Exercise 5

Download the files from http://www.peter-lo.com/Teaching/AMA-Excel/Source5.zip, you will use these files to finish the following exercises.

1. Open the Excel file "Question 5-1.xlsx". This exercise will test both your skill on Data Table and Scenario Manager.

    A) Enter the formulas required to complete this spreadsheet model.

Cell	Formula
Fixed Expense per Copier (B7)	*Monthly Lease Cost (B4) + Copier Service Cost (B5) + Other Fixed Costs (B6)*
Revenue (B12)	*No. of Copiers Leased (E3) × Copies/Month/Copier (B11) × Price Charged per Copy (E5)*
Cost of Goods Sold (B13)	*No. of Copiers Leased (E3) × Copies/Month/Copier (B11) × Variable Cost per Copy (E6)*
Contribution Margin (B14)	*Revenue (B12) – Cost of Goods Sold (B13)*
General & Admin. Costs (B15)	*No. of Copiers Leased (E3) × (Fixed Expense per Copier (B7) + Space Rental Rate (B8))*
Net Income (B16)	*Contribution Margin (B14) – General & Admin. Costs (B15)*

Your result should be the same as the figure shown below:

	A	B	C	D	E
1	ABC Co. Ltd.				
2					
3	Average Monthly Expense per Copier			No. of Copiers Leased	40
4	Monthly Lease Cost	$250.00			
5	Copier Service Cost	$35.00		Price Charged per Copy	$0.05
6	Other Fixed Costs	$50.00		Variable Cost per Copy	$0.03
7	Fixed Expense per Copier	$335.00		Margin per Copy	$0.02
8	Space Rental Rate	$150.00			
9					
10	Monthly				
11	Copies/Month/Copier	30,000			
12	Revenue	$60,000			
13	Cost of Goods Sold (COGS)	$36,000			
14	Contribution Margin	$24,000			
15	General & Admin. Costs	$19,400			
16	Net Income	$4,600			
17					

B) Start in a blank area of your worksheet, enter values down that column for copy volumes *(Copies/Month/Copier)* ranging from 22,000 to 32,000. You need to track how changes in copy volumes affect *Revenue* (B12), *Cost of Goods Sold* (B13), *Contribution Margin* (B14), *General & Admin. Costs* (B15), and *Net Income* (B16). By using Data Table, generate its iterations of the model.

	=Net_Income	=Revenue	=Cost_of_Goods_Sold	=Contribution_Margin	=General_Admin_Costs
22,000					
23,000					
24,000					
25,000					
26,000					
27,000					
28,000					
29,000					
30,000					
31,000					
32,000					

Your result should be the same as the figure shown below:

	4600	60000	36000	24000	19400
22000	-1800	44000	26400	17600	19400
23000	-1000	46000	27600	18400	19400
24000	-200	48000	28800	19200	19400
25000	600	50000	30000	20000	19400
26000	1400	52000	31200	20800	19400
27000	2200	54000	32400	21600	19400
28000	3000	56000	33600	22400	19400
29000	3800	58000	34800	23200	19400
30000	4600	60000	36000	24000	19400
31000	5400	62000	37200	24800	19400
32000	6200	64000	38400	25600	19400

C) Reformat your layout as follow:

Copy Volume	Net Income	Revenue	COGS	Contrib. Margin	Gen/Admin Costs
22,000	($1,800)	$44,000	$26,400	$17,600	$19,400
23,000	($1,000)	$46,000	$27,600	$18,400	$19,400
24,000	($200)	$48,000	$28,800	$19,200	$19,400
25,000	$600	$50,000	$30,000	$20,000	$19,400
26,000	$1,400	$52,000	$31,200	$20,800	$19,400
27,000	$2,200	$54,000	$32,400	$21,600	$19,400
28,000	$3,000	$56,000	$33,600	$22,400	$19,400
29,000	$3,800	$58,000	$34,800	$23,200	$19,400
30,000	$4,600	$60,000	$36,000	$24,000	$19,400
31,000	$5,400	$62,000	$37,200	$24,800	$19,400
32,000	$6,200	$64,000	$38,400	$25,600	$19,400

D) Perhaps you're giving a pitch to a manager or boss or there are a few key scenarios you want to be able to return to by looking at them as part of in your model and not by finding them in your Data Table results matrix? Use Scenario Manager to create the following three scenarios between different ***Copies/Month/Copier*** (B11).

Scenario Name	Copy Volume
Expected Demand	30,000
Very Low Demand	5,000
Very High Demand	50,000

E) Use the Scenario Manager to generate a summary of the above Scenarios. In our model, likely values to have the Scenario Manager track might be ***Revenue*** (B12), ***Cost of Goods Sold*** (B13), ***Contribution Margin*** (B14), ***General & Admin. Costs*** (B15), and ***Net Income*** (B16).

2. Open the Excel file "Question 5-2.xlsx".

A) Create a pivot table to show that Channel 4's best performing teatime show made number 36 on the weekly chart with 3.58 million viewers

B) Create a pivot table to show that Two BBC1 dramas shown on Saturday in the peak evening timeslot made the weekly chart with an average of 8.45 million viewers

	A	B	
1	Day of Week	Saturday	ⵏ
2	Genre	Drama	ⵏ
3			
4	Average of Viewers (millions)	Column Labels ⵏ	
5	Row Labels ⵏ	Peak	
6	⊟BBC1		
7	Casualty	7.68	
8	Doctor Who	9.22	
9	Grand Total	8.45	
10			

C) Create a pivot table showing the highest chart positions by channel and timeslot

	A	B	C	D	E	
1						
2						
3						
4	Min of Chart Position	Column Labels ▼				
5	Row Labels ▼	Daytime	Late	Peak	Teatime	
6	BBC1	11	17	2	12	
7	BBC2		52	13	50	
8	Channel 4		37	41	36	
9	Channel 5		49	34	63	
10	ITV1			1	19	
11						

D) Create a Pivot Chart showing, in 3D column chart format, the average viewing figures by genre for each channel on Monday
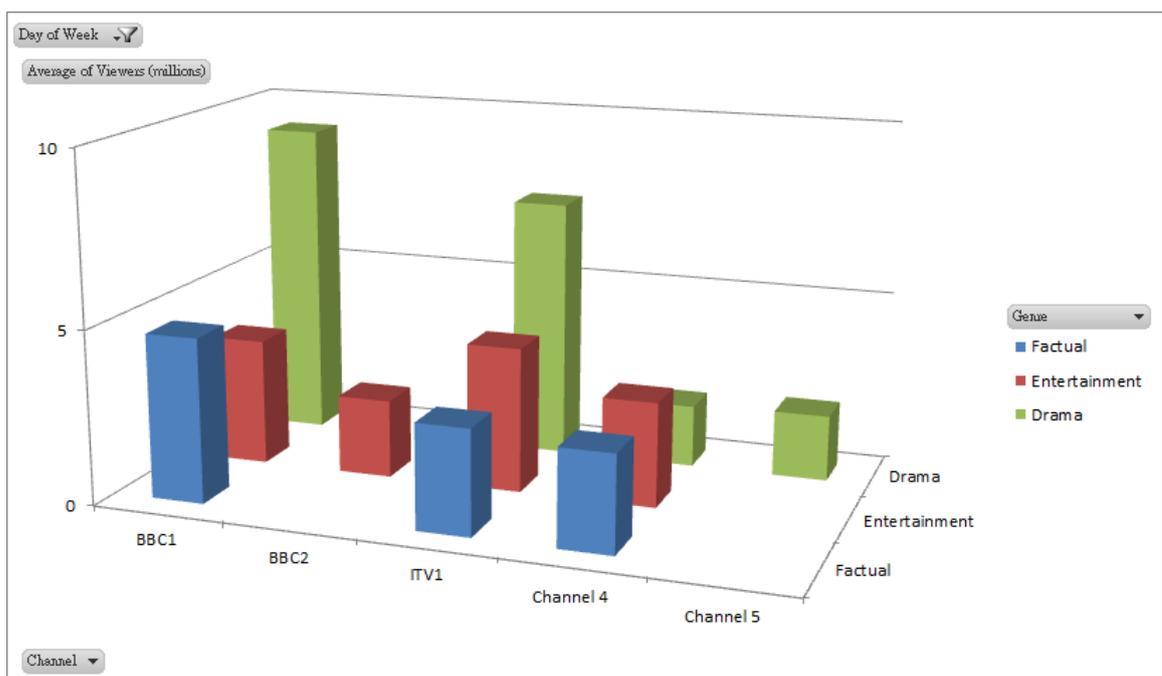
3. Open the Excel file "Question 5-3.xlsx". Create a pivot table to display the average annual earning between male and female.

	A	B	C	D	E
1	State	(All)			
2					
3		Column Labels			
4		No. of People		Average Annual Earning	
5	Row Labels	Male	Female	Male	Female
6	0-19999	800	962	9,256	10,982
7	20000-39999	1,293	1,101	29,080	27,690
8	40000-59999	909	374	47,686	47,088
9	60000-79999	400	107	66,800	66,719
10	80000-99999	149	26	87,351	86,164
11	100000-119999	77	14	104,718	105,699
12	120000-139999	43	6	127,538	128,733
13	140000-159999	24	4	148,494	146,250
14	160000-179999	1		160,000	
15	200000-219999	1		209,925	
16	300000-319999	59		307,265	
17	320000-339999	3		329,064	
18	340000-359999	3		348,516	
19	360000-379999	3		366,656	
20	380000-399999		2		390,510
21	400000-419999		3		402,204
22	420000-439999		1		422,204
23	480000-499999	1		492,657	
24	Grand Total	3,766	2,600	44,430	28,188
25					

4. Open the Excel file "Question 5-4.xlsx". Create a pivot table to display the profit for each company in each quarter. (*Hint: Profit = Revenue – Profit*).

	A	B	C	D	E	F	G	H
1								
2								
3	Sum of Profit	Column Labels						
4		Qtr1			Qtr2			Grand Total
5	Row Labels	Jan	Feb	Mar	Apr	May	Jun	
6	ACC Institute	7,654	-	-	-	-	-	7,654
7	Capital Bank	-	8,547	10,693	10,816	18,345	12,454	60,855
8	EAG Brokers	8,677	9,766	2,986	4,433	5,426	3,602	34,890
9	Example (Pty) Ltd	15,915	22,334	37,765	15,713	11,570	33,889	137,185
10	GF Supplies	-	-	7,458	-	-	4,970	12,428
11	HP Finance	15,207	9,522	13,996	10,976	8,275	18,591	76,567
12	IAS Accountants	-	6,323	3,851	2,422	7,079	7,909	27,583
13	Inland Revenue	-	9,661	-	9,179	-	1,732	20,571
14	Interflora	8,811	-	6,186	3,518	9,206	-	27,721
15	IS Communications	2,303	4,731	7,424	2,730	3,504	7,926	28,617
16	JSE Brokers	-	3,478	-	-	-	-	3,478
17	Municipality	-	-	2,010	-	-	-	2,010
18	Newscorp	-	-	-	-	-	1,673	1,673
19	PR Properties	3,567	7,462	4,523	8,194	4,165	6,242	34,153
20	QA Attorneys	-	-	6,311	-	-	-	6,311
21	SA Airlines	-	3,815	9,048	-	-	-	12,863
22	Training Inc	-	-	6,847	-	-	-	6,847
23	Waltons	-	1,161	-	7,430	-	8,619	17,210
24	XY Traders	-	6,335	10,011	31	-	5,427	21,805
25	Grand Total	62,135	93,134	129,109	75,440	67,569	113,034	540,422