Using Excel Lookup Formulas

Problem: DJ's Department store wants to use a spreadsheet to store the number of units sold of each item, for each month of the year.

Getting Started:

1. Create a new blank spreadsheet.
2. Put your name in cell A1, and format column A with a width of 28.
3. Enter the data as in **Figure 1**. Each value in a "month" column is the number of **Items Sold** that month. Don't worry about formatting yet… we'll get to that later.

	A	B	C	D	E	F	G	H
1	**Put your name here**							
3					**Items sold**			
4	**Tool Dept (code 1)**	**Price**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**
5	screwdriver	$4.80	15	22	18	40	30	17
6	circular saw	$35.00	3	1	17	20	52	65
7	socket wrench	$9.58	57	79	89	15	12	9
8	electric drill	$22.45	27	51	13	28	37	22
9-11	(3 empty rows here)							
12	**Electric Dept. (code 2)**							
13	grounding plug	$1.25	128	134	142	72	45	32
14	standard plug	$0.89	105	32	1	17	20	95
15	lamp socket	$0.87	83	49	39	85	100	102
16-18	(3 empty rows here)							
19	**Small appliances (code 3)**							
20	Toasters	$19.00	15	8	8	11	25	28
21	steam irons	$29.00	12	3	7	14	11	13

FIGURE 1 RAW DATA

4. Merge and center B3-H3 and make the contents bold.
5. Formal all the items columns with no decimals, and all price columns as Currency.
6. Make all column headers bold and make department names bold and underlined.

Summarizing the Data:

7. For all departments: to the right of each *month* column, create a new column.
8. Put a bold label in cell D4 that says: **$sales**

9. Create a formula for the 1st item in January (cell D5) that calculates the sales (currency format) for that item for that month, (multiply the value in the **Price** column by number of units for that month). Use both mixed and relative addressing techniques where needed, so the formulas can be copied and filled, instead of being re-typed.
10. Copy & paste the formula from instruction 4 into every appropriate **$sales** item in all departments for the January **$sales** column.
11. Insert formulas at the bottom of each dept. to sum its January **$sales** column.
12. Put a cell border at the bottom of each department for January, above the total.
13. Copy & paste the entire Jan. **$sales** column (all departments) into all the **$sales** columns for the rest of the sheet. Check your formulas to be sure they are multiplying the correct data (current month's items * price).
14. Make the width of columns B-N 10 so you can see your results.

Calculating Statistics:

15. Create a new column to the right of the June **$sales** column with the header (in bold) of **Avg $** with a column width of 10.
16. Add a formula using the build-in "AVERAGE" function to calculate the average of all the **$sales** columns in the first row for the Tool department. Remember, the average function takes a range, but the **$sales** columns are not contiguous, so you can't use a ":" to define that range. Check the class notes for other ways to specify a range.
17. Copy your average formula into each relevant row below.
18. Create a new column to the right of **Avg $** labeled **Tot. Items**. with a column width of 10.
19. In the **screwdriver** row, add a formula in the **Tot. Items** column using the SUM function to calculate the total number of items sold.
20. Copy your sum formula to each relevant row below.
21. Create a new column to the right of **Tot. Items** labeled **Tot. Sales**. with a column width of 10.
22. In the **screwdriver** row, add a formula in the **Tot. Sales** column by multiplying tot items by the price.
23. Copy the total sales formula to all relevant rows below.
24. Center all the column titles in row 4.
25. For each department, sum the **Tot Items** and **Tot Sales** for that department on the line below the last item.
26. Put an outside border around the **Tot Sales** values for each department.
27. Put a bottom border after the last item in each department in the **Tot. Items** and **Tot. Sales** columns.
28. Put a bottom border after the last item in each department in column A. Below the bottom border, and the label **Totals for *xyz***, where *xyz* is the name of the department (e.g. Tools Dept.)

Double Entry Bookkeeping – Checking your results:

29. Create a new column to the right of **Tot Sales** labeld **CkTot**. with a width of 10.
30. In the **Totals for Tool Dept.** row, in the **CkTot** column, create a formula that sums the monthly **$sales** columns for that department. If you have done everything correctly, the value in **CkTot** should match the value in **TotSales** for that department.
31. Create a new row two rows below the **Totals for Small Appliances** row labeled (in bold) **Grand Total**.
32. In the **CkTot** column of the **Grand Total** row, sum all the **CkTot** values for all departments.

DJ's Department Store is having a sale and many items will be marked down (discounted). The discount will depend on two things – the price of the item, and the department that the item is sold in. Figure 2 summarizes the discounts for the sale.

	Item prices→	$0-1.99	$2-4.99	$5-9.99	$10-14.99	$15-24.99	$25-49.99	$50 and up
Dept Codes	**1**	10%	20%	30%	40%	60%	90%	90%
	2	10%	10%	25%	30%	50%	80%	85%
	3	20%	30%	35%	40%	60%	70%	80%

FIGURE 2 WARNING: THIS TABLE CONTAINS THE DATA TO BE USED IN YOUR SPREADSHEET. YOUR ACTUAL SPREADSHEET LOOKUP TABLE WILL HAVE A DIFFERENT FORMAT AND POSSIBLY DIFFERENT VALUES.

Adding a Lookup Table

33. Create a vertical lookup table from the data in Figure 2 (which represents the data horizontally) starting at cell C28. Your lookup table does not have to have labels but should be formatted appropriately so that it is legible.
34. Add a new column between columns A and B with a column width of 4, and label it **Code**. For every item, copy the code specified in the department title to the **Code** column for that item. This code is needed to select the correct column of the discount lookup table you created.
35. Add a new column after the **CkTot** column called (in bold) **Markdown**. Format this column using %.
36. In the **screwdriver** row, add a formula that uses the VLOOKUP function to determine the markdown percentage for screwdrivers. Use absolute and relative addressing so that you can copy this formula to the rest of the items.
37. Copy the markdown formula for all the rest of the items. Spot check to make sure your discounts are correct.
38. Create another column to the right of **Markdown** labeled **Sale Price**. Format this column as currency.
39. In the **screwdriver** row, calculate the sale price as price times (1-markdown) for this item.
40. Copy the sale price formula for all items.

Modifying your spreadsheet:

41. Add a new row for **Hammer** in the Tools Department. Use a price of $8.98, and sales values as follows:
    hammer sales: Jan - 105, Feb - 109, Mar - 108, Apr - 112, May - 95, Jun – 115
42. Format the hammer row and update any formulas as needed.

Sorting within your spreadsheet:

43. Use the Sort command to arrange items alphabetically (A-Z) within each department.

DJ wants to use this spreadsheet to answer the following "What if" question: What happens to our Grand Total sales, if all items with more than $3,200 in sales per year, were to sell 30% more sales per year?

44. Add a column to the right of **Sale Price** titled **30% more**. Create a formula in the **screwdriver** row that uses the IF function to compute 1.3 x **Tot Sales** if **Tot Sales** > $3,200, or just **Tot Sales** if not. Copy the formula for each item. Format this column using Currency.
45. Calculate the sum of **30% more** in the **Grand Total** row.

Gettng back to the Summary:

46. Hide columns D-O (the monthly sales figures) so that the summary appears.
47. Save your file on your network drive as **Lab5 DJ Sales.xlsx**
48. Add the formula =CELL("filename") in call A2, and save your file again
49. Upload your file on myCourses in CS-105-B-1 under Content/Lab5 DJ Sales