBITDA**		1700	1874.25	2066.361	2278.163	2511.674	2769.121
21		*EBITDA margin (%)*	34.00%	34.00%	34.00%	34.00%	34.00%	34.00%
22	Depreciation		50	50	50	50	50	50
23	**EBIT**		1650	1824.25	2016.361	2228.163	2461.674	2719.121
24		*EBIT margin (%)*	33.00%	33.09%	33.18%	33.25%	33.32%	33.39%
25								
26	**Interest**							
27	Interest expense		0	0	0	0	0	0
28	Interest income		0	0	0	0	0	0
29	**Net Interest expense**		0	0	0	0	0	0
30								
31	**Income before tax (IBT)**		1650	1824.25	2016.361	2228.163	2461.674	2719.121
32	Income tax expense		50	364.85	403.2721	445.6325	492.3349	543.8242
33		*All-in effective tax rate (%)*	3.03%	20.00%	20.00%	20.00%	20.00%	20.00%
34	**Net Income**		1600	1459.4	1613.089	1782.53	1969.339	2175.297

Projection Sheet2 Sheet3

The program will remove the previous model and empty all cells, before a new model is built.

Model Building

After the “assumption” button on the first user form is clicked, the first user form will call a sub procedure, named “setup”, which will put all the row headers into excel. The first user form will finish inputting all the starting year’s statistic before it closes.

When the “OK” button on the second user form is clicked, the assumptions will be entered into excel. All the formulas will then apply to build a model illustrated earlier. The growth rates for volume and price will be blue, as well as the tax rate. Besides these three assumptions, all other items are either assumed to be the same as previous year, or are assumed to be a constant proportion of revenue, depending on the nature of the account.

Learning and Difficulties

The most difficult part of building this program is learning how to enter formulas and making sure all formulas entered are correct. I initially just used something like “range(“a1”)=range(“a2”).value / range(“b2”).value”. However, A1 appeared in excel as a value instead of a formula.

Then I tried to use “ range(“a1”).formula = “=range(“a2”) / range(“b2”)” ”, which again did not work. Eventually I went online and found an example like this: “Range("D16").FormulaR1C1 = "=R[1]C*R[-13]C"”. After learning how to use syntax like “FormulaR1C1”, I was able to build a program that fills cells with formulas instead of raw numbers.

Assistance

I did not receive substantial help from another person one this project.