

1) Lookup Tables and Pull-Down Menus (UP7 sheet)**VLOOKUP**

Searches for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify in the table. Use VLOOKUP instead of HLOOKUP when your comparison values are located in a column to the left of the data you want to find.

**Syntax**

**VLOOKUP(lookup\_value,table\_array,col\_index\_num,range\_lookup)**

*Lookup\_value* is the value to be found in the first column of the array. *Lookup\_value* can be a value, a reference, or a text string.

*Table\_array* is the table of information in which data is looked up. Use a reference to a range or a range name, such as Database or List.

- If *range\_lookup* is TRUE, the values in the first column of *table\_array* must be placed in ascending order: ..., -2, -1, 0, 1, 2, ..., A-Z, FALSE, TRUE; otherwise VLOOKUP may not give the correct value. If *range\_lookup* is FALSE, *table\_array* does not need to be sorted.
- You can put the values in ascending order by choosing the **Sort** command from the **Data** menu and selecting **Ascending**.
- The values in the first column of *table\_array* can be text, numbers, or logical values.
- Uppercase and lowercase text are equivalent.

*Col\_index\_num* is the column number in *table\_array* from which the matching value must be returned. A *col\_index\_num* of 1 returns the value in the first column in *table\_array*; a *col\_index\_num* of 2 returns the value in the second column in *table\_array*, and so on. If *col\_index\_num* is less than 1, VLOOKUP returns the #VALUE! error value; if *col\_index\_num* is greater than the number of columns in *table\_array*, VLOOKUP returns the #REF! error value.

*Range\_lookup* is a logical value that specifies whether you want VLOOKUP to find an exact match or an approximate match. If TRUE or omitted, an approximate match is returned. In other words, if an exact match is not found, the next largest value that is less than *lookup\_value* is returned. If FALSE, VLOOKUP will find an exact match. If one is not found, the error value #N/A is returned.

**Remarks**

- If VLOOKUP can't find *lookup\_value*, and *range\_lookup* is TRUE, it uses the largest value that is less than or equal to *lookup\_value*.
- If *lookup\_value* is smaller than the smallest value in the first column of *table\_array*, VLOOKUP returns the #N/A error value.
- If VLOOKUP can't find *lookup\_value*, and *range\_lookup* is FALSE, VLOOKUP returns the #N/A value.

**Example**

	A	B	C	D
1	<b>Air at 1 atm pressure</b>			
2	<b>Density</b>	<b>Viscosity</b>	<b>Temp</b>	
3	<b>(kg/cubic m)</b>	<b>(kg/m*s)*1E+05</b>	<b>(degrees C)</b>	
4	0.457	3.55	500	
5	0.525	3.25	400	
6	0.616	2.93	300	
7	0.675	2.75	250	
8	0.746	2.57	200	
9	0.835	2.38	150	
10	0.946	2.17	100	
11	1.09	1.95	50	
12	1.29	1.71	0	

**Error! Unknown switch argument.**

With this worksheet, where the range A4:C12 is named Range:

VLOOKUP(1,Range,1,TRUE) equals 0.946

VLOOKUP(1,Range,2) equals 2.17

VLOOKUP(1,Range,3,TRUE) equals 100

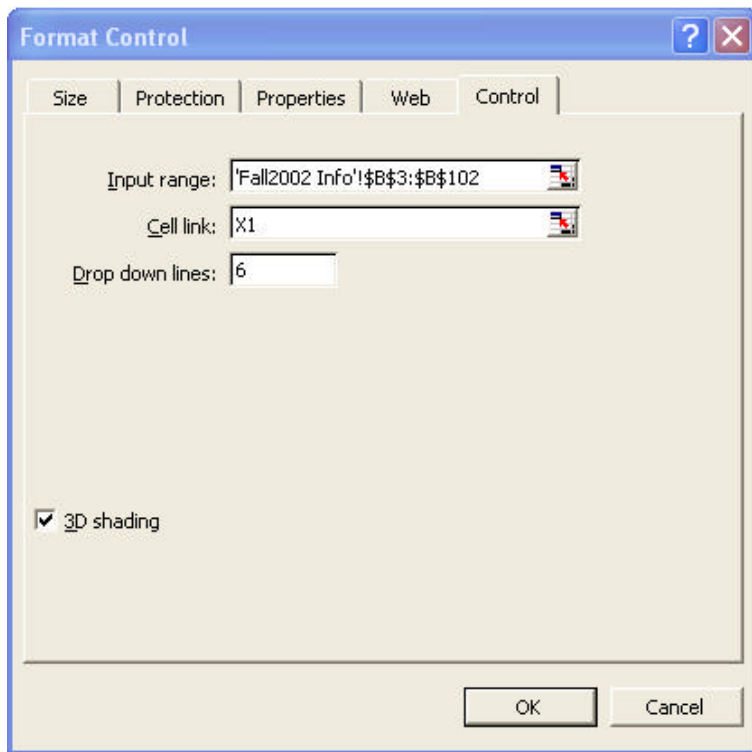
VLOOKUP(.746,Range,3,FALSE) equals 200

VLOOKUP(0.1,Range,2,TRUE) equals #N/A, because 0.1 is less than the smallest value in column A

VLOOKUP(2,Range,2,TRUE) equals 1.71

**DROP-DOWN OBJECT**

Allows you to refer to a “list” of items in the workbook, be able to choose an item in the list, and put the number of that item into a cell. We can look at the construction of the drop-down box by Right-Clicking on the object, then selecting Format Control. The most important section is the Control tab:



The “Input Range” defines the list of items in your workbook.

The “Cell Link” defines where the numeric representation of the list item will be placed.

The “Drop down lines” defines how many list items you will see when you pull down.

**2) Balancing your checkbook (CHECKBOOK sheet)****SUMIF**

Adds the cells specified by a given criteria.

**Syntax**

**SUMIF(range,criteria,sum\_range)**

*Range* is the range of cells you want evaluated.

*Criteria* is the criteria in the form of a number, expression, or text that defines which cells will be added. For example, criteria can be expressed as 32, "32", ">32", "apples".

*Sum\_range* are the actual cells to sum. The cells in sum\_range are summed only if their corresponding cells in range match the criteria. If sum\_range is omitted, the cells in range are summed.

**Remark**

Microsoft Excel provides additional functions that can be used to analyze your data based on a condition. For example, to count the number of occurrences of a string of text or a number within a range of cells, use the COUNTIF function. To have a formula return one of two values based on a condition, such as a sales bonus based on a specified sales amount, use the IF worksheet function.

**Example**

Suppose A1:A4 contain the following property values for four homes: \$100,000, \$200,000, \$300,000, \$400,000, respectively. B1:B4 contain the following sales commissions on each of the corresponding property values: \$7,000, \$14,000, \$21,000, \$28,000.

SUMIF(A1:A4,">160000",B1:B4) equals \$63,000


**3) Budgetary and “future” calculations (STUDENT BUDGET sheet)**

Nothing really fancy in this sheet. Given that we have a set budget amount (in cell C2), we want to make sure that we don't spend more than we have. Information for each pay period is entered (in the D column), and we can calculate running totals (in the E column) and how much money is left (in the F column). Calculating the average of money spent per pay period (stored in cell M4), we can now use Column H to determine how much money would be spent if we projected the average for the rest of the pay periods.

**4) Macros (WWW JOURNAL sheet)**

A macro is a series of commands and instructions that you group together as a single command to accomplish a task automatically. Instead of manually performing a series of time-consuming, repetitive actions, you can create and run a single macro — in effect, a custom command — that accomplishes the task for you. In this spreadsheet the macros are used by the “Reset Menu Data” and the "Instructions" buttons found on the Summary page and the “Reset Data” button found on the Servings page to clear the daily data in preparation for the next weeks use. If you disable macros when the spreadsheet is launched, the “Reset Menu Data”, "Instructions", and “Reset Data” buttons will not work.

To see what a Macro is really doing:

1. From the View menu, select Toolbars -> Control Toolbox
2. Click on the View Code tool 
3. Now in the Visual Basic editor: from the Tools menu, select Macros
4. Click on any of the macro names, then click the Edit button

### 5) Pivot Tables (PIVOT sheet)

#### OVERVIEW

A PivotTable report is an interactive table that you can use to quickly summarize large amounts of data. You can rotate its rows and columns to see different summaries of the source data, filter the data by displaying different pages, or display the details for areas of interest.

**When to use a PivotTable report:** Use a PivotTable report when you want to compare related totals, especially when you have a long list of figures to summarize and you want to compare several facts about each figure. Use PivotTable reports when you want Microsoft Excel to do the sorting, subtotaling, and totaling for you. In the example above, you can easily see how the third-quarter golf sales in cell F5 stack up against sales for another sport or quarter, or grand total sales. Because a PivotTable report is interactive, you or other users can change the view of the data to see more details or calculate different summaries.

**Creating a PivotTable report:** To create a Pivot Table report, use the PivotTable and PivotChart Wizard as a guide to locate and specify the source data you want to analyze and to create the report framework. You can then use the **PivotTable** [javascript:HelpPopup\('xltip9.hlp','xldefToolbar'\);](javascript:HelpPopup('xltip9.hlp','xldefToolbar');)toolbar to arrange the data within that framework.

**Types of PivotTable reports:** A default PivotTable report looks like the preceding example. You can also display a PivotTable report in indented format, to view all the summary figures of the same type in one column. You can create a PivotChart report to view the data graphically. You can also make a PivotTable report available on the Web by using a PivotTable list on a Web page. When you publish an Excel PivotTable report to a PivotTable list, others can view and interact with the data from within their Web browsers.

#### SOURCE DATA

**Source data for a PivotTable report:** You can create a PivotTable report from a Microsoft Excel [javascript:HelpPopup\('xltip9.hlp','xldefList'\);](javascript:HelpPopup('xltip9.hlp','xldefList');)list, an external database, multiple Excel worksheets, or another PivotTable report. Source data from Excel lists and most databases is organized in rows and columns. Your source data must have similar facts in the same column, and each column MUST have a heading.

#### ORGANIZING REPORT DATA

**Fields and items:** A PivotTable report contains fields, each of which corresponds to a column in the source data and summarizes multiple rows of information from the source data. Fields in a PivotTable report list items of data across rows or down columns. The cells where the rows and columns intersect show summarized data for the items at the top of the column and the left side of the row.

**Data fields and cells:** A data field, such as Sum of Sales, provides the values that are summarized in the PivotTable report.

**Summary functions:** To summarize the data field values, PivotTable reports use summary functions, such as Sum, Count, or Average. These functions also provide subtotals and grand totals automatically, where you choose to show them.

**Viewing details:** In most PivotTable reports, you can view the detail rows from the source data that make up the summary value in a particular data cell.

**Changing the layout:** By dragging a field button to another part of the PivotTable report, you can view your data in various ways and calculate different summarized values. For example, you can view the names of salespersons across the columns instead of down the rows. This is accomplished by clicking anywhere within the pivot table, then going to the Data menu and selecting Pivot Table; then click on the Layout button.

**Changing data:** If you change a value in your source data, you must tell Excel to refresh the pivot table. This is accomplished by clicking anywhere within the pivot table, then going to the Data menu and selecting Refresh Data.