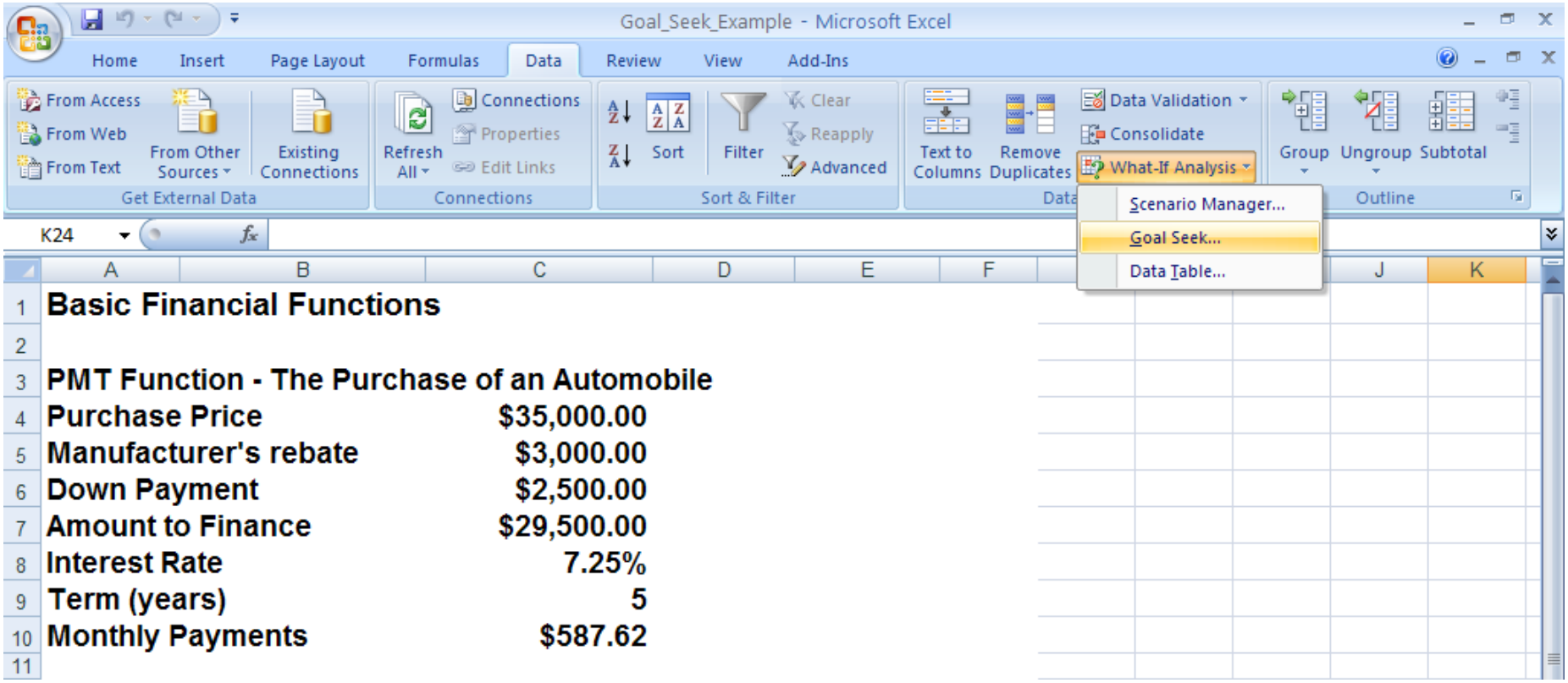
Microsoft Office Excel 2007

Advanced Data Analysis:
Goal Seeking, Scenarios, Pivot Charts, and Pivot Tables

The Goal Seek - Better Than Trial And Error!

- When you use Goal Seek, you specify the result you want, and Goal Seek changes the value in an input cell to arrive at that result.
  - Only one input can be varied at a time
    - All other assumptions remain constant
  - For example, set a desired monthly car payment
    - Vary the amount financed
    - Interest rate and number of months remain the same

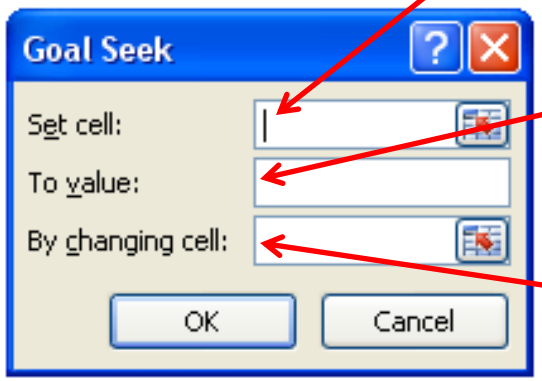
Using Goal Seek



From DATA, "What-If-Analysis", GOAL SEEK!

Goal Seek Arguments

	A	B	C	D
1	**GOAL SEEK**			
2				
3	**The Purchase of an Automobile (with PMT Function)**			
4	**Purchase Price**		**$35,000.00**	
5	**Manufacturer's Rebate**		**$3,000.00**	
6	**Down Payment**		**$2,500.00**	
7	**Amount to Finance**		**$29,500.00**	
8	**Interest Rate**		**7.25%**	
9	**Term (years)**		**5**	
10	**Monthly Payments**		**$587.62**	
11				
12				
13				
14				
15				
16				
17				
18				
19				



Enter the cell reference to store the desired result

Enter the desired value

Enter the cell that will change to achieve result

Example Time

- Let's briefly look at Automobile_Goal.xlsx

(you will find this file on my lecture notes page)

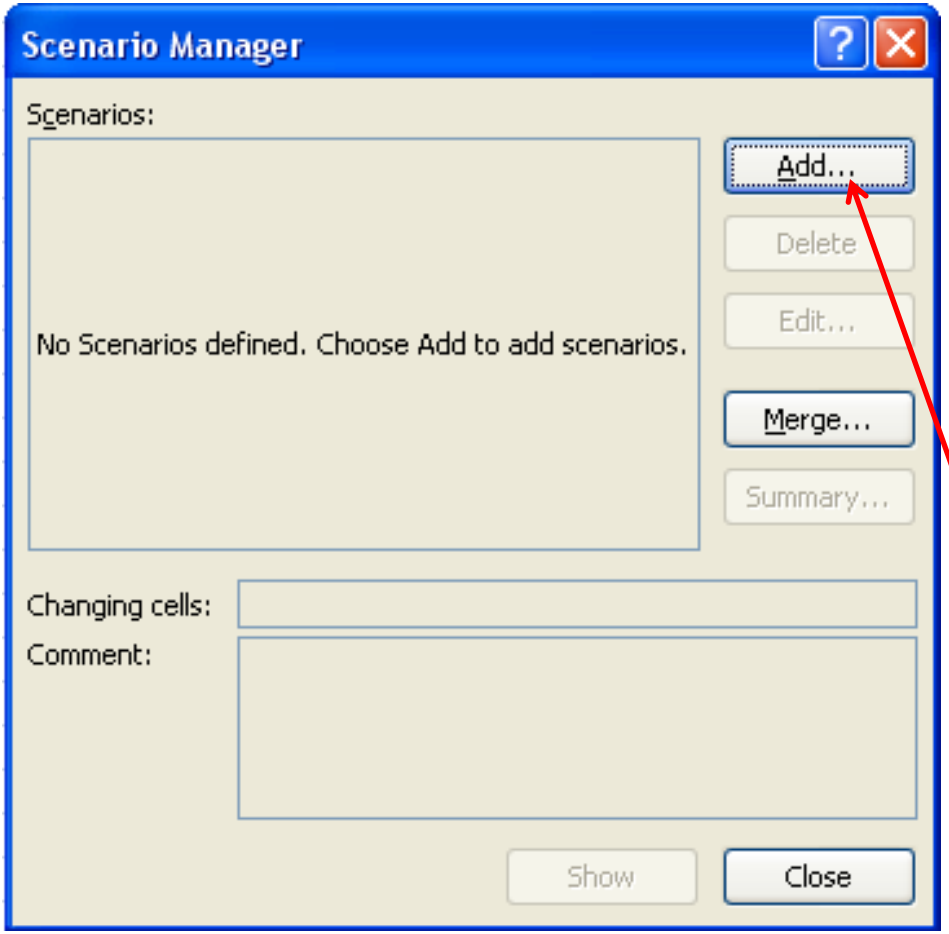
Did Goal Seek provide the final answer?

- Goal Seek helped find a solution that worked, but remember that our problem was to find the best solution - the one that yields THE DESIRED PAYMENT.
- The only way to be absolutely sure that you have found the best solution using the trial-and-error method is to create all the solutions and then pick the best one.
- However, when it comes to purchasing automobiles, be prepared to spend more $$$!

Create scenarios to perform What-If-Analyses

- To perform what-if analyses with several input variables, you have to use *scenarios,* which are:
  - A set of values that Excel can put into a worksheet
  - Created based on existing spreadsheets in Excel
- You use the Scenario Manager to set up and view different scenarios.
- Once you have the spreadsheet with one set of values, you can create several scenarios with different values.
- As you view each scenario, Excel uses the values in the scenario as input to calculate the results.

Creating scenarios



- Step #1:

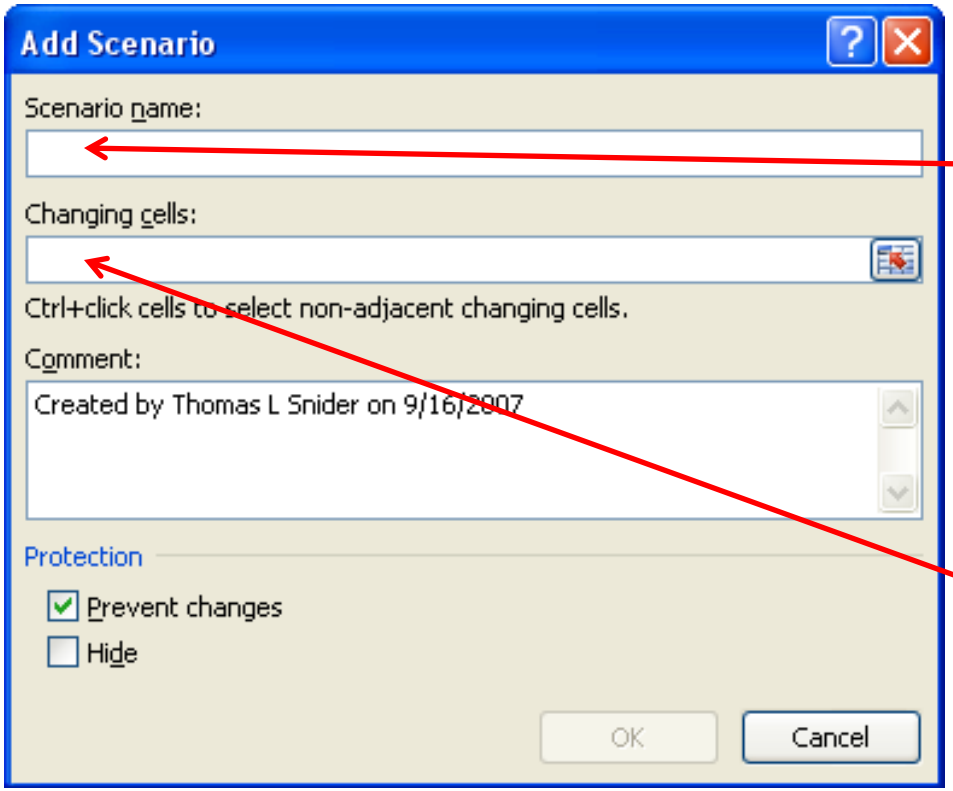
Data -> Data Tools ->

What-If- Analysis ->

Scenario Manager

- Click Add to add a new data scenario.

Creating scenarios (cont)

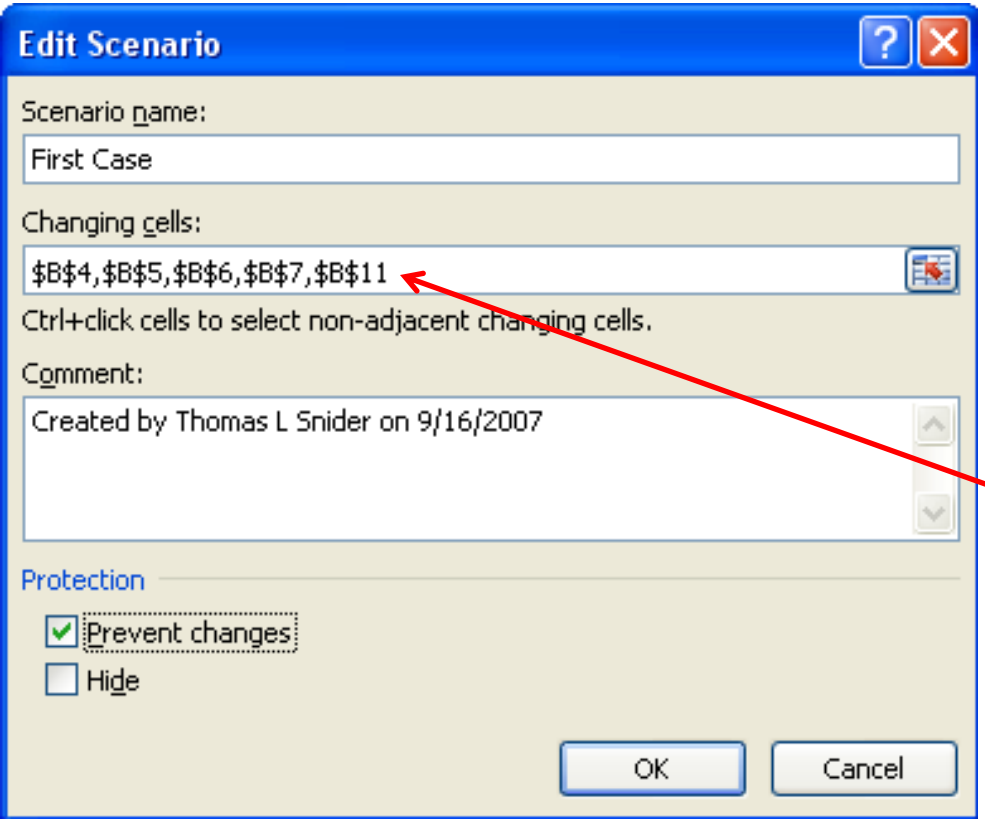


- Step #2:

Give the Scenario a name

- Select the cells whose values you will be changing to define a scenario.

Creating scenarios (cont)



Scenario defined!

- Notice that the cells used for the scenario are listed in the Changing Cells section of the dialog box.

Example Time

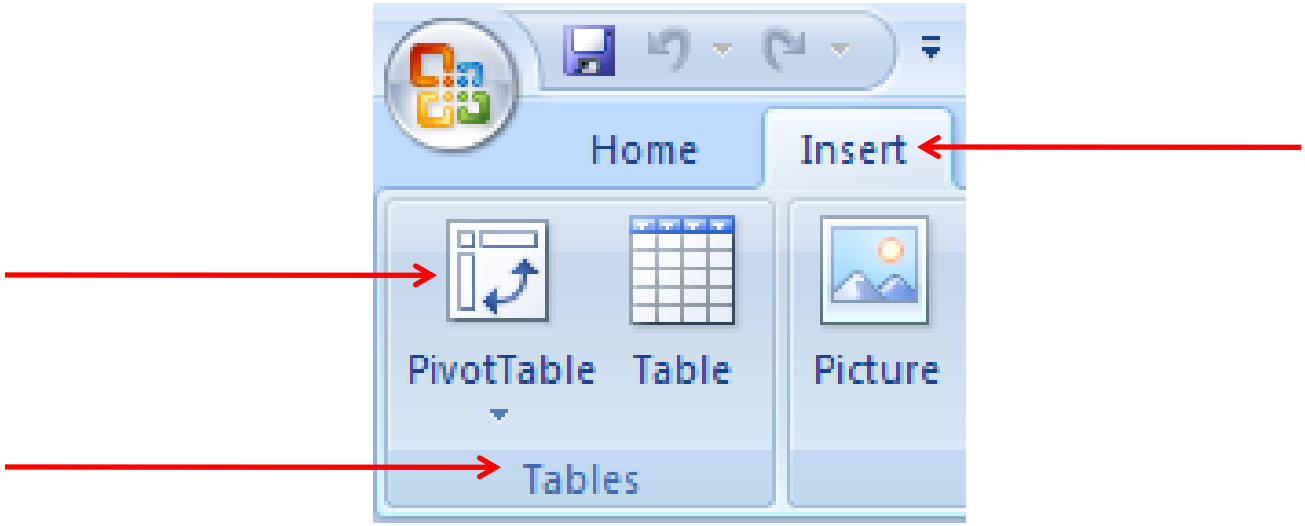
- Example: RedDog_Scenarios.xlsx

(you will find this file on my lecture notes page)

PivotTables and PivotCharts

- A PivotTable provides the ultimate flexibility in data analysis…
  - Lists data in categories
  - Computes summary statistics for those categories
- A PivotChart is a flexible chart that pivots!
  - Out of one comes many
  - Save loads of time

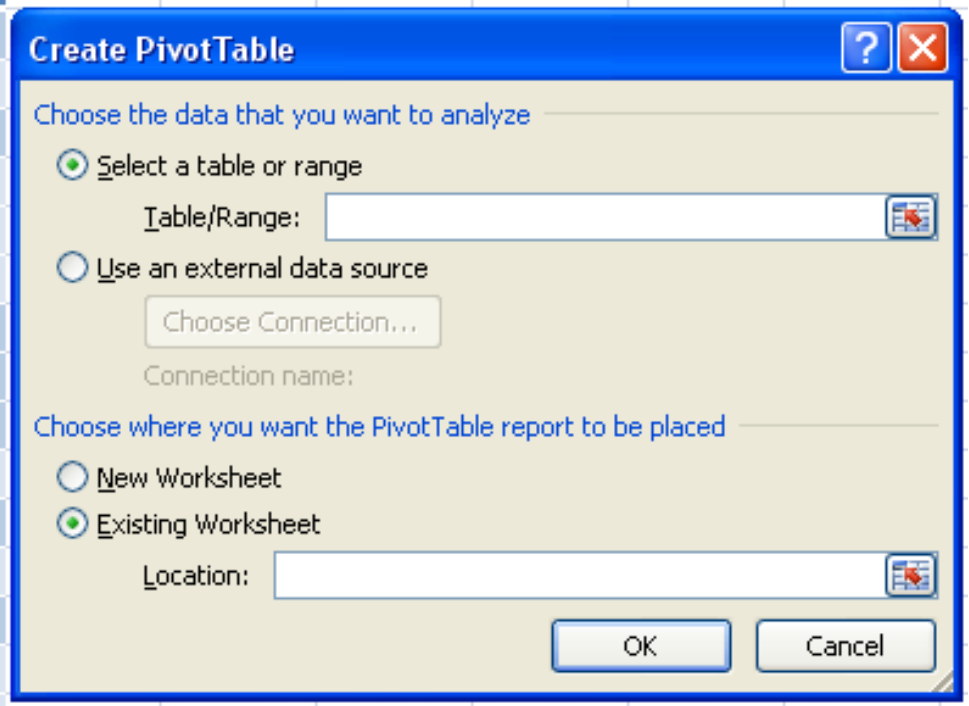
Create a PivotTable



As with MANY Excel functions, derive what you want to do … you want to INSERT a PivotTable.

Create a PivotTable (cont)

	A	B	C	D
1	Sales Rep	Quarter	Media	Amount
2	Frank	1st quarter	Magazine	$2,000
3	Frank	1st quarter	Radio	$1,000
4	Frank	1st quarter	Magazine	$2,000
5	Frank	1st quarter	Radio	$1,000
6	George	1st quarter	Radio	$4,000
7	George	1st quarter	Radio	$4,000
8	George	1st quarter	TV	$16,000
9	George	1st quarter	TV	$16,000
10	Grace	1st quarter	Radio	$4,000
11	Mary	1st quarter	Radio	$3,250
12	Nancy	1st quarter	TV	$15,000
13	Nancy	1st quarter	Radio	$4,000
14	Nancy	1st quarter	TV	$15,000
15	Nancy	1st quarter	Radio	$4,000
16	Peter	1st quarter	Radio	$1,000



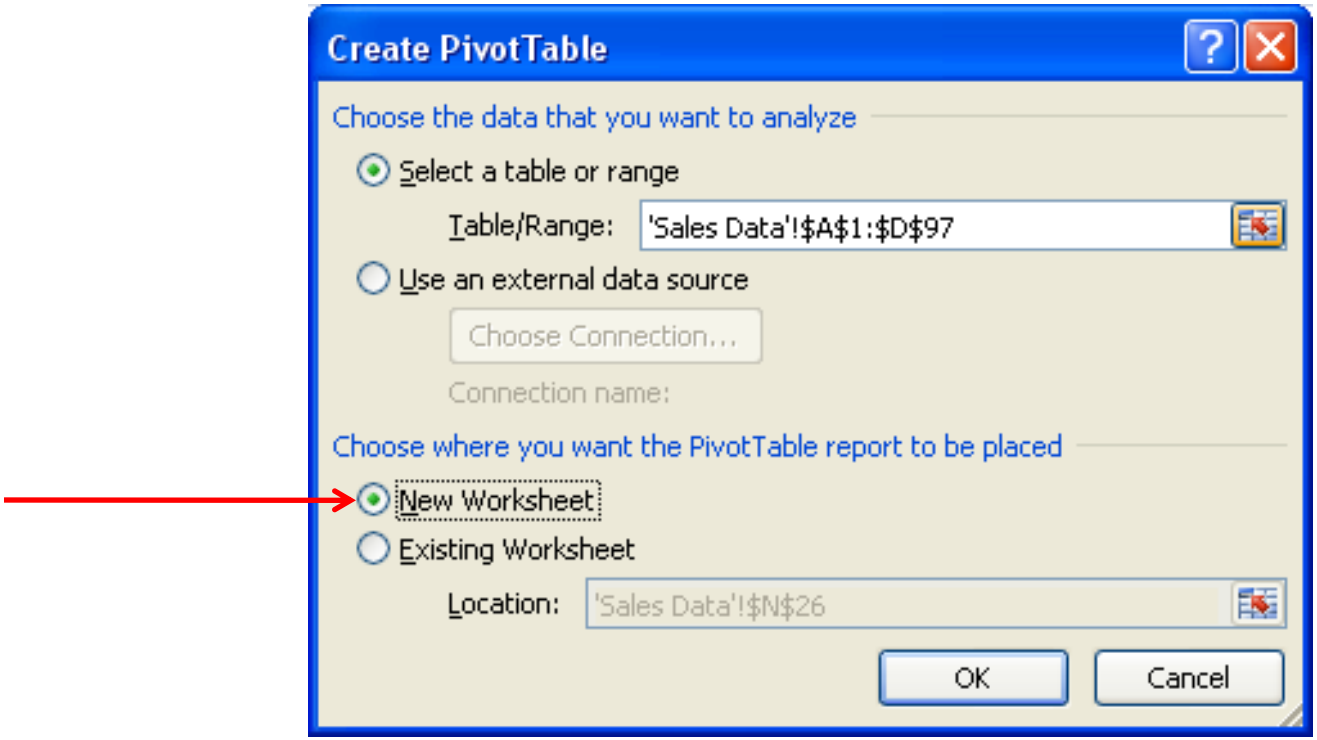
Select where the data is and where the PivotTable goes.

Create a PivotTable (cont)

	A	B	C	D
1	Sales Rep	Quarter	Media	Amount
2	Frank	1st quarter	Magazine	$2,000
3	Frank	1st quarter	Radio	$1,000
4	Frank	1st quarter	Magazine	$2,000
5	Frank	1st quarter	Radio	$1,000
6	George	1st quarter	Radio	$4,000

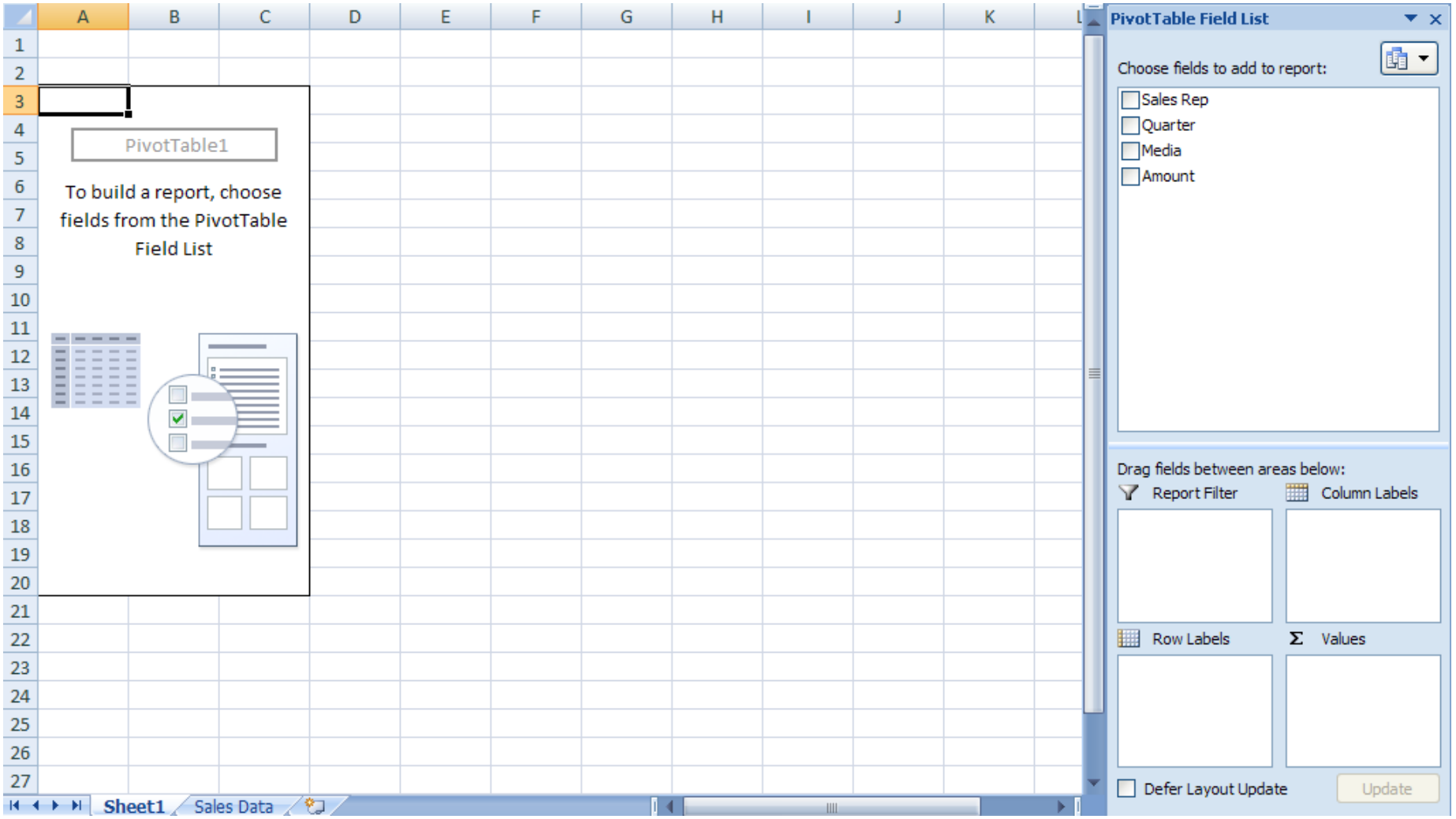
Grab & Go! It's a good idea to include your column headers with your data table.

Create a PivotTable (cont)



Do it in a new Worksheet! Things can get messy with lots of data in one sheet.

Create a PivotTable (cont)



Create a PivotTable (cont)

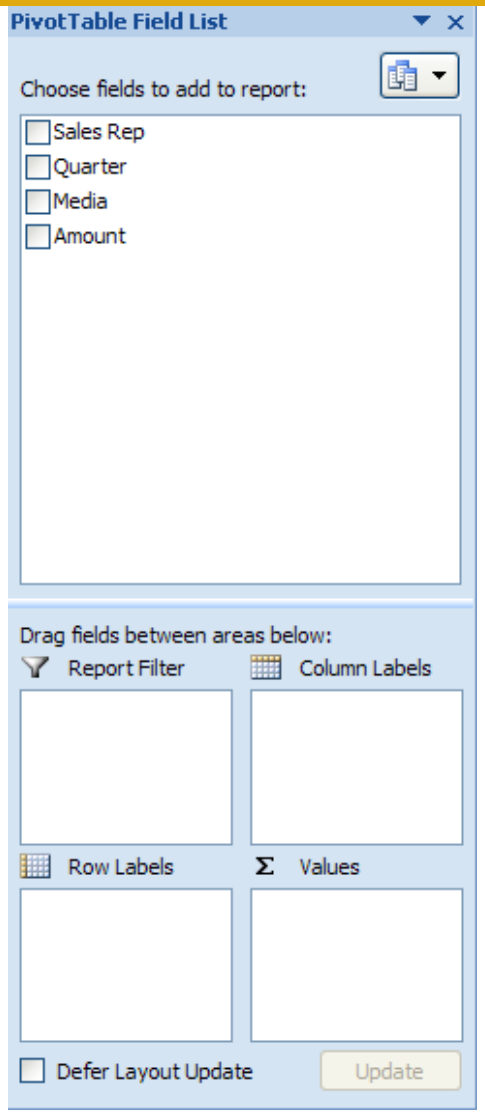
- The data field areas can be confusing!
- Remember to assign *levels of definition* to the data columns in the original data sheet
  - What is the major category?
  - What are the subordinate categories?
  - The Data is the *detail* category
- Do you see why a new sheet is the best idea?

Create a PivotTable (cont)

- In our example, the categories are:
  - Sales Rep
  - Quarter
  - Media
  - Amount

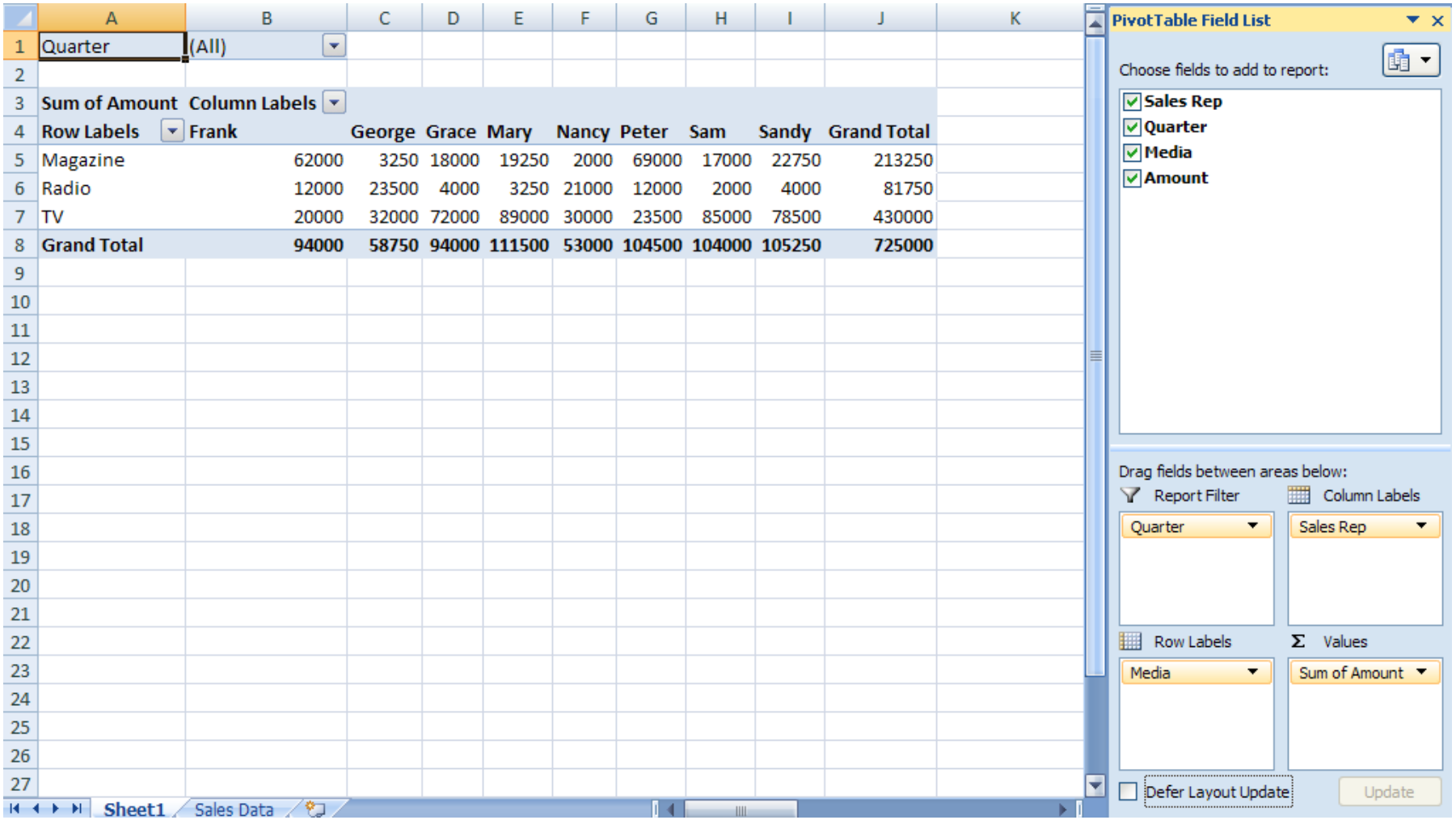
- Do you know the levels of definition?

Create a PivotTable (cont)



- Quarter should go to the Report Filter.
- Media should go to the Row Labels.
- Sales Rep should go to the Column Labels.
- Amount should go to the Values.

Create a PivotTable (cont)



Quarter	(All)								
Sum of Amount	Column Labels								
Row Labels	Frank	George	Grace	Mary	Nancy	Peter	Sam	Sandy	Grand Total
Magazine	62000	3250	18000	19250	2000	69000	17000	22750	213250
Radio	12000	23500	4000	3250	21000	12000	2000	4000	81750
TV	20000	32000	72000	89000	30000	23500	85000	78500	430000
Grand Total	94000	58750	94000	111500	53000	104500	104000	105250	725000

Create a PivotTable (cont)

What part of the sales year?

Which salesperson?

	A	B	C	D	E	F	G	H	I	J
1	Quarter	(All)								
2										
3	Sum of Amount	Column Labels								
4	Row Labels	Frank	George	Grace	Mary	Nancy	Peter	Sam	Sandy	Grand Total
5	Magazine	62000	3250	18000	19250	2000	69000	17000	22750	213250
6	Radio	12000	23500	4000	3250	21000	12000	2000	4000	81750
7	TV	20000	32000	72000	89000	30000	23500	85000	78500	430000
8	Grand Total	94000	58750	94000	111500	53000	104500	104000	105250	725000

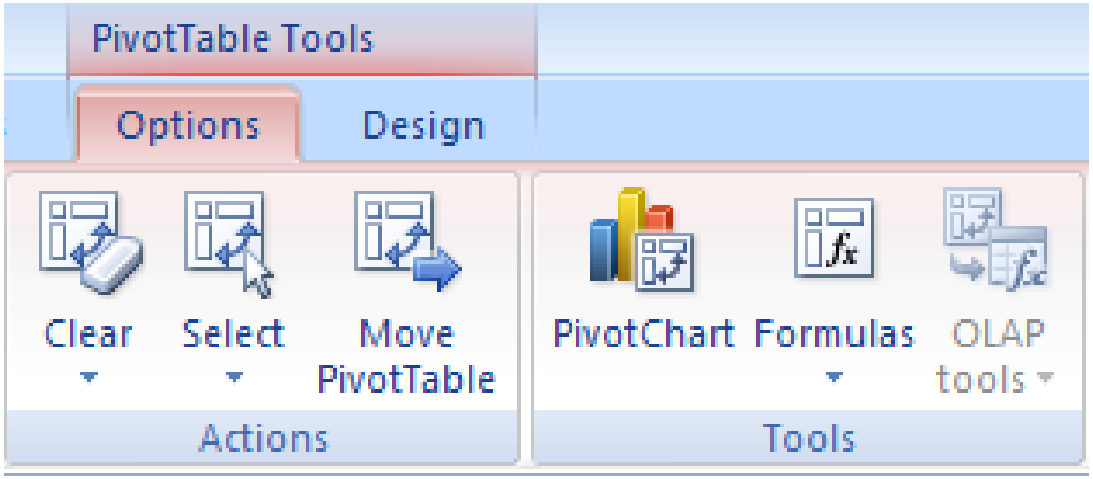
Which media sales ?

The PivotChart

- The reason to do the PivotTable first is quite simple, it defines the data range we will be charting! Don't put the chart before the horse … er, data table.

- Once you have setup the PivotTable, you merely need to decide upon the type of chart you wish to generate.

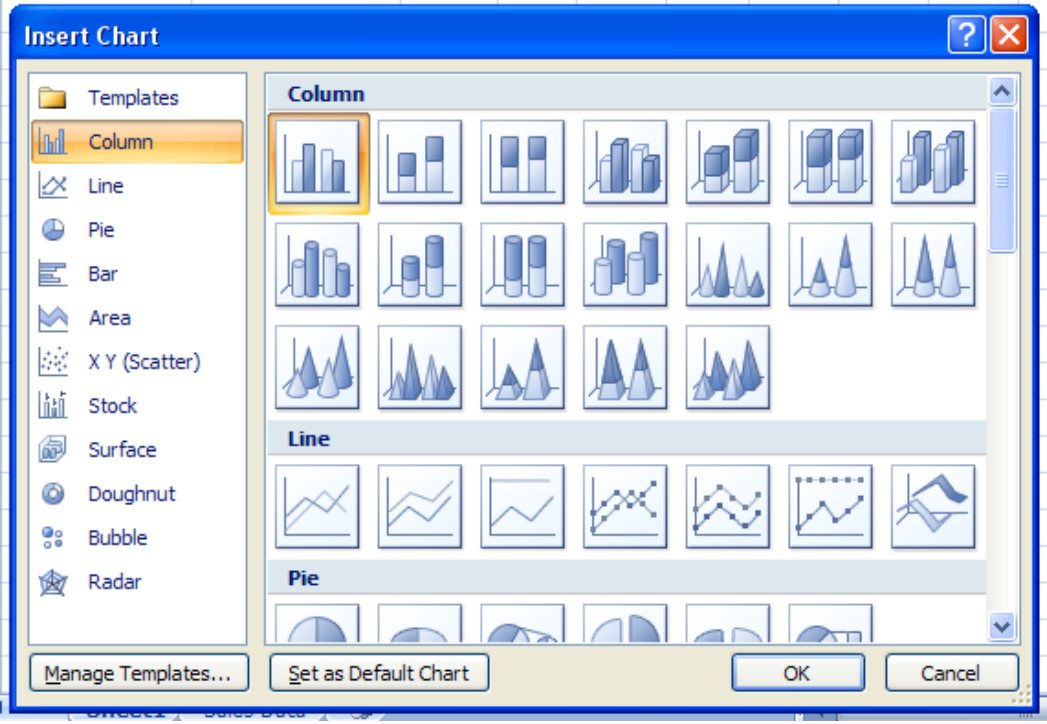
Creating a PivotChart



As with Charts, PivotTables have their own TAB and RIBBONS. Which option do you think might create a PivotChart?

Creating a PivotChart (cont)

	A	B	C	D	E	F	G	H	I	J
1	Quarter	(All)								
2										
3	Sum of Amount	Column Labels								
4	Row Labels	Frank	George	Grace	Mary	Nancy	Peter	Sam	Sandy	Grand Total
5	Magazine	62000	3250	18000	19250	2000	69000	17000	22750	213250
6	Radio	12000	23500	4000	3250	21000	12000	2000	4000	81750
7	TV	20000	32000	72000	89000	30000	23500	85000	78500	430000
8	Grand Total	94000	58750	94000	111500	53000	104500	104000	105250	725000

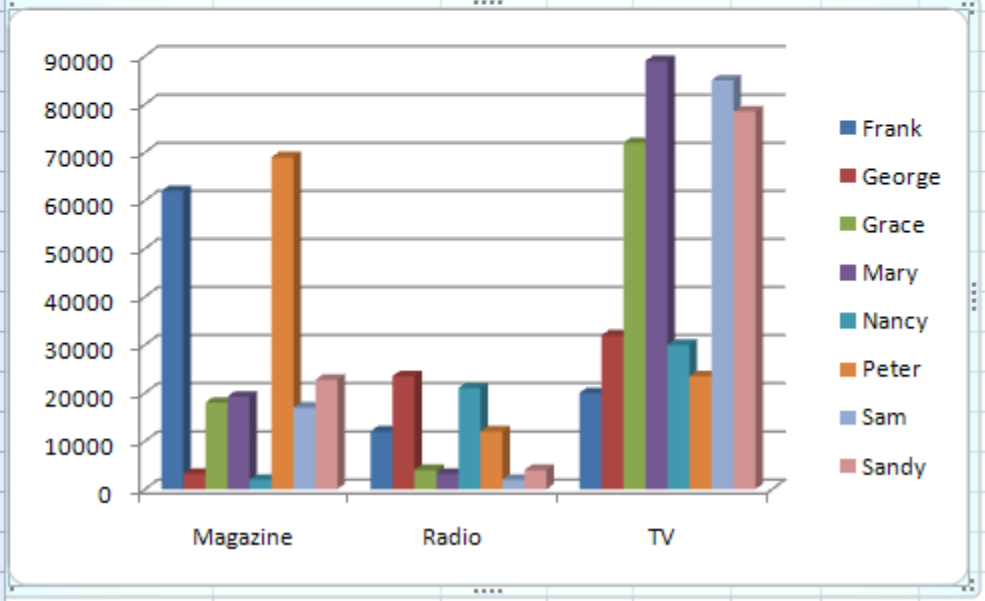


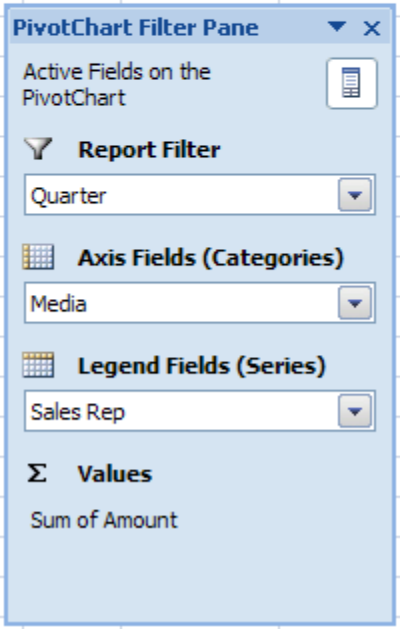
What is the Number One Rule for creating a chart?

The amount and type of the Data!

Create a PivotChart (cont)

	A	B	C	D	E	F	G	H	I	J
1	Quarter	(All)								
2										
3	Sum of Amount	Column Labels								
4	Row Labels	Frank	George	Grace	Mary	Nancy	Peter	Sam	Sandy	Grand Total
5	Magazine	62000	3250	18000	19250	2000	69000	17000	22750	213250
6	Radio	12000	23500	4000	3250	21000	12000	2000	4000	81750
7	TV	20000	32000	72000	89000	30000	23500	85000	78500	430000
8	Grand Total	94000	58750	94000	111500	53000	104500	104000	105250	725000





Example Time

- Example: Advertising_Agency_Pivot.xlsx

(you will find this file on my lecture notes page)

Review

- Goal Seek is used for ….
- Scenarios are used for ….
- PivotTables (and PivotCharts) are ….

Questions?