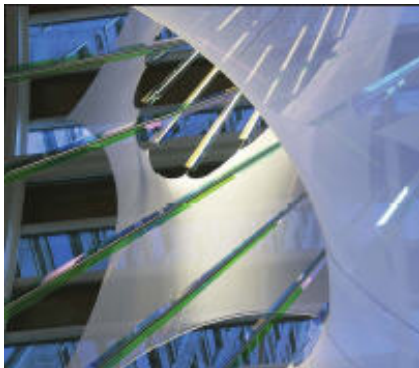




Tutorial 8

Developing an Excel Application



Review

- Auditing Formulas
 - Trace Precedent cells
 - Trace Dependent cells
- Trace Errors
- Error Messages
- Adding Comments
- Track Changes
- Save as webpage / add hyperlinks



Create validation rules for data entry

- You will want to prevent errors in your workbooks as much as possible.
 - You can specify the type of data that is allowed and/or a range of acceptable values
 - If a value is entered that does not meet the requirements, an error message is displayed
 - Setting a rule like this is a preventative measure that allows you to validate data upon entry
- There are several different options in the Data Validation dialog box allowing you to provide various rules related to data entry.
- You can also provide an input message that will aid the user in entering the data.



The Data Validation dialog box

Figure 8-2 Setting validation criteria

a date entered in the selected cell must be after the date entered in cell K14

The screenshot shows the 'Data Validation' dialog box with the following settings:

- Tab: Settings
- Validation criteria: Allow: Date, Data: greater than, Start date: =K14
- Ignore blank:
- Apply to other cells:
- Buttons: Clear All, OK, Cancel



The Allow list box options

Options in the Allow list box

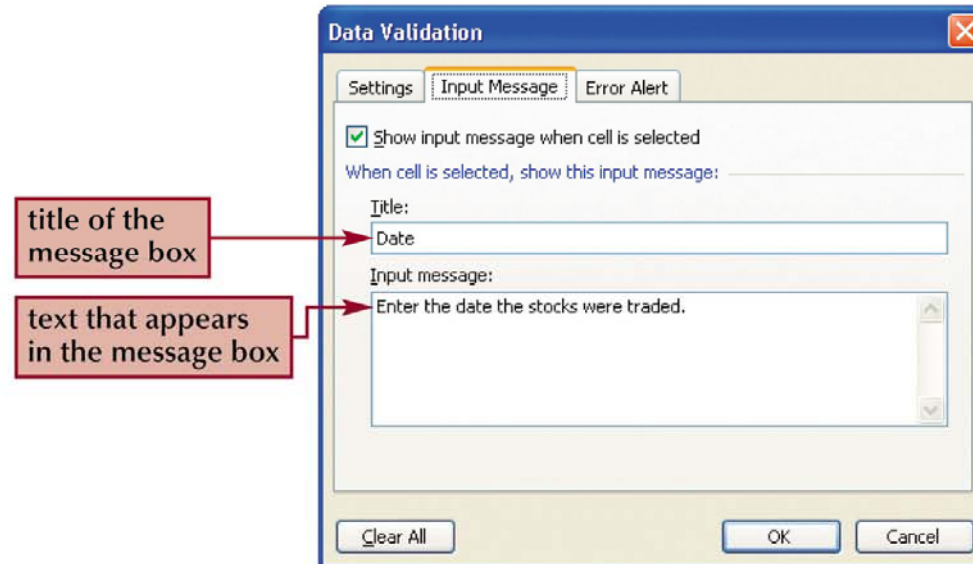
Figure 8-3

Allow	Description
Any Value	Any value can be entered into the cell.
Whole Number	The cell will accept only integers. A validation rule can further specify the range of acceptable integers.
Decimal	The cell will accept any type of numeric value. A validation rule can further specify the range of acceptable values.
List	The cell will accept only values from a list. The list can be taken from a range of cells in the worksheet, or the list of values can be entered directly into the dialog box, with the values separated by commas.
Date	The cell will accept only dates. A validation rule can further specify the range of acceptable dates.
Time	The cell will accept only times. A validation rule can further specify the range of acceptable times.
Text Length	The cell will accept only text of a specified number of characters.
Custom	The validation rule will be based on an Excel logical formula.



The Input Message tab of the Data Validation dialog box

Figure 8-4 Specifying an input message for the date value

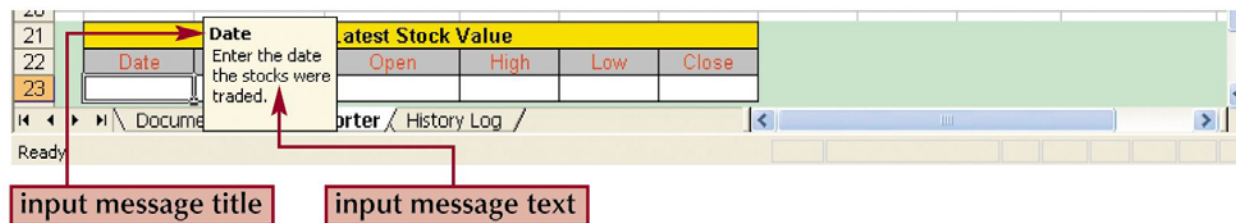




A worksheet with an input message displayed

Displaying the date input message

Figure 8-5

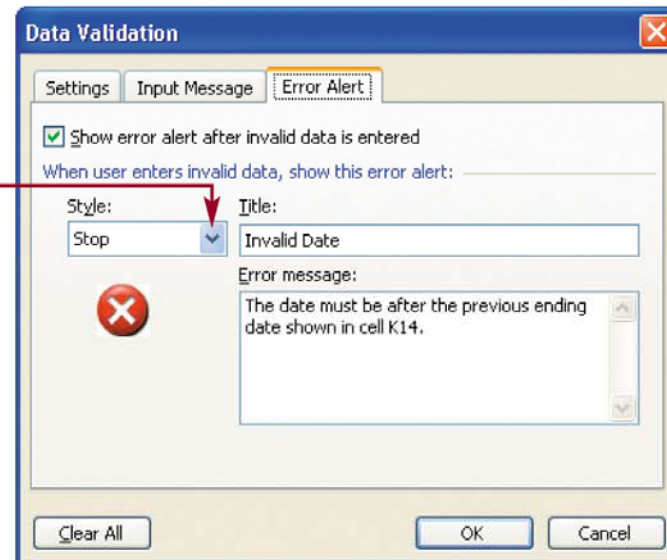




The Error Alert tab of the Data Validation dialog box

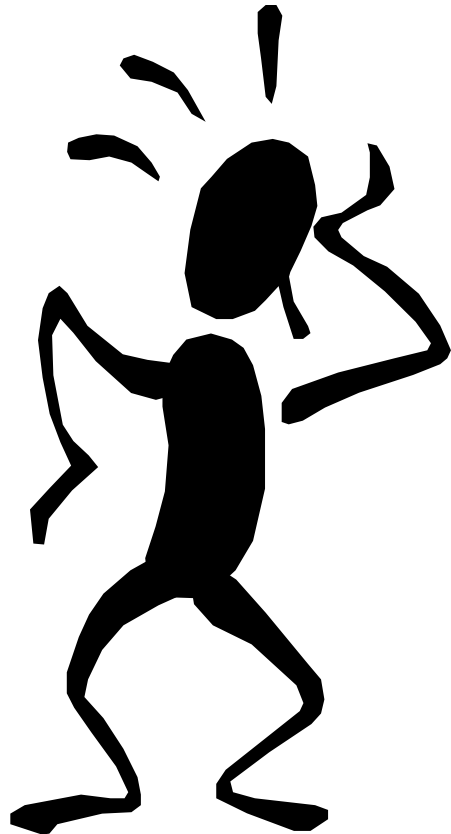
Figure 8-6 Error alert message

click to view the types of error styles





Testing Validation Rules



- wrong type of data
- incorrect lower range
- incorrect upper range
- correct values



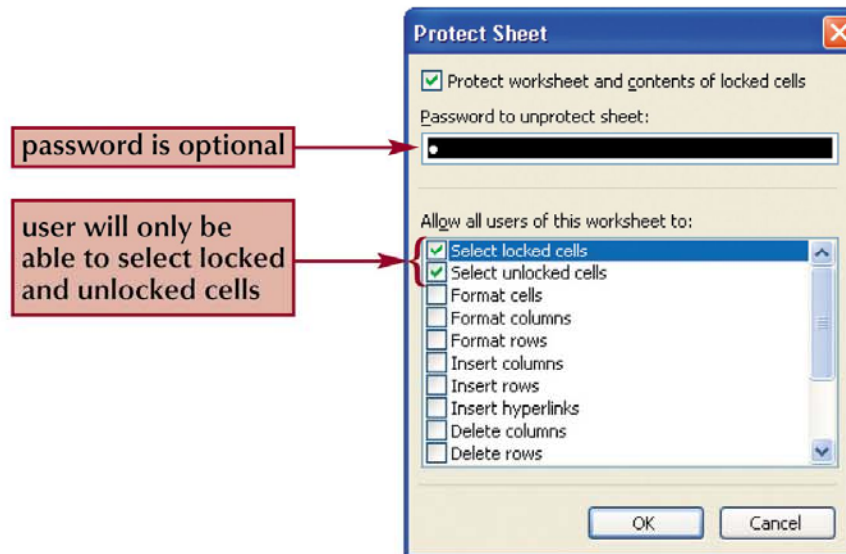
Protect the contents of worksheets and workbooks

- Once you have a worksheet that you know is correct, you may want to protect the worksheet so that users cannot make changes.
 - Setting the locked property will disallow any changes to a particular cell
 - The worksheet will have to be protected in order for the locked property to have any affect
- You can also specify a password that must be entered in order to remove worksheet protection.
- Finally, you can protect an entire workbook, which would disallow changes to the workbook, such as adding or deleting worksheets.



The Protect Sheet dialog box

Figure 8-9 Protecting a worksheet

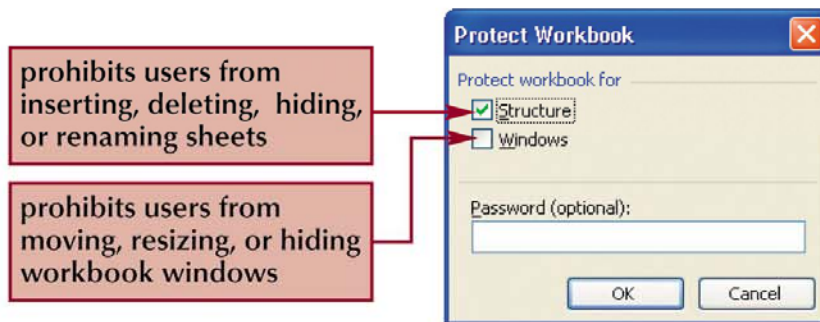


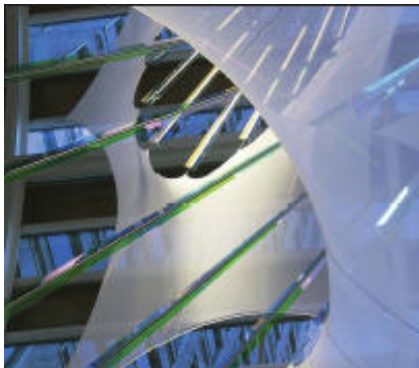


The Protect Workbook dialog box

Protecting a workbook

Figure 8-10





Locked Property

- Every cell can be **Locked** so that once the worksheet is protected, the cell cannot be edited.
- Note: locked property has no effect on unprotected worksheets.
- Locked property is found under the protection tab of the format cell dialog box.



Unlocking Selected Cells

Unlocking the selected cells

Figure 8-8

deselecting this option unlocks the selected cells

deselecting this option ensures that a formula appears in the Formula bar when a cell is selected

Format Cells

Number Alignment Font Border Patterns Protection

Locked

Hidden

Locking cells or hiding formulas has no effect unless the worksheet is protected. To protect the worksheet, choose Protection from the Tools menu, and then choose Protect Sheet. A password is optional.

OK Cancel



Create and use range names

- It may be useful assign a name to a cell or cell range.
- This is called a range name and allows you to refer to the cell or range of cells by their name instead of their cell references.
 - For example, you might assign a range name, Expenses, to a group of cells that represent your expenses
 - When you want to calculate with those cells, you enter their Range Name in the formulas instead of the cell reference
- You can later change the definition of the range names.



Creating a name using the Name box

Create a name using the Name box

Figure 8-13

Name box

Microsoft Excel - Stock2

File Edit View Insert Format Tools Data Window Help

Type a question for help

Arial 10 B I U

Starting_Date = 1/13/2006

	A	B	C	D	E	F	G	H	I	J	K
69	2/12/2006	0.20	35.20	35.06	33.70	34.60					
70	2/11/2006	0.07	34.30	35.92	34.47	35.20					
71	2/10/2006	0.16	33.40	34.74	33.78	34.30					
72	2/9/2006	0.18	33.80	33.66	32.65	33.40					
73	2/6/2006	0.14	33.80	33.91	33.24	33.80					
74	2/5/2006	0.21	34.40	34.72	33.67	33.80					
75	2/4/2006	0.10	36.80	34.76	33.58	34.40					
76	2/3/2006	0.12	35.90	36.96	35.94	36.80					
77	2/2/2006	0.04	36.30	36.11	35.03	35.90					
78	1/30/2006	0.06	37.50	37.18	35.31	36.30					
79	1/29/2006	0.10	37.90	37.56	37.34	37.50					
80	1/28/2006	0.12	37.60	38.79	36.93	37.90					
81	1/27/2006	0.11	37.90	38.04	37.28	37.60					
82	1/26/2006	0.02	38.10	38.50	37.28	37.90					
83	1/23/2006	0.02	36.80	38.42	38.07	38.10					
84	1/22/2006	0.04	36.60	37.65	36.78	36.80					
85	1/21/2006	0.14	36.10	36.66	36.47	36.60					
86	1/20/2006	0.07	36.70	37.10	35.31	36.10					
87	1/19/2006	0.01	37.10	36.93	36.35	36.70					
88	1/16/2006	0.07	36.20	37.91	36.52	37.10					
89	1/15/2006	0.09	35.30	36.24	36.06	36.20					
90	1/14/2006	0.03	34.90	35.48	34.94	35.30					
91	1/13/2006	0.02	37.30	35.40	34.67	34.90					

Starting_Date points to cell A91 in the History Log worksheet

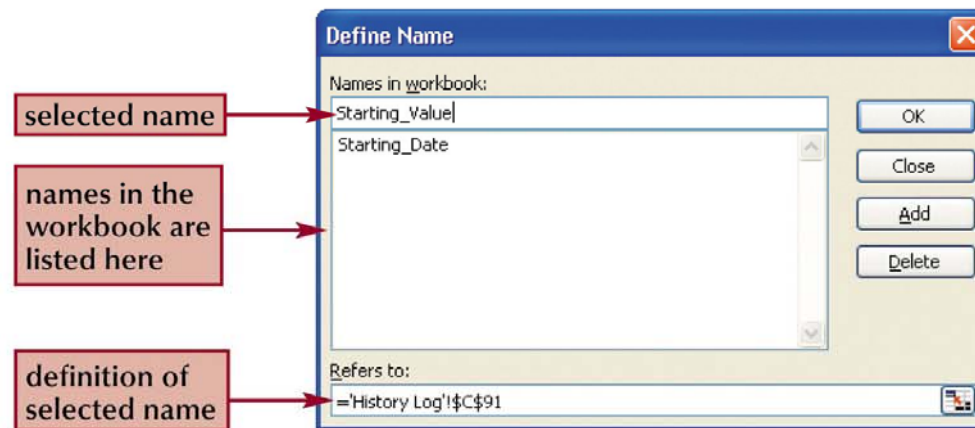
Documentation Reporter History Log

Ready



The Define Name dialog box

Figure 8-14 Creating a name with the Define Name dialog box





View multiple range names

Names in the Stock2 workbook

Figure 8-16

names derived from labels in row 1

range reference does not include row 1

Define Name

Names in workbook:

- Close
- Date
- High
- Low
- Open
- Starting_Date
- Starting_Value
- Volume

Refers to:

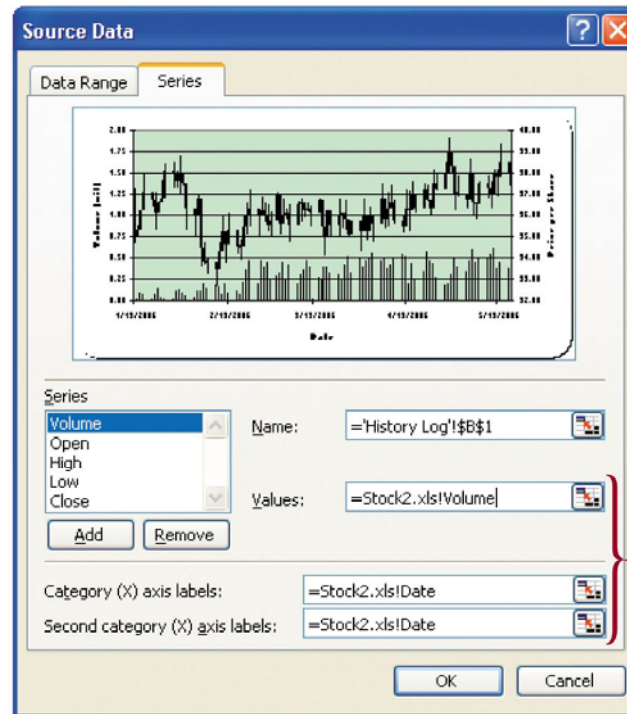
=History Log!\$F\$2:\$F\$91



Using Range Names in a chart

Using names in a chart

Figure 8-17



names must be prefaced with the name of the current workbook



Macro viruses and Excel's security features

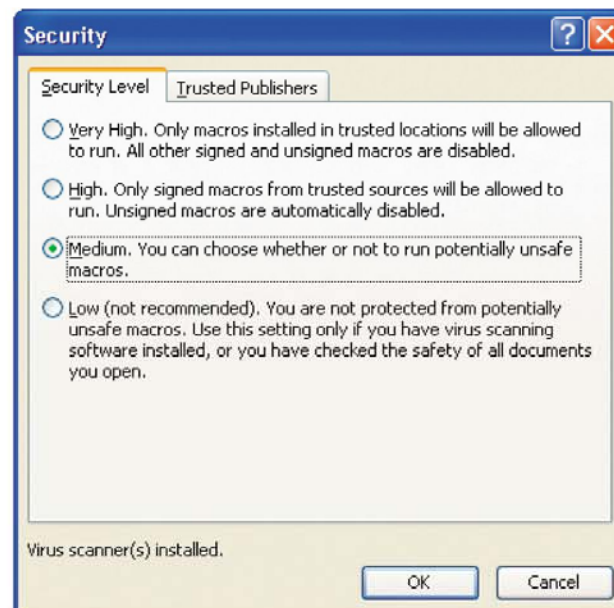
- Because a macro is a program, a virus can be attached to the macro.
 - A macro is attached to a workbook and just opening the workbook can cause the macro to be run
 - If a macro has an attached virus, running the macro will likely infect the computer being used to view the workbook
- The first line of defense is to be sure you know where the workbook came from and whether the source is trustworthy.
- Excel allows you to specify security for any workbook opened within Excel.
- There are three levels of security: high, medium, and low.



The Security dialog box

Setting the security level in Excel

Figure 8-19





Create macros using the macro recorder

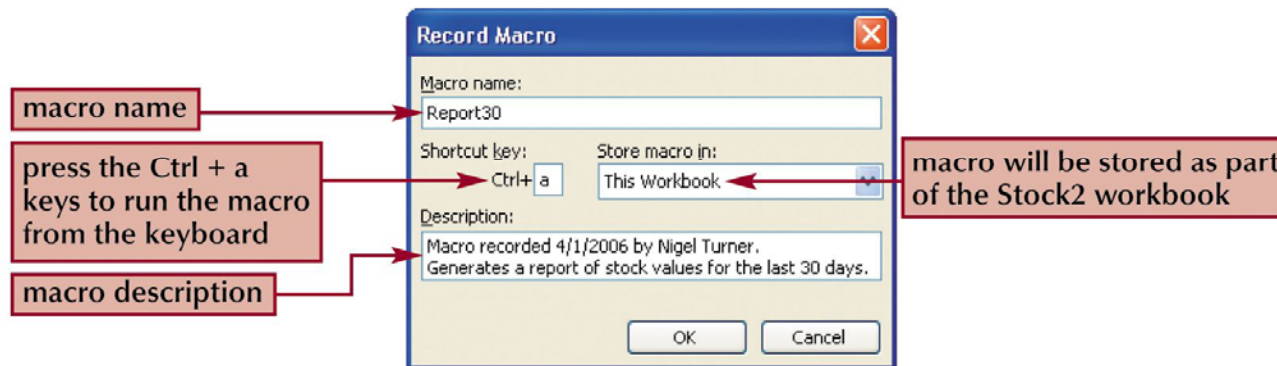
- One way to create a macro is to use the Excel macro recorder.
 - When you start the macro recorder, all of your keystrokes are recorded and saved
 - Once you have completed the keystrokes you want recorded, you can close the macro
 - Once the macro has been created, you can replay the macro at anytime
- The macro can be stored in the workbook, making it available whenever the workbook is opened.
- You can also store the macro in a new workbook or in the Personal Macro workbook, which makes it available anytime Excel is running.



The Record Macro dialog box

Recording the Report30 macro

Figure 8-20

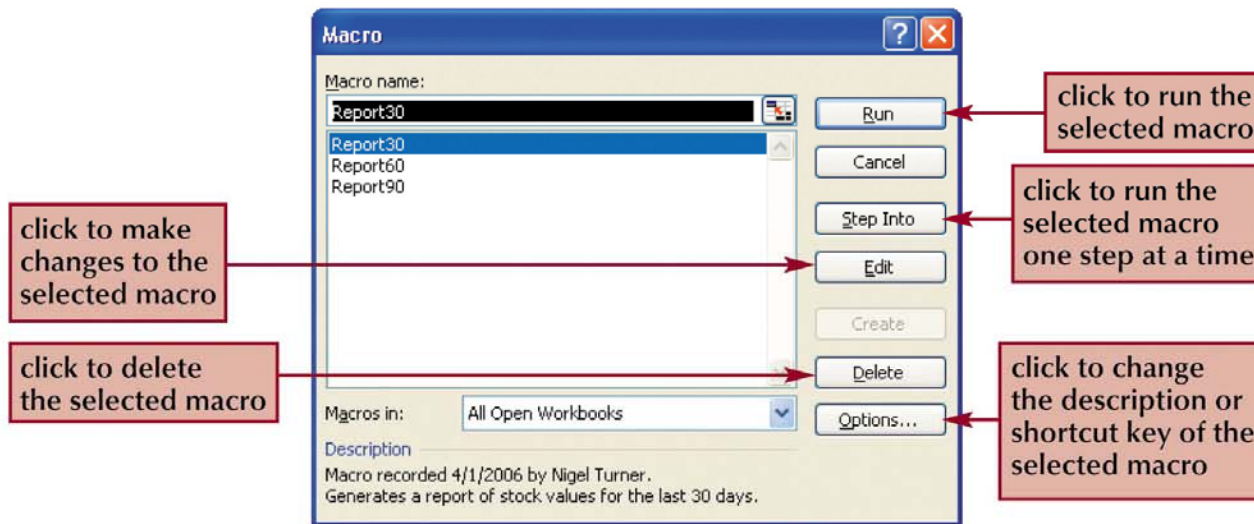




The Macro dialog box

Three report macro

Figure 8-22





Running the Macro

Use ctrl shortcut set when recorded

OR

click macros under tools menu

choose macro name

click run



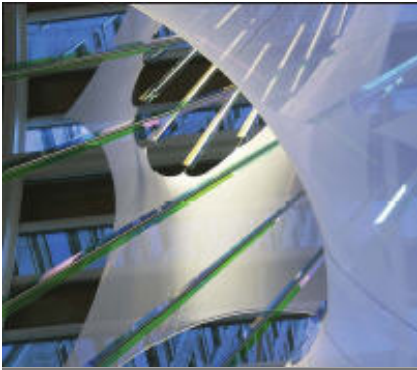
Assign a macro to a keyboard shortcut

- You already learned how to invoke a macro through the macro menu.
- Another option is to assign a shortcut key to the macro.
- When the shortcut key is pressed, the macro is run.



Assign a macro to a button

- You can create a button on the workbook that will invoke a macro.
- To create a macro button, you must first display the Forms toolbar.
- Then, select the button tool on the toolbar.
- The button is assigned to a particular macro and, when it is pressed, the assigned macro runs.



Assign Macro Dialog Box

Figure 8-28 Macro button and the Assign Macro dialog box

The screenshot shows the 'Assign Macro' dialog box in Microsoft Excel. The dialog box is titled 'Assign Macro' and has a close button (X) in the top right corner. It contains the following fields and controls:

- Macro name:** A text box containing 'Button8_Click'.
- Macros in:** A dropdown menu set to 'All Open Workbooks'.
- Description:** An empty text box.
- Buttons:** 'OK', 'Cancel', 'New', and 'Record...'.

A red box highlights the list of macros in the 'Macros in' list, with the text 'list of macros that can be assigned to the button'. A red arrow points from this box to the 'Button 8' macro button on the worksheet. The worksheet is titled 'Stock History for Maxwell Sports Inc. (MXS)' and contains a line graph of 'Volume (mil)' and a table of '30-day Statistics'.

Date	Volume (mil)	Open	High	Low	Close
5/20/2006	0.51	36.80	37.90	36.20	37.10

30-day Statistics	
Starting Date	4/9/2006
Ending Date	5/20/2006
Starting Value	36.60
Ending Value	37.10
Change	0.50
% Change	1.37%
Average Volume (mil)	0.432



Fixing Macro Errors

- re-record using the same macro name
- delete the macro and then record the macro again
- edit the macro in VB code or editor
- run the macro one step at a time to locate the error