

Advanced  
Lotus 5.0  
for Windows

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# **Advanced Lotus 1-2-3 Release 5.0 for Windows Training Manuals**

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## How to Use This Manual

This manual is designed to provide training instructions and exercises to the advanced user in Lotus 1-2-3 Release 5.0 for Windows. Certain conventions have been used in your textbook. Take a minute to familiarize yourself with these conventions.

- Conventions** The following conventions are used throughout this manual to make it easier for the user to follow instructions and exercises.
- Keyboard keys** All keyboard keys are typed in boldface with Upper and lower case letters and enclosed in greater than and less than symbols. The enter key is displayed as **<Enter>**.
- Buttons** Buttons to be clicked with the mouse are displayed in boldface and enclosed in square brackets. The ok key is displayed as **[OK]**.
- Menus** All menu options are displayed in boldface print in Upper and lower case with a letter in the command underlined, as shown in the menu. The file print command is displayed as **File Print**.
- User input** Where the user should input keystrokes, the text is printed in boldface and CAPS. When a user is instructed to type the file name inventory, it is displayed as **INVENTORY**.
- Resulting Actions** When keystrokes result in a change on the screen, status bar or dialog box, this is noted in italics. When a user presses the **<F2>** key, this notation appears in the manual: *The mode indicator changes to Edit in the status bar.*

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# Section 1

## Multiple Worksheets

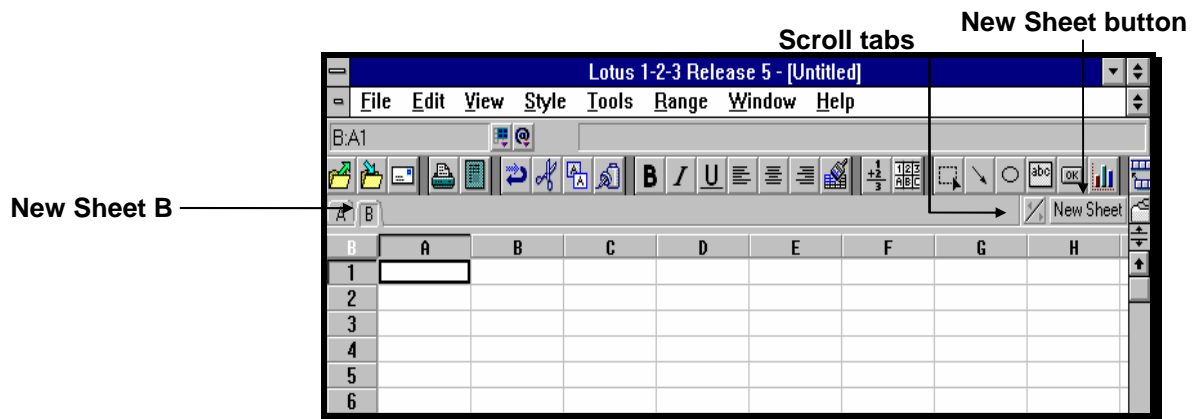
Lotus 5.0 for Windows provides the capability of working with groups of files or multiple worksheets. Using this feature, one file can contain many worksheets. This section will introduce you to multiple spreadsheets and linked formulas.

### Insert New Sheets

The first exercise will add multiple worksheets to a new file. You will learn to change the name of the worksheet tabs to identify the information contained on each sheet.

1. Open a new plain worksheet in Lotus.
2. Click on the **[New Sheet]** button.

*A new sheet tab with the letter B appears on top of sheet A.*



**Figure 1: New Worksheet**

3. Click on the **[New Sheet]** button.  
*A new sheet tab with the letter C appears on top of B.*
4. Point and click on the Sheet tab **[A]**.  
*The first worksheet is positioned in front of Sheets B and C.*



**NOTE:** If you have more than 20 worksheets, the tabs will scroll out of the current window. Use the Sheet Scroll Tabs (previous and next) to view additional sheet tabs.

## View Multiple Sheets

It is possible to view all of the worksheets in a file simultaneously using the Perspective option as listed in the View menu.

### Set Perspective View

In this exercise, you will use the Perspective View to organize the open worksheets on the window.

1. Select **V**iew from the menu bar.
2. Choose **S**plit... in the list.

*The Split dialog box opens.*

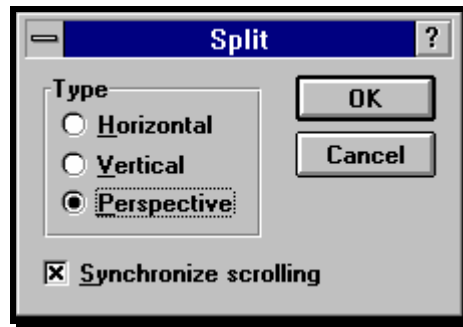


Figure 2: Split dialog box

3. Click the option button for **P**erspective.
4. Click **[O**K].

*All three worksheets are displayed in the window.*

Sheet Tabs

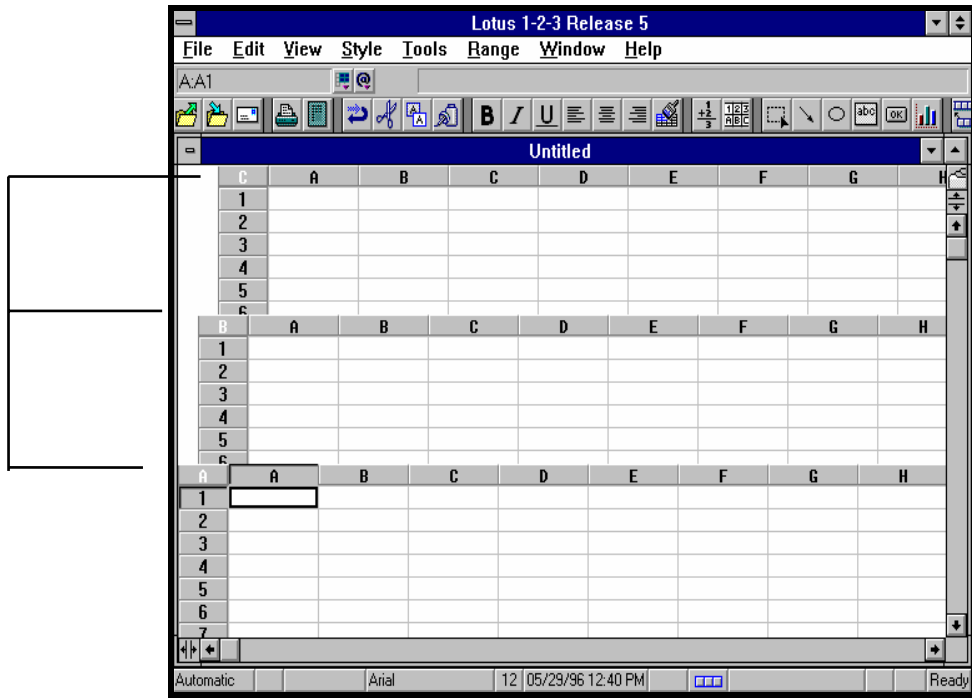


Figure 3: Perspective view

## Clear Perspective

Since you are going to create individual worksheets, you will go ahead and clear the perspective view by following these steps.

1. Click anywhere on the **A** worksheet.
2. Select **V**iew from the menu bar.
3. Choose **C**lear **S**plit from the list.

*The Perspective View is closed and only the active sheet (Sheet A) is visible.*

## Group Mode

One of the advantages of working with multiple spreadsheets is the capability to format all the worksheets simultaneously. The Group Mode feature allows Style commands to be applied to all the worksheets in the group.

1. Select **S**tyle from the menu bar.
2. Choose **W**orksheet Defaults...

*The Worksheet Defaults dialog box opens.*

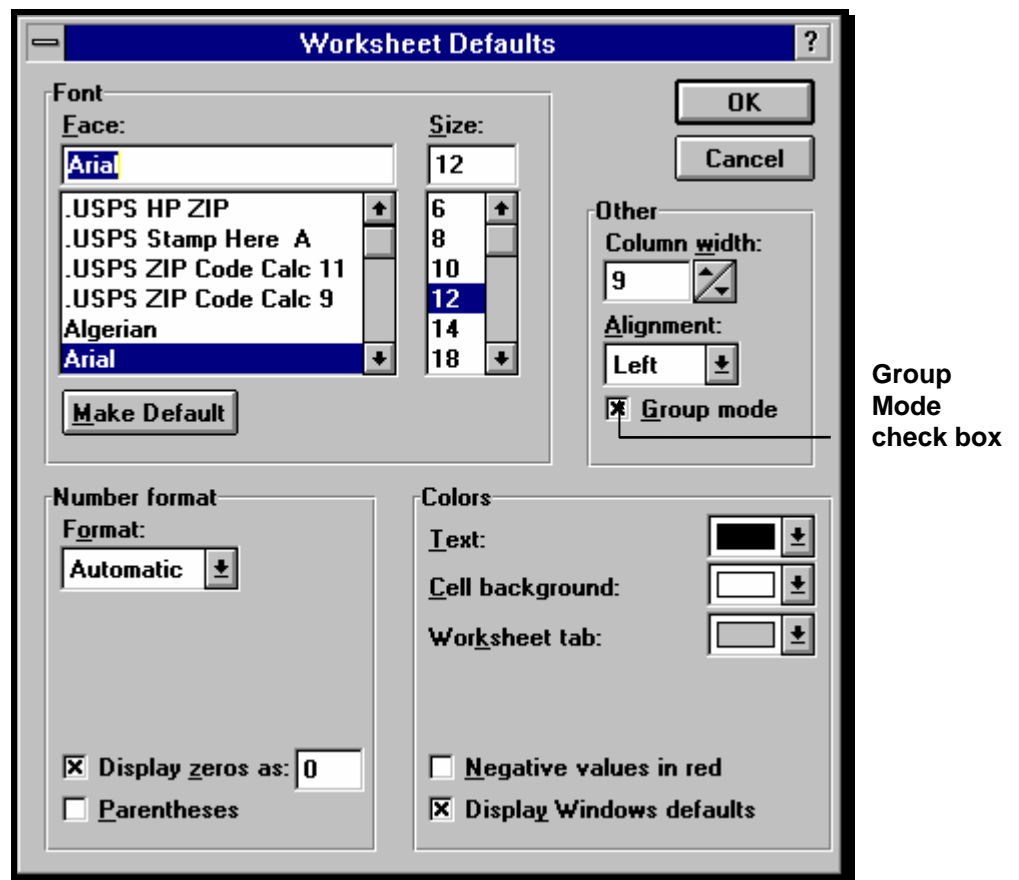


Figure 4: Worksheet Defaults dialog box

3. Click the **Group mode** check box.  
*An **x** appears indicating that Group Mode is now activated.*
4. Click **[OK]**.  
*The prompt **Group** appears on the status bar.*

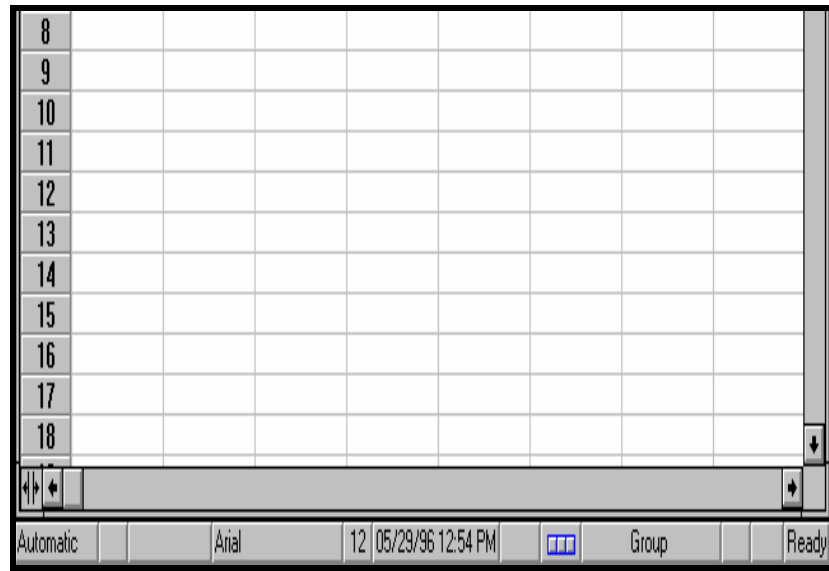


Figure 5: Group Mode enabled

↑  
Group mode  
indicator

In this exercise, each of the worksheets will contain identical formatting. By using the Style menu to format the first worksheet (Sheet A), Group Mode will format the others at the same time.

## Adding Lines

1. Select cells **A1..E1**.
2. Choose **Style** from the menu bar.
3. Select **Lines & Color...** from the list.  
*The **Lines & Color** dialog box appears as shown in Figure 6.*

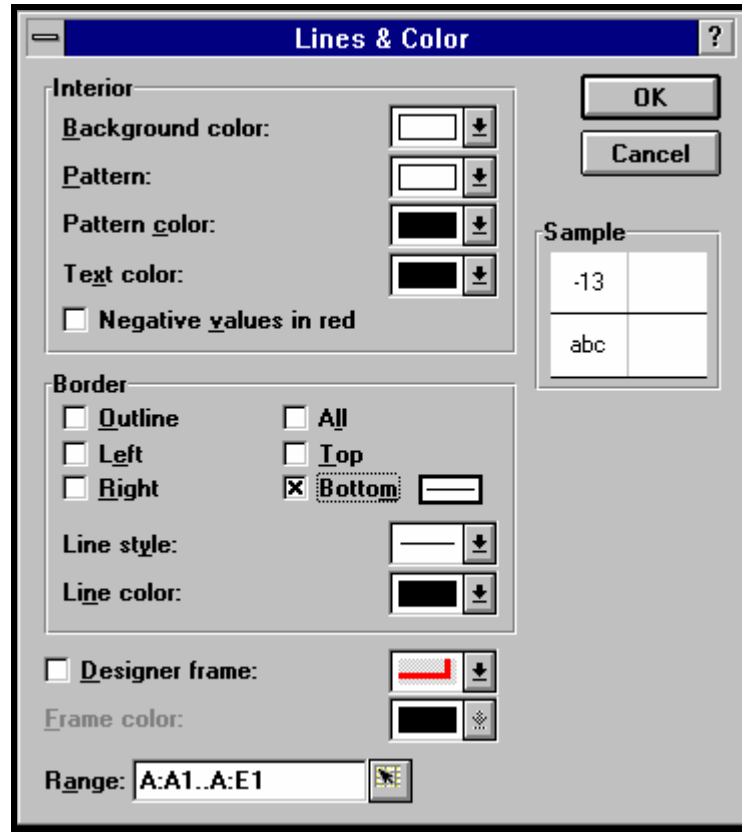


Figure 6: Lines &amp; Color

4. Click on the check box for the **Bottom** option.
5. Click [OK].  
*A solid line appears beneath cells A1..E1.*
6. Click any cell to de-select.
7. Click on the [B] sheet tab.  
*A solid line appears beneath cells A1..E1.*
8. Click on the [C] sheet tab.  
*The solid line also appears in this sheet.*

## Change Column Widths

Another Style menu feature is the ability to increase or decrease column width. This is usually accomplished with the shortcut method of clicking and dragging the column border line. In this exercise, you will increase the width of several columns and watch each worksheet duplicate the format.

1. Activate cell A1 of the [C] worksheet.
2. Click and drag the column border between column A and column B to increase the width of the column to 20 characters..  
*The character width will appear in the cell address box as you click and drag.*

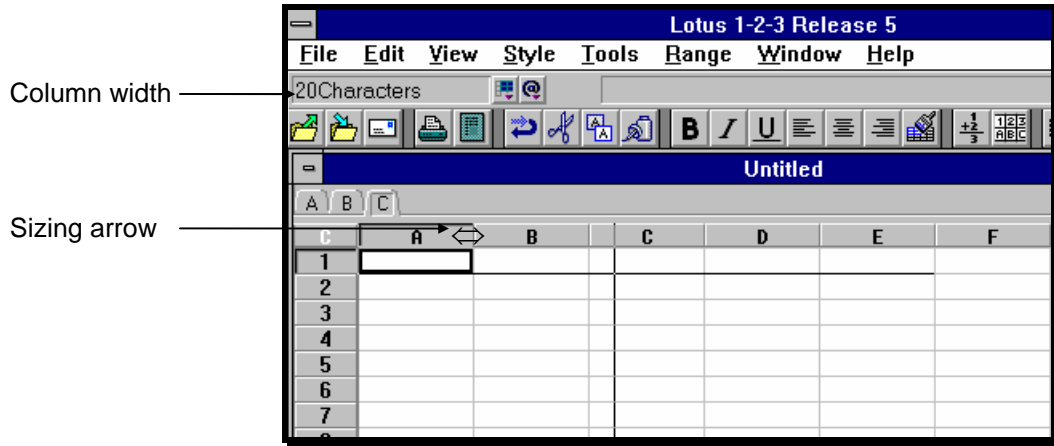


Figure 7: Column width in cell address box

3. Click on the [B] sheet tab.  
*The A column width has been increased.*
4. Click on the [A] sheet tab.  
*The A column width has been increased.*

## Wrap Text in a Cell

Two of the column headings which we will add to the individual worksheets will require that the text “wrap” onto two lines. In this exercise, you will use the wrap text feature so it will be duplicated onto all the worksheets.

1. Click on cell **B1** to activate it.
2. Type **Number Sold**.  
*The full text does not fit in the column width.*
3. Select **Style** from the menu bar.
4. Choose **Alignment...** from the list.  
*The Alignment dialog box opens.*

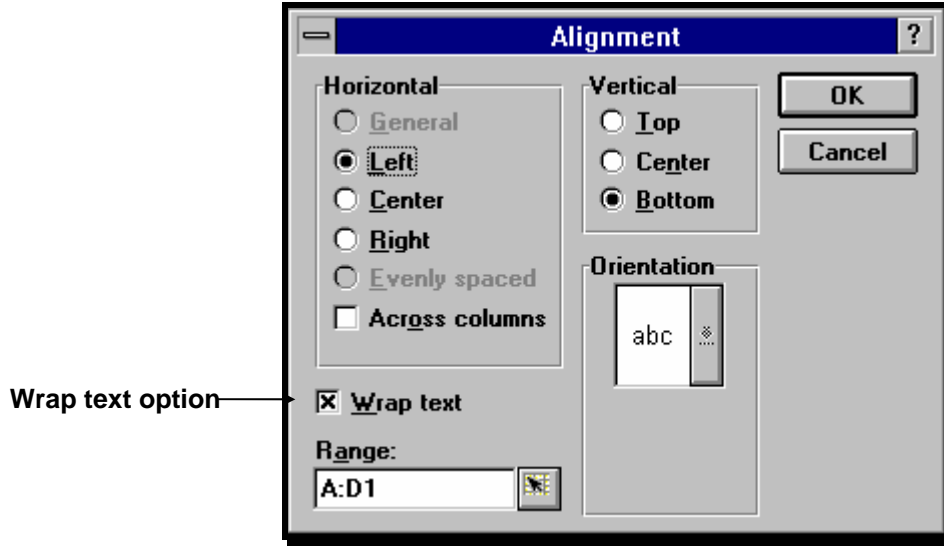


Figure 8: Alignment dialog box

5. Click once on the **Wrap text** check box.
  6. Click [OK].
- All the cells in Row 1 increase in height on all the worksheets. Notice that the text itself does not duplicate.*

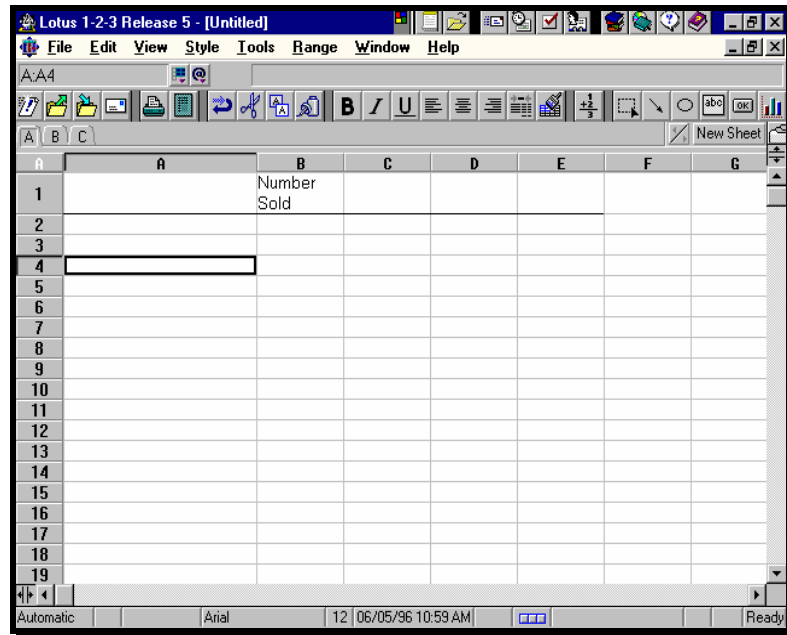


Figure 9: Newly aligned text

## New Sheet Formats

Another nice feature of Group Mode is the ability to carry forward any Style formats to a new sheet once it is inserted.

1. Click the [**New Sheet**] tab.  
*A worksheet [D] is added to the group.*
2. Notice that Column A is 20 characters wide and the line is added to cells **A1..E1**.
3. Click the [**New Sheet**] tab.  
*A new sheet [E] is added to the group.*
4. Increase the width of column E to 12 characters.  
*All worksheets are updated with the change.*
5. Increase the width of column D to 12 characters.

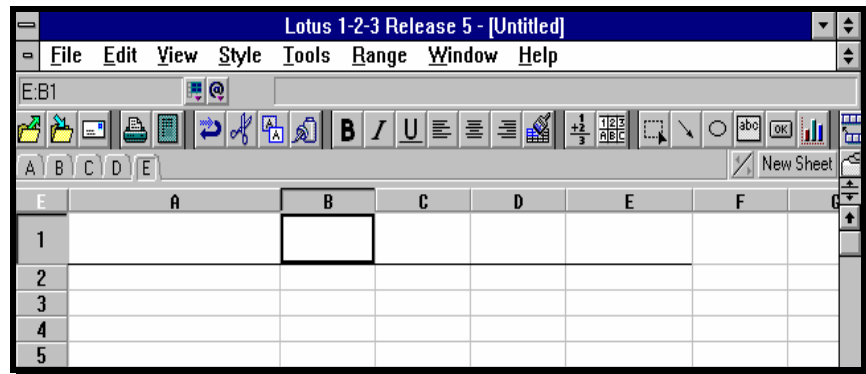


Figure 10: Formatted sheets in Group Mode

## Remove Group Mode

There are times when Group Mode needs to be turned off. When you are making changes to one worksheet and do not wish to affect the others, it will be necessary to remove Group Mode.

1. Select **Style** from the menu bar.
2. Choose **Worksheet Defaults...** in the list.
3. Click the check box for **Group Mode**.  
*The check mark is removed from the box.*
4. Click [**OK**].  
*The prompt **Group** is removed from the Status Bar.*

## Rename Sheets

Sheet tabs do not have to be identified by alphabetical characters. They can be renamed with any label up to 24 characters.

1. Double-click on the [A] sheet tab.  
*The tab expands and a blinking cursor appears.*
2. Type **Week 1**.
3. Press <Enter>.  
*The sheet tab has been renamed **Week 1**.*

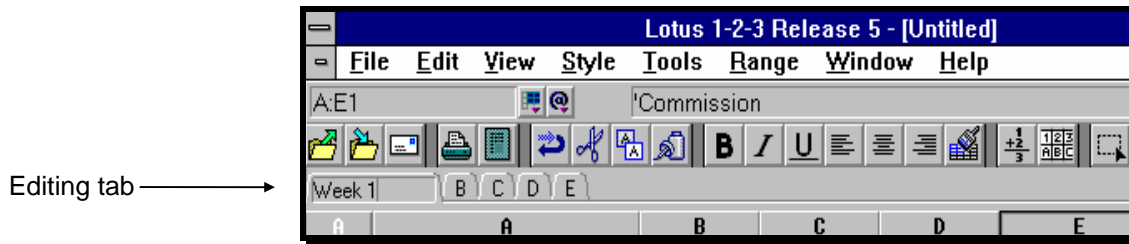


Figure 11: Sheet tab in edit mode

4. Rename the [B] tab **Week 2**.
5. Rename the [C] tab **Week 3**.
6. Rename the [D] tab **Week 4**.
7. Rename the [E] tab **Week 5**.

## Create worksheets

It is time to create the first Weekly Sales Report on worksheet A. Text and numbers are not automatically duplicated with Group Mode. It is necessary to use the copy feature to duplicate text onto multiple spreadsheets.

1. Click on worksheet tab [Week 1].
2. Create the spreadsheet as shown in Figure 12.

	A	B	C	D	E
1	Computer Games	Number Sold	Cost	Dollar Sales	Commission
2	Starflight	20	49.95	+Week 1:B2*	Week 1:C2
3	Professional Golf	18	35.95		
4	NFL Today	15	25.95		
5	Chess Tutor	18	19.95		
6					

Figure 12: Sales formula with worksheet name

- In the **Dollar Sales** column, create a formula to multiply **Number Sold** by **Cost**.

*Notice that in the formula, the worksheet name **Week 1** appears in front of the cell addresses as shown in Figure 12.*

- For the **Commission** column, multiply the **Dollar Sales** column by 10%.

*Notice that **Week 1** is added in front of the cell address as shown in Figure 13.*

The screenshot shows the Lotus 1-2-3 Release 5.0 interface. The active cell is A:E2, containing the formula `+Week 1:D2*10%`. The worksheet has five columns: A (Product Name), B (Number Sold), C (Cost), D (Dollar Sales), and E (Commission). The data for the first five rows is as follows:

	A	B	C	D	E
1	Computer Games	Number Sold	Cost	Dollar Sales	Commission
2	Starflight	20	49.95	999	+Week 1:D2*10%
3	Professional Golf	18	35.95		
4	NFL Today	15	25.95		
5	Chess Tutor	18	19.95		
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

**Figure 13: Commission Formula with worksheet name**

- Format both the **Dollar Sales** and **Commission** cells for **US Dollar**.
- Use Range Fill to copy the formulas down the **Dollar Sales** and **Commission** columns.  
*Notice the US Dollar format also copies with the formulas.*
- Create a **TOTALS** row in row 7.
- Use the **SUM** button on the Toolbar to create totals for the **Number Sold**, **Dollar Sales** and **Commission** columns.
- Compare your worksheet to Figure 14.

	A	B	C	D	E
1	Computer Games	Number Sold	Cost	Dollar Sales	Commission
2	Starflight	20	49.95	\$999.00	\$99.90
3	Professional Golf	18	35.95	\$647.10	\$64.71
4	NFL Today	15	25.95	\$389.25	\$38.93
5	Chess Tutor	18	19.95	\$359.10	\$35.91
6					
7	TOTALS	71		2394.45	2394.45
8					
9					

Figure 14: Completed worksheet

10. Save the file as **SALES**.

## Copy to Multiple Sheets

The first week's sales report has been generated. In this exercise, you will copy the text and formulas to the other worksheets.

1. Select cells **A1..E7**.
2. Click the **Copy** SmartIcon on the Toolbar.
3. Click on the **Week 2** tab.
4. Click on cell **A1** to activate it.
5. Click the **Paste** SmartIcon on the Toolbar.  
*All of the text and formulas are copied to the **Week 2** sheet.*
6. Click on the **Week 3** tab.
7. Click the **Paste** SmartIcon on the Toolbar.  
*All of the text and formulas are copied to the **Week 3** sheet.*
8. Repeat the paste procedure to copy to Weeks 4 and 5.
9. Save the file.

## Edit Data on Sheets

The sales figures will be different for each week, so it is necessary to change the **Units Sold** for Weeks 2 - 5. This will require that each individual sheet be edited.

1. Click on the **Week 2** sheet tab.
2. Enter the following sales numbers for **Units Sold**.  
*Notice the **Dollar Sales** and **Commissions** totals update as the units sold are entered.*

Starflight	10
Professional Golf	12
NFL Today	14
Chess Tutor	16

3. Click on the **Week 3** sheet tab.
4. Enter the following sales numbers for **Units Sold**.

Starflight	15
Professional Golf	17
NFL Today	10
Chess Tutor	12

5. Click on the **Week 4** sheet tab.
6. Enter the following sales numbers for **Units Sold**.

Starflight	22
Professional Golf	15
NFL Today	17
Chess Tutor	11

7. Click on the **Week 5** sheet tab.
8. Enter a **0** for **Units Sold** for each game since there was not a 5th week during this month.  
*All of the formulas return \$0.00.*
9. Save the file.

## Fast Format



The Totals in Row 7 on each worksheet were never formatted for US Dollars. This exercise will use the **Fast Format** SmartIcon to rapidly copy the US Dollar format to each sheet.

1. Click on the **Week 1** sheet tab.
2. Turn on **Group Mode**
3. Select cell **D5**.
4. Click once on the **Fast Format** SmartIcon (the paintbrush).

	A	B	C	D
1	Computer Games	Number Sold	Cost	Dollar Sales
2	Starflight	20	49.95	\$999.00
3	Professional Golf	18	35.95	\$647.10
4	NFL Today	15	25.95	\$389.25
5	Chess Tutor	18	19.95	\$359.10
6				
7	TOTALS	71		\$2,394.45
8				

Figure 15: Fast Format SmartIcon

5. Move the mouse pointer into the body of the worksheet.  
*Notice the pointer has changed to a paintbrush.*
6. Select cells **D7..E7** with the paintbrush pointer.  
*The US Dollar format is automatically applied.*
7. Press the <Esc> key to turn off Fast Format.
8. Click on the **Week 2** sheet tab.  
*Formatting has been applied to cells E7..D7.*
9. Save the file.

## Cumulative Formulas

Formulas can be created to perform calculations using multiple worksheets. These formulas use an expanded range address which indicates the source sheet as well as the cell address. Just like formulas which are created in one worksheet, these formulas will automatically update when a change is made to any of the source sheets.

In this exercise, you will add a new sheet to the existing file which will serve as a cumulative report for all five weeks.

1. Click on the **Week 5** sheet tab.
2. Click on the [**New Sheet**] button.  
*Compare your sheet to Figure 17.*

F	A	B	C	D	E
1	Computer Games	Number Sold	Cost	Dollar Sales	Commission
2	Starflight	0	49.95	\$0.00	\$0.00
3	Professional Golf	0	35.95	\$0.00	\$0.00
4	NFL Today	0	25.95	\$0.00	\$0.00
5	Chess Tutor	0	19.95	\$0.00	\$0.00
6					
7	TOTALS	0		\$0.00	\$0.00
8					

Figure 17: New Week 6 sheet

3. Save the file.

## Create Formulas

The **Number Sold** column for Week 6 should be a total of all the games sold during the month. In this exercise, you will create formulas which will add the totals from all 5 of the existing sheets.

1. Click once on the **Week 6** sheet tab.
2. Click on cell **B2** to activate it.
3. Press the <+> key to begin a formula.

4. Click on the **Week 1** sheet tab.  
*The cursor activates cell B2 and the cell address Week1:B2 appears in the formula text box.*

	A	B	C	D	E
1	Computer Games	Number Sold	Cost	Dollar Sales	Commission
2	Starflight	20	49.95	\$999.00	\$99.90
3	Professional Golf	18	35.95	\$647.10	\$64.71
4	NFL Today	15	25.95	\$389.25	\$38.93
5	Chess Tutor	18	19.95	\$359.10	\$35.91
6					
7	TOTALS	71		\$2,394.45	\$2,394.45
8					

Figure 18: Cell B2 activated

5. Press the <+> key.
6. Click on the **Week 2** sheet tab.  
*The cursor automatically activates cell B2 and the cell address Week 2:B2 appears in the formula.*
7. Press the <+> key.
8. Click on the **Week 3** sheet tab.
9. Press the <+> key.
10. Click on the **Week 4** sheet tab.
11. Press the <+> key.
12. Click on the **Week 5** sheet tab.
13. Press <Enter>.  
*The number 67 appears in cell B2 on the Week 6 sheet.*
14. Use the Range Fill handle to copy the formula down the **Number Sold** column.  
*The total Number Sold on Row 7 should be 242.*
15. Save the file.

## Update formulas

In this exercise you will change the data on one of the source sheets and see how it affects the cumulative formulas on the Week 6 sheet.

1. Click on the **Week 1** sheet tab.
2. Change the **Number Sold** for **Starflight** to **25**.  
*The total **Number Sold** for **Week 1** is updated to **76**.*
3. Click on the **Week 6** sheet tab.  
*The total **Number Sold** has been updated to **247**.*
4. Save and close the file.

# Section 1

## Summary Exercises

### Part 1

#### Multiple worksheets

1. Open **FLAVORS.WK4**.
2. Add three new worksheets.
3. Using Group Mode, apply the styles as shown in the Figure below.
4. Name the sheets Week 1, Week 2, Week 3 and Week 4.
5. Add a new worksheet and name it Total Sales.
6. Copy all text and formulas from Week 1 to the other sheets.
7. Create formulas on the Total Sales sheet to add all the sales from each weekly sheet.

The screenshot shows a Lotus 1-2-3 spreadsheet with the following data:

Flavor	January	February	March	Total	Average
Vanilla	652	764	732	2148	716
Chocolate	616	696	792	2104	701.3333
Strawberry	508	448	588	1544	514.6667
Peach	128	164	188	480	160
<b>Total</b>	<b>1904</b>	<b>2072</b>	<b>2300</b>	<b>6276</b>	<b>2092</b>

8. Save the file and close it.

## Part 2

### Quick Quiz

1. To add a new worksheet, click on the \_\_\_\_\_ button beneath the Toolbar.
2. To turn on Group Mode, choose the \_\_\_\_\_ pull-down menu options, then click on the \_\_\_\_\_ check box.
3. When Group Mode is enabled, \_\_\_\_\_ are automatically updated to all sheets.
4. Formulas which add figures from several different worksheets must reference the \_\_\_\_\_ as well as the cell address.

# Section 2

## Advanced Formulas

### Using Standard Functions

Functions are built-in formulas which are included with the Lotus 1-2-3 application. The most commonly used @functions include @SUM, @AVG, @MIN, @MAX, @COUNT and @IF. You have already worked with some of these functions when you learned basic Lotus formulas. This section will review basic averages, minimums, maximums and if statements.

#### @AVG Function

The @AVG function will calculate the average for a group of cells with numeric entries. In this first exercise, you will use the @AVG function to calculate the average GPA for a group of students.

1. Open **STATS.WK4**.
2. Save as **STATS2.WK4**.
3. In cell **A15**, enter **Average GPA**.
4. Press <Tab>.
5. In cell **B15**, enter the following formula:  
**@AVG(G2..G12)**
6. Press <Enter>.
7. Widen column A to accommodate the new data.
8. Save the file.
9. Compare your screen with Figure 18:

	A	B
1	<u>Last Name</u>	<u>First Name</u>
2	Barton	Beverly
3	Calhoun	Karen
4	Davis	Bob
5	Davis	Steve
6	Hallen	Sue
7	Jenkins	Ted
8	Kenner	Bille
9	Kenner	Fred
10	Mullens	Diane
11	Stevens	Thomas
12	Vales	Victor
13		
14		
15	Average GPA	3.3272727

Figure 18: Grade Point Average

## @MIN Function

The @MIN function will select the minimum value from a group of cells containing numeric entries. In this exercise, you will use the @MIN function to calculate the minimum GPA for the same group of students.

1. Click cell **A16**.
2. Enter **Minimum GPA**.
3. Press <Enter>.
4. In cell **B16**, enter the following formula:  
**@MIN(G2..G12)**
5. Press <Enter>.  
*The result is 2.8.*
6. Save the file.

## @MAX Function

The @MAX function will select the maximum value from a range of cells containing numeric entries. In this exercise, you will use the @MAX function to derive the maximum GPA.

1. Click cell **A17**.
2. Enter **Maximum GPA**.
3. Press <Enter>.
4. In cell **B17**, enter the following formula:  
**@MAX(G2..G12)**
5. Press <Enter>.  
*The result is 3.9.*

## @COUNT Function

The @COUNT function allows you to count the number of data entries contained within a range of cells. In this exercise, you will use @COUNT to calculate the number of graduates in the G column.

1. Click cell **A18**.
2. Enter **Number of Graduates**.
3. Press <Enter>.
4. In cell **B18**, enter the following formula:  
**@COUNT(G2..G12)**
5. Press <Enter>.  
*The result is 11.*
6. Adjust column A width, as necessary.
7. Save the file and leave open for the next exercise.



**NOTE:** @COUNT will count numeric entries and/or label entries in cells.

## Using Database Functions in Lists

It would be convenient to identify the number of 1988 graduates who are employed as well as to calculate the average GPA of these employed graduates. When you need to meet multiple criteria, you will use database statistical formulas. These formulas search the entire database or data table and perform calculations on a specified field. In this scenario, you will use the **@DCOUNT** function. First you will define your criteria in blank cells; then you will enter the formula.

### @DCOUNT Function

The @DCOUNT function will count all entries in the specified field. Following is the syntax for the function: It will be necessary to define a criteria range on the worksheet in order for the database function to calculate correctly.

@DCOUNT(database,"column label",criteria range)

**Database** - The entire list, including column labels

**Column label** - Label of the column being considered

**Criteria range** - Cells where criteria are located.

In this exercise, you will create the Criteria Range. First, copy the column labels for the criteria in cells **E25** and **F25**, as shown below:

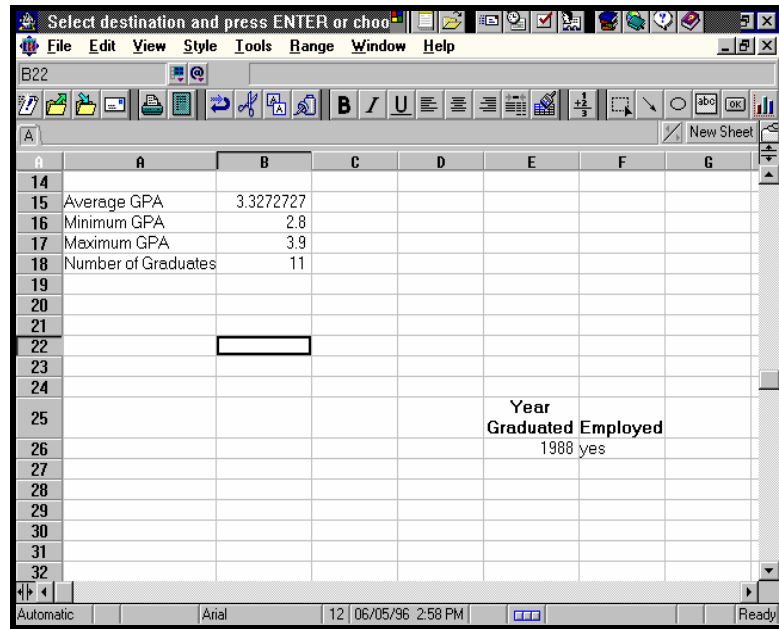


Figure 19: @DCOUNT criteria

1. Copy the column headings from cells **E1** and **H1** to **E25** and **F25**.
2. Adjust column widths, as necessary.
3. In cell **E26**, enter **1988**.
4. In cell **F26**, enter **Yes**.
5. Click cell **A19** and enter **No. of 1988 Grads Who are Employed**.
6. Press **<Enter>**.
7. Wrap text in cell **A19**.
8. Click on cell **B19** to activate it.
9. Enter the following formula:  
`@DCOUNT(A1..H12,"Employed",E25..F26)`
10. Press **<Enter>**.

*The result is 2.*

**A1..H12** - Database range including column labels

**"Employed"** - Column where count will be calculated

**E25..F26** - Cells where criteria are located

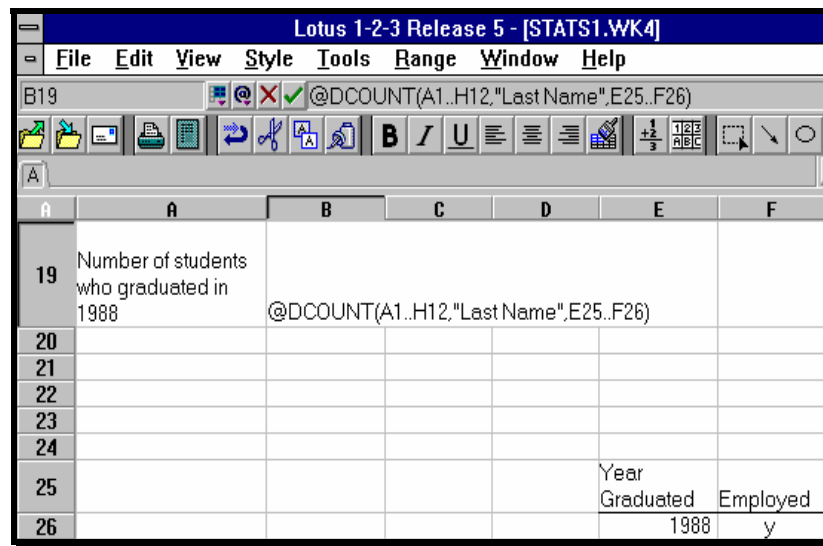


Figure 20: @Dcount formula

## @DAVG Function

The @DAVG function will search a database and calculate an average for records which meet the stated criteria. Now you will write a formula to calculate the average GPA for the 1988 graduates who are employed.

The @DAVG function will average all entries in the specified range. Following is the syntax for the @AVG function:

@DAVG(database,"column label",criteria range)

**Database** - The entire database, including column labels

**Column label** - Label of the column being considered

**Criteria range** - Cells where criteria are located.

1. Click cell **A20** and enter **Average GPA for Employed 1988 Grads**.
2. Press **<Enter>**.
3. Wrap text in cell **A20**.
4. Click on cell **B20** to activate it.
5. Enter the following formula:  
**@DAVG(A1..H12,"GPA",E25..F26)**
6. Press **<Enter>**.  
*The result is 3.1.*
7. Compare your screen with the one below:

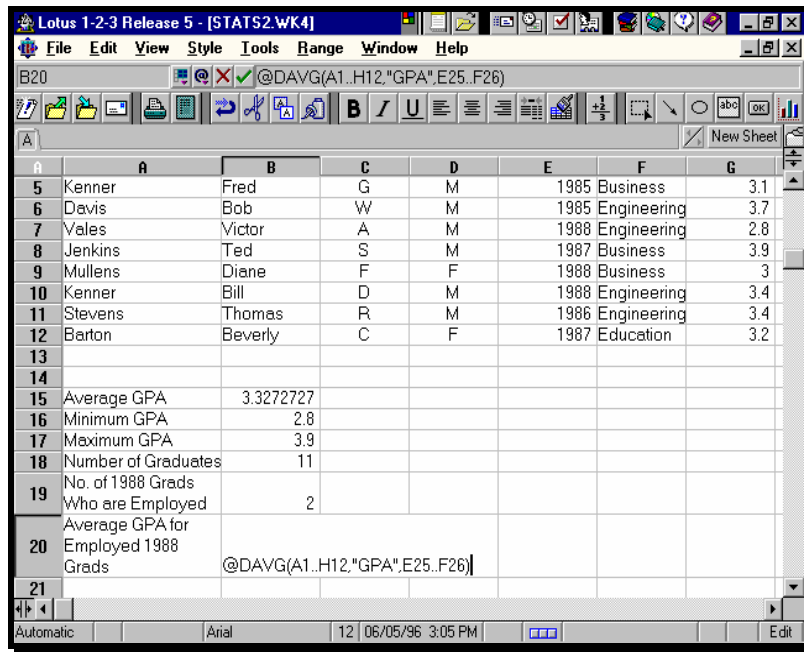


Figure 21: @DAVG formula

8. Save and close the file.

## @IF Formulas

An @IF formula allows you to specify a logical comparison for numeric values. @If statements are commonly used to test a criterion or to select only values that meet a particular criterion.

An If statement is composed of three sections:

**If** - the logical comparison

**Then** - the calculation to be performed if the comparison is true

**Else** - the calculation to be performed if the comparison is false

In the figure below, there is an “ERR” message resulting from the division formula. The formula is dividing the value in **B1 (20)** by the value in **C1 (0)**. Since division by 0 is numerically undefined, Lotus responds with an error message.

A	A	B	C	D	E
1		20	0	ERR	
2		40	1	40	
3		50	2	25	
4		10	3	3.333333	
5		80	4	20	
6		75	5	15	
7		12	0	ERR	
8		23	1	23	
9		33	2	16.5	
10		56	3	18.66667	
11		89	4	22.25	
12		45	5	9	
13		23	0	ERR	
14					

Figure 22: Error message

Here is an example of an If statement to test the value of cell **B1** to see if it is greater than 0. If so, the division will be performed; if not, the value of “0” will be returned in the cell.

@IF(C1>0, B1/C1, “0”)

Now look at the same row of figures with the new formula copied down the column:

A	B	C	D	E	F
1		20	0	0	
2		40	1	40	
3		50	2	25	
4		10	3	3.333333	
5		80	4	20	
6		75	5	15	
7		12	0	0	
8		23	1	23	
9		33	2	16.5	
10		56	3	18.66667	
11		89	4	22.25	
12		45	5	9	
13		23	0	0	
14					

Figure 23: New formula copied down column

1. Open the file **CUSTSAL1.WK4**.
2. Click on cell **F1**.
3. Type **Goal**.
4. Press **<Enter>**.
5. Press the **G** (underline) SmartIcon on the toolbar.
6. Click on cell **F2**.
7. Type the formula **@IF(E2>100,"MET",")**.

A	B	C	D	E	F	G
Name	Product	Units Sold	Date Sold	Sales	Goal	
Office Services	Copy Paper	24	06/15/95	119.76	@IF(E2>100,"MET",")	
Office Services	Copy Paper	24	06/23/95	119.76		
Office Services	FAX Paper	10	02/15/96	39.9		
Office Services	FAX Paper	10	09/25/95	39.9		
& Jones	Copy Paper	24	11/26/95	119.76		
& Jones	Typing Pap	10	06/15/95	25		
& Jones	Typing Pap	4	05/10/96	10		
Brothers	Copy Paper	24	04/19/96	119.76		
Brothers	Copy Paper	24	08/23/95	119.76		
Brothers	Copy Paper	24	12/15/95	119.76		
Brothers	FAX Paper	10	01/29/96	39.9		
Brothers	FAX Paper	10	07/23/95	39.9		
Brothers	FAX Paper	10	03/16/96	39.9		
Brothers	Typing Pap	4	01/15/96	10		
Brothers						

Figure 24: Worksheet with formula

8. Press **<Enter>**.  
*The word **MET** appears in cell **E2**.*
9. Use the Range Fill handle to copy the formula down the column.  
*There are 6 sales that were over \$100.*

## Section 2

### Summary Exercises

#### Part 2 Functions

1. Open the file **AVGSLS.WK4**.
2. Create a formula in column F to get the **Total Sales**.
3. Use the **Range Fill** to copy the formula down.
4. Create a formula in column G for the **Quarterly Average** for each salesperson.
5. Use the **Range Fill** to copy the formula down.
6. Create a formula in cell **B9** to show the maximum quarterly sales.
7. Create a formula in cell **B10** to show the minimum quarterly sales.
8. Create an **@IF** formula that will say, "If the Total Sales is greater than 250000, then put the words "Great Job!" in the cell, if not, put the words "Keep Trying" in the cell.
9. Save and close the **AVGSLS.WK4** file.

#### Part 2 Quick Quiz

1. What are two examples of standard functions?  
\_\_\_\_\_
2. To count cells that contain labels (words), use the \_\_\_\_\_ function.
3. To generate an average of certain cells within a data table, use the formula \_\_\_\_\_.
4. To generate a sum of certain cells within a data table, use the formula \_\_\_\_\_.
5. In order to utilize data statistical formulas, it is necessary to set up cells that contain a \_\_\_\_\_ somewhere on the worksheet separate from the data table itself.

## Notes:

# Section 3

## Macros

Macros permit keyboard sequences to be stored and automated so everyday operations can be repeated or greatly speeded up with a single click to a macro button.

A macro is a collection of letters and symbols that is key-entered directly from the keyboard. Because these symbols are entered as labels on the spreadsheet, they are retained when the spreadsheet is saved. They become part of the file and are available for repeated use.

### Create a Macro

There are three steps required to create a Lotus macro. The first step is to enter the keystrokes while Lotus records them. The second is to copy the recorded keystrokes from the macro transcript sheet to the active worksheet. The third is to create a macro button.

In this exercise, you will create a macro to select an entire worksheet.

1. Open the file **WEEKTOTL.WK4**.
2. Select the sheet tab **CD ROMS**.
3. Choose **T**ools from the menu bar.
4. Select **M**acro.

*A second list of macro options appears.*

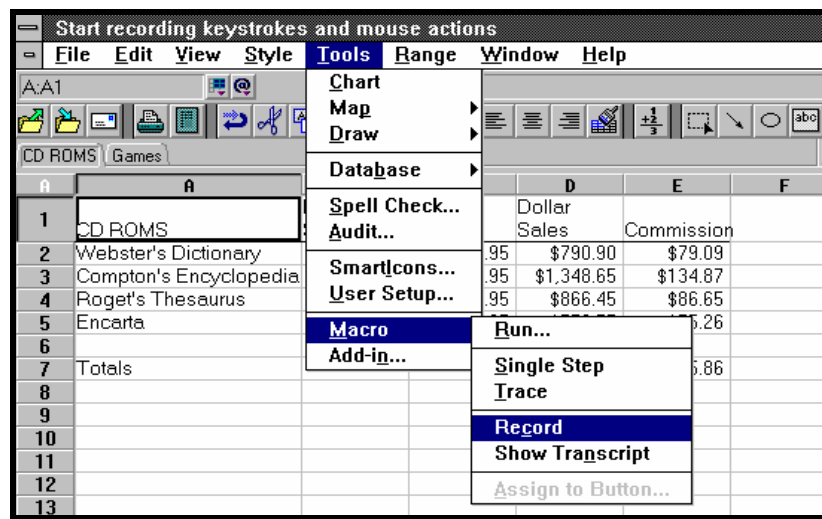


Figure 25: Tools Macro menu options

5. Select **Record**.  
*The letters **Rec** appear on the status bar.*
6. Press the <**Home**> key.  
*The cursor is positioned in cell **A1**.*
7. Click and drag to select from cells **A1** to **E7**.
8. Select **T**ools from the menu bar.
9. Choose **M**acro.
10. Select **S**top **R**ecording from the macro options.

## Macro Transcript

The macro keystrokes have now been recorded by Lotus. The next step is to move the keystrokes from the “macro transcript” window to an empty location on the CD ROMS worksheet. In this way, the macro will be stored with the weekly totals file when it is saved.

1. Select **T**ools from the menu bar.
2. Choose **M**acro.
3. Select **S**how **T**ranscript from the macro options.  
*A macro transcript window opens and the totals file is placed in a tiled window.*

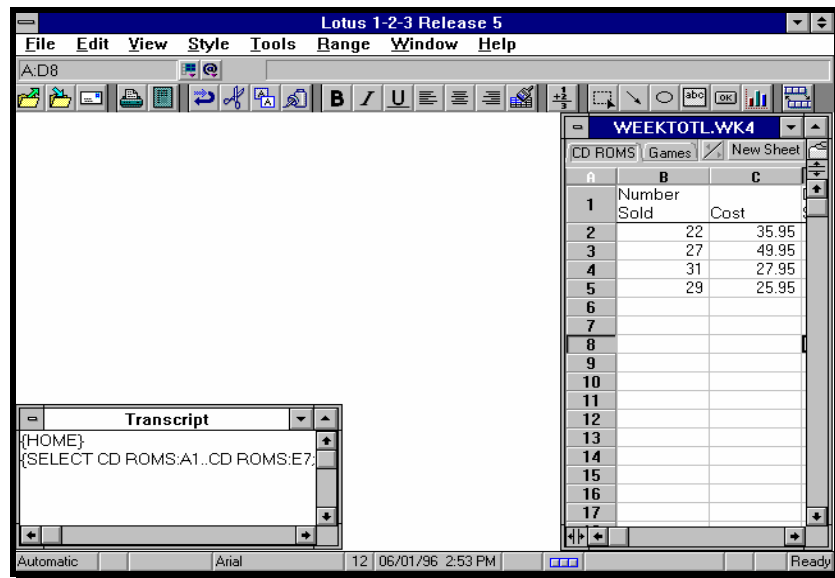


Figure 26: Macro transcript window

4. Notice the keystrokes that have been stored in the transcript window.

```
{HOME}
{SELECT CD ROMS:A1..CD ROMS:E7;CD ROMS:A1}
```

## Syntax

When a keyboard key is pressed in a macro, an abbreviation for the key is displayed in curly brackets or ellipses. So the <Home> key is displayed as {HOME}.

All recorded actions will be displayed within curly brackets. The <Enter> key is displayed as a tilde (~).

The macro record feature in Lotus takes care of the syntax for you. All you have to do is remember to turn on record before you start executing keystrokes.

## Add Macro To Sheet

With both the transcript window and the spreadsheet visible, it is easy to copy the macro keystrokes to the spreadsheet.

1. Click and drag to select all the keystrokes recorded in the **Transcript** window.
2. Click the **Copy** icon on the Toolbar.
3. Click on cell **F12** in the weekly spreadsheet.
4. Click the **Paste** icon on the Toolbar.

*The transcript keystrokes appear on the worksheet beginning in cell F12.*

A	D	E	F	G
1	Dollar Sales	Commission		
2	\$790.90	\$79.09		
3	\$1,348.65	\$134.87		
4	\$866.45	\$86.65		
5	\$752.55	\$75.26		
6				
7	\$3,758.55	\$375.86		
8				
9				
10				
11				
12			{HOME}	
13			{SELECT CD ROMS:A1..C}	
14				

Figure 27: Macro on worksheet

## Run A Macro

The macro is now a part of the worksheet and can be run at any time.

1. Click the maximize button on the **WEEKTOTL.WK4** sheet.
2. Click on cell **F12** to activate it.
3. Select **T**ools from the menu bar.
4. Choose **M**acro.
5. Select **R**un in the macro options.

*The **Macro Run** dialog box appears with **A:F12** displayed in the text box.*



Figure 28: Macro Run dialog box

6. Click on cell **F12** on the **CD ROMS** sheet.  
*The range name is updated to **CD ROMS:F12**.*
7. Click the **[OK]** button.  
*All the cells on the **CD ROMS** sheet are selected.*

## Assign a Macro Button

An easy way to run a macro is to create a macro button on the spreadsheet itself. When you click on the macro button, the macro executes.

1. Select **T**ools from the menu bar.
2. Choose **D**raw...
3. Select **B**utton from the bottom of the list.
4. Click cell **F10**.

*The Assign to Button dialog box appears.*

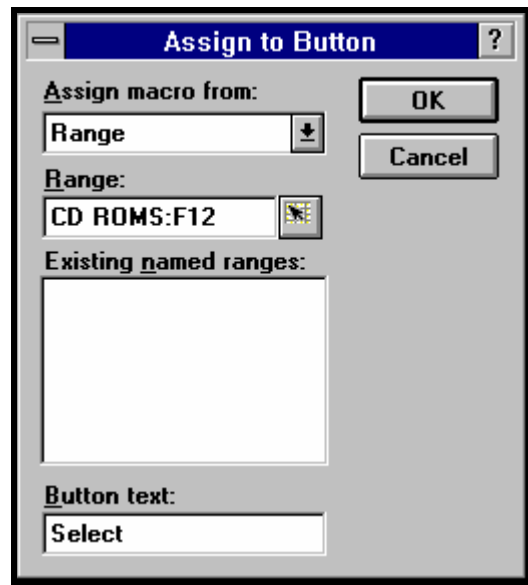


Figure 29: Assign to Button dialog box

5. Click on the list arrow for the **A**ssign macro from: text box.
6. Select **R**ange.  
*The Range text box opens.*
7. Click on the select arrow for the range text box.  
*The mouse pointer changes to a square select icon.*
8. Click on cell **F12** on the **CD ROMS** sheet.  
*The Range address CD ROMS:F12 appears in the text box.*
9. Double-click in the **B**utton text text box.
10. Type the button name **S**elect.
11. Click **[OK]**.  
*The mouse pointer changes to a crosshair.*
12. Click and drag from the top left of cell **F9** to the bottom right of cell **F10**.  
*A gray button appears in the cells with the word Select.*

B	C	D	E	F	G
Number Sold	Cost	Dollar Sales	Commission		
22	35.95	\$790.90	\$79.09		
27	49.95	\$1,348.65	\$134.87		
31	27.95	\$866.45	\$86.65		
29	25.95	\$752.55	\$75.26		
		\$3,758.55	\$375.86		
				Select	
				{HOME}	
				{SELECT CD ROMS:A1	

Figure 30: CD ROMS sheet with macro button

## Run a Button Macro

Once a macro has been assigned to a button, you click once on the button to run the macro.

1. Click the gray **Select** button.  
*The cells from A1 to E7 are selected on the CD ROMS sheet.*

## Edit a Macro Button

To edit a macro button, right click the button, then select the edit option you wish to use.

In the next exercise, we will delete the macro button.

1. Right click the button.
2. Choose **Clear...** from the menu.  
*The button has been deleted.*

## Section 3

### Summary Exercises

#### Part 1 Macros

1. Open the **WEEKTOTL.WK4** file.
2. Record a new macro that will go to cell **A12**, then type your name.  
(Remember to press **<Enter>** after you type your name.)
3. Add the macro keystrokes to the CD ROMS sheet in cell **F16**.
4. Delete your name from cell **A12**.
5. Run the macro that is displayed in cell **F16**.
6. Delete your name from cell **A12**.
7. Assign the macro that begins in cell **F16** to a button.
8. Draw the button in cells **F14..F15** and name it **NAME**.
9. Test the **NAME** button macro to see if it works.

C	D	E	F	G	H	I
Cost	Dollar Sales	Commission				
35.95	\$790.90	\$79.09				
49.95	\$1,348.65	\$134.87				
27.95	\$866.45	\$86.65				
25.95	\$752.55	\$75.26				
	\$3,758.55	\$375.86				
			Select			
			{HOME}			
			{SELECT CD ROMS:A1..CD ROMS:E7;CD ROMS			
			NAME			
			{EDIT-GOTO "a12";"RANGE"}			
			{CELL-ENTER "Pam Adams"}			

## Part 2

### Quick Quiz

1. A macro is a series of \_\_\_\_\_ that have been recorded.
2. Lotus contains a feature called the \_\_\_\_\_ that displays recorded keystrokes.
3. Click on \_\_\_\_\_ then use the \_\_\_\_\_ option to turn on the macro record feature.
4. To stop recording a macro, click \_\_\_\_\_ then \_\_\_\_\_ then \_\_\_\_\_.
5. To view the keystrokes which have been recorded, click on \_\_\_\_\_ then \_\_\_\_\_ then \_\_\_\_\_.
6. To run a macro, click on \_\_\_\_\_ then \_\_\_\_\_ then \_\_\_\_\_.
7. A macro can be assigned to a button by using the \_\_\_\_\_ menu options.
8. To use a macro button, point to the button with the mouse and \_\_\_\_\_.

## Section 4

# Sharing Data

Lotus 1-2-3 Release 5.0 provides the capability to share data with other applications, such as WordPerfect. This can be accomplished using the Copy and Paste functions or by using the Link feature.

## Copy from Lotus to Another Application

When you copy a range from Lotus to another application, you use the conventional method of Copy and Paste. You simply copy the range from the source file, then switch to the application and open the destination file that will receive the data, then paste the data into the destination file.

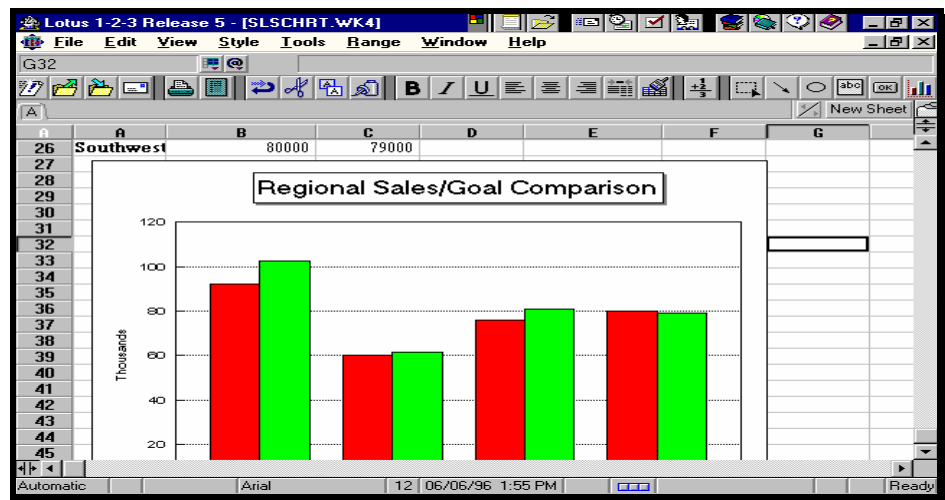
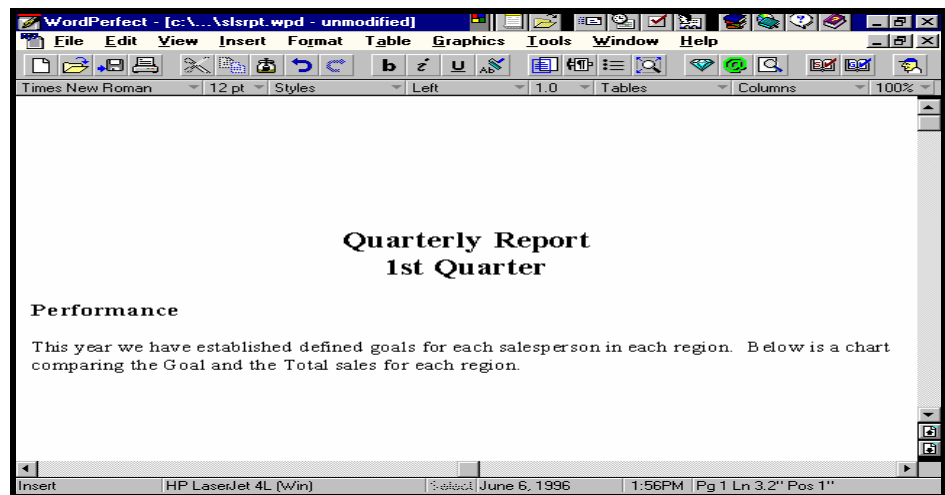


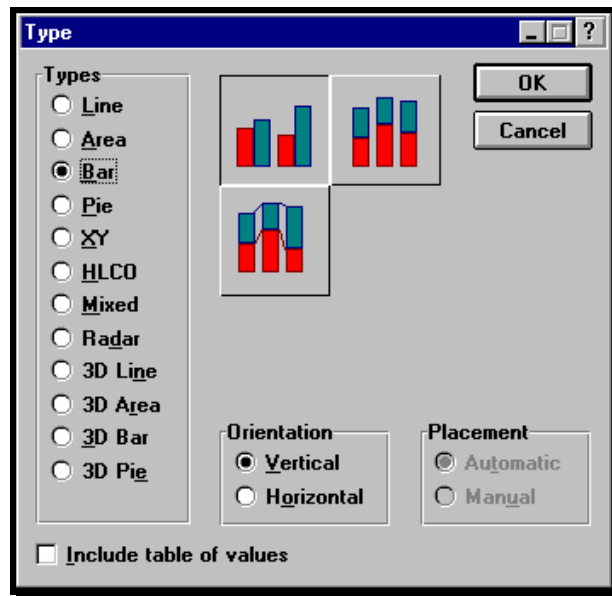
Figure 31: Source file



**Figure 32: Destination file**

When you use copy and paste to copy data, changes to the source document, will not be reflected in the destination document.

1. Open the file **SLSCHRT.WK4**.
2. Save the file as **SLSCHRT1.WK4**.
3. Scroll down to row 27.  
*A chart is visible.*
4. Click once on the chart to select it.
5. Click the **Copy** tool.
6. Switch to **Program Manager** (Hint: Use <Alt>< Tab> to switch).
7. Start WordPerfect 6.1.
8. Open the file **SLSRPT.WPD**.
9. Press <Ctrl><End> to place cursor at the end of the document.
10. Click the **Paste** tool.  
*The chart is placed in the WordPerfect document.*
11. Select **V**iew from the menu bar.
12. Choose **Z**oom...
13. Choose **F**ull Page.  
*The document is reduced to the full page view.*
14. Switch to Lotus.
15. Double-click the chart.  
*The Types dialog box is displayed.*



**Figure 33: Types dialog box**

16. In the **O**rientation section, select **H**orizontal.
17. Click <OK>.  
*The bars are now horizontal.*
18. Save the file.

19. Switch to WordPerfect.  
*The Bar Chart is still displayed as vertical.*

## **Delete the Copied Object**

It is easy to delete any object to selecting it, then pressing the **<Delete>** key on the keyboard.

1. Click once on the chart to select it.
2. Press **<Delete>**.  
*The Chart is deleted.*
3. Switch back to Lotus.

## Link 123 Worksheet Object to WordPerfect

Lotus 1-2-3 provides the capability to link an object on a worksheet to any word processing package that supports linking. The advantage of linking versus copying is that once you link the files, if the source document changes, the destination document will also change.

In the next exercise, we will link the chart from Lotus to WordPerfect.

1. Select the chart in the **SLSCHRT1.WK4** file.
2. Click the **Copy** tool.
3. Switch to WordPerfect.
4. Press **<Ctrl><End>** to position the cursor at the end of the document.
5. Select **E**dit from the menu bar.
6. Choose **P**aste Special.

*The Paste Special dialog box is displayed.*

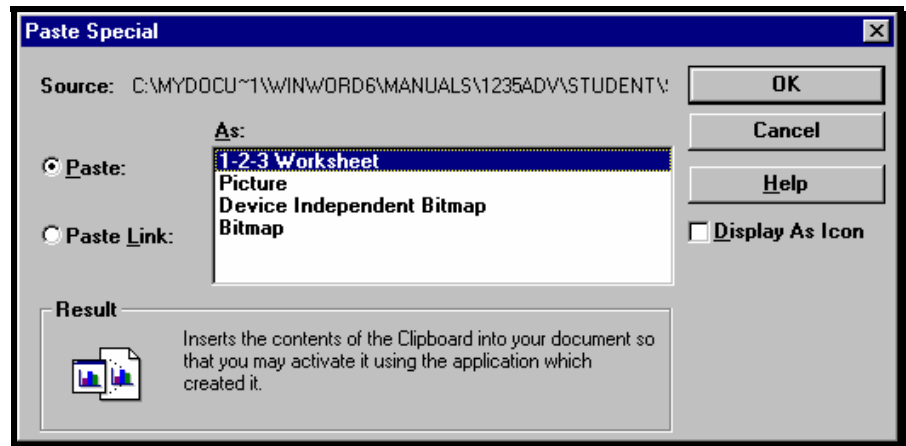


Figure 34: Paste Special dialog box

7. Click the **P**aste Link: option button.
8. Click **<OK>**.

*The chart is placed in the WordPerfect document.*

## Test the Link

The true test of a link is to edit the object in the source file (SLSCHRT1.WK4) and see if it updates in the destination file (SLSRPT1.WPD).

1. Switch to Lotus.
2. Double-click the chart.

*The **Types** dialog box is displayed.*

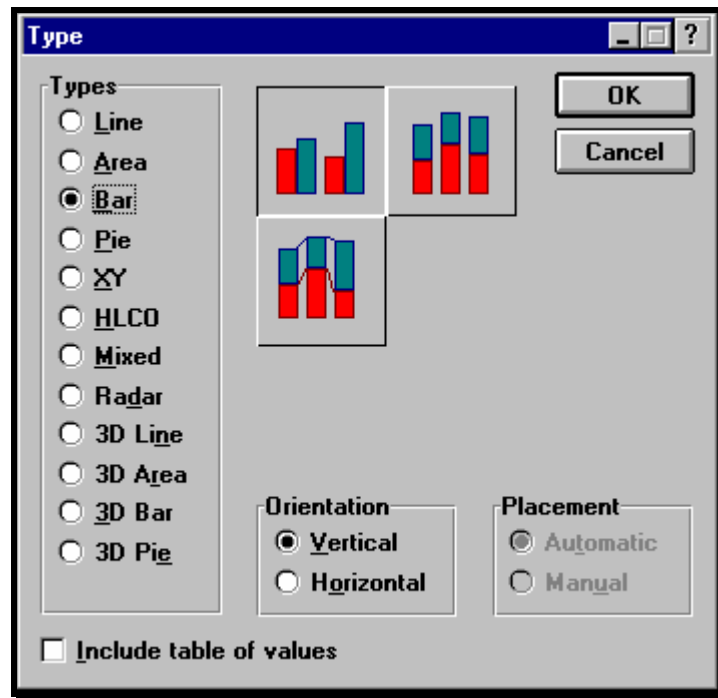


Figure 35: Types dialog box

3. In the **Orientation** section, select **V**ertical.
4. Click <OK>.  
*The bars are now vertical.*
5. Switch to WordPerfect.  
*The bars in the WordPerfect document are also vertical!*

## Link Worksheet Data

It is also possible to link data other than objects among applications. This can be accomplished using DDE, or Dynamic Data Exchange.

**Copy Paste Special** - This feature creates a link between the worksheet and WordPerfect. The linked data is treated as an object in WordPerfect. It will look exactly as it does in the spreadsheet.

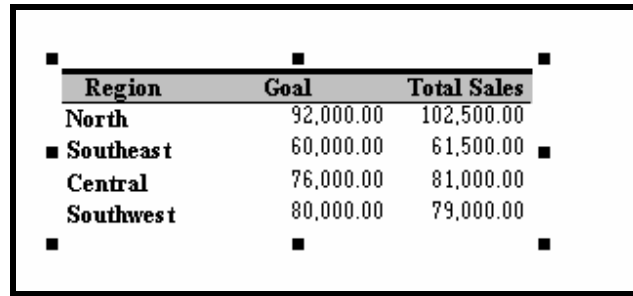
**DDE** - Dynamic Data Exchange creates a link between the worksheet and WordPerfect. The data in the worksheet should be named using the Range Name command. The linked data is treated as a table in WordPerfect and can be formatted once in WordPerfect.

In the next exercise, you will experiment with both methods.

### Link Data Using Paste Special

1. Switch to Lotus.
2. Select cells **A22** through **C26**.
3. Click the **Copy** tool.
4. Switch to WordPerfect.
5. Press **<Ctrl><End>** to position the cursor at the end of the document.
6. Select **E**dit from the menu bar.
7. Choose **P**aste **S**pecial.
8. Click the **P**aste **L**ink option button.
9. Click **<OK>**.

*Cells A22 through C26 are displayed (with formatting) in the WordPerfect document.*



Region	Goal	Total Sales
North	92,000.00	102,500.00
Southeast	60,000.00	61,500.00
Central	76,000.00	81,000.00
Southwest	80,000.00	79,000.00

**Figure 36: Linked object**

## Link Data Using DDE

1. Switch to Lotus.
2. Select cells **A22** through **C26**.
3. Select **R**ange from the menu bar.
4. Choose **N**ame.

*The Name dialog box is displayed.*



Figure 37: Name dialog box

5. Enter **GOAL** in the **Name:** text box.
6. Click **<OK>**.
7. Save the file.
8. Switch to WordPerfect.
9. Press **<Ctrl><End>** to position cursor at the end of the document.
10. Press **<Enter>** two times to leave blank lines.
11. Select **I**nsert from the menu bar.

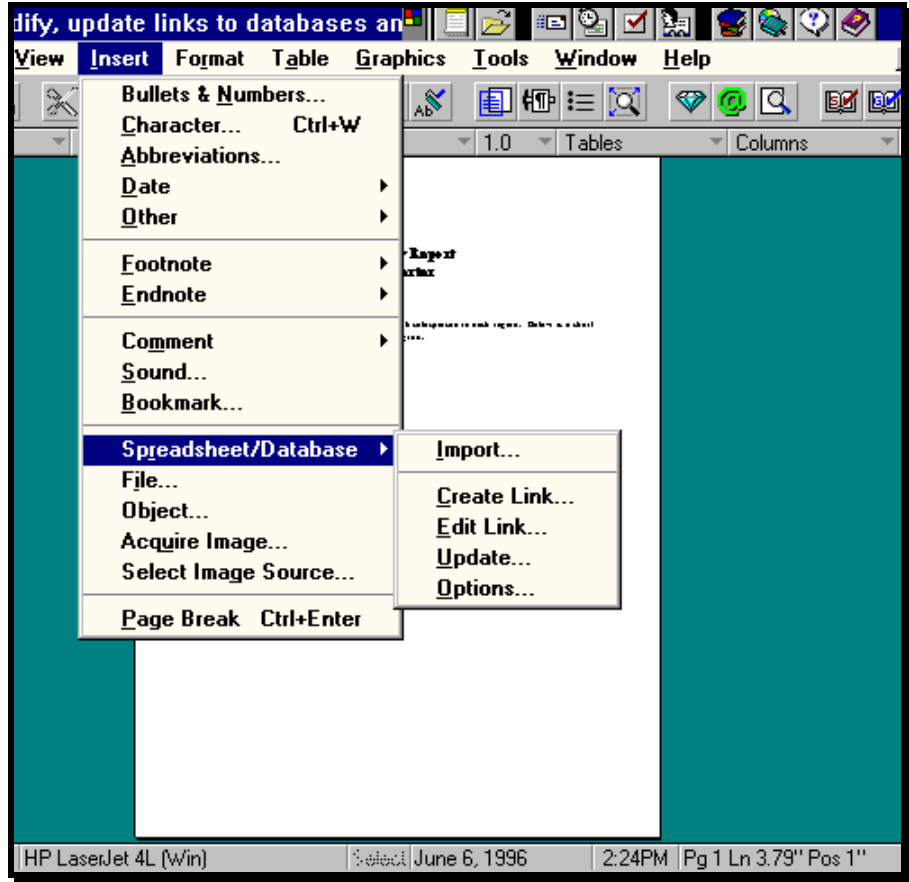


Figure 38: Insert menu

12. Choose **S**preadsheet/**D**atabase from the menu.
13. Choose **C**reate **L**ink from the cascaded menu.  
*The Create Data Link dialog box is displayed.*

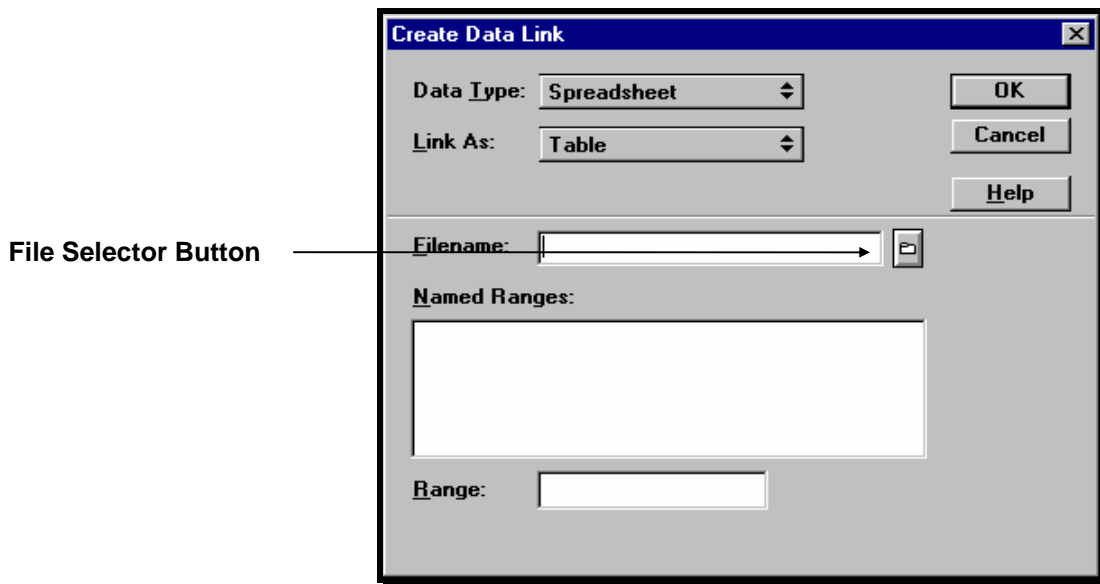


Figure 39: Create Data Link dialog box

14. Click the **File Selector** button.  
*The **Select File** dialog box is displayed.*

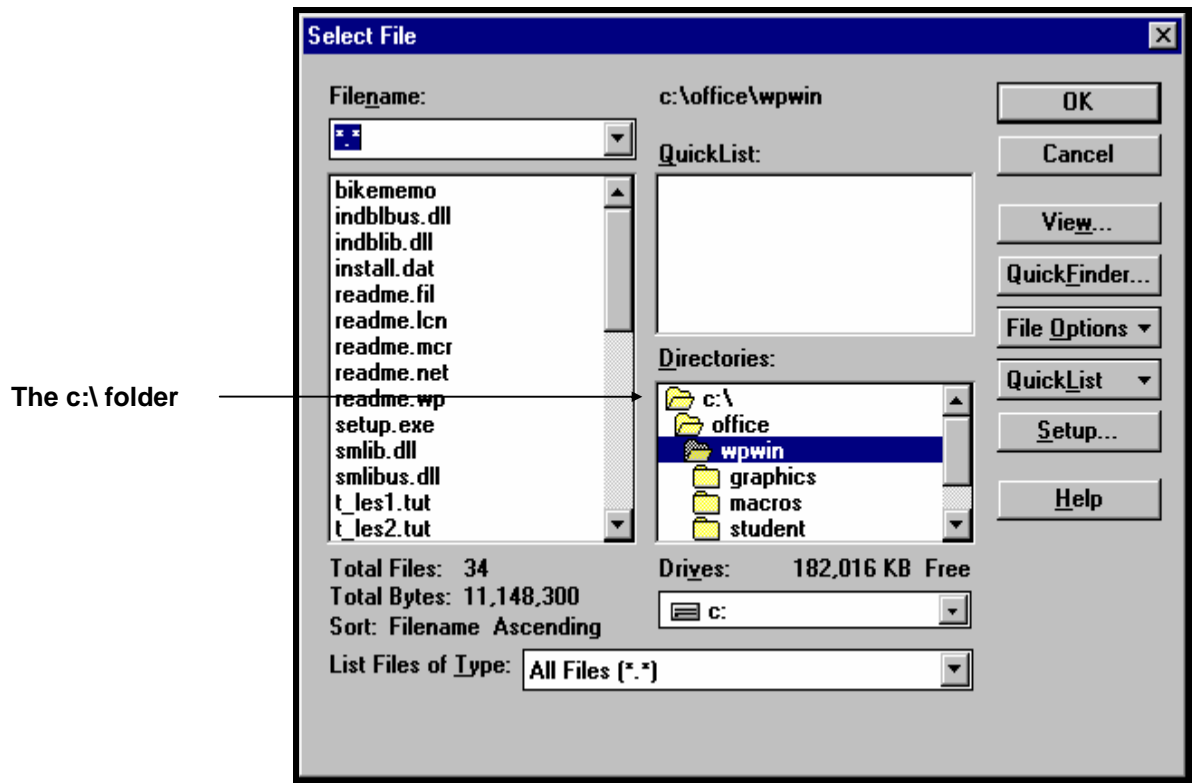


Figure 40: Select File dialog box

15. Double-click the **c:\** folder in the **Directories:** section.
16. Double-click the **123r5w** folder in the **Directories:** section.
17. Double-click the **work** folder in the **Directories:** section.
18. Double-click the **student** folder in the **Directories:** section.
19. Double-click the filename **SLSCHRT1.WK4**.
20. In the **Named Ranges** section, click on **GOALS**.

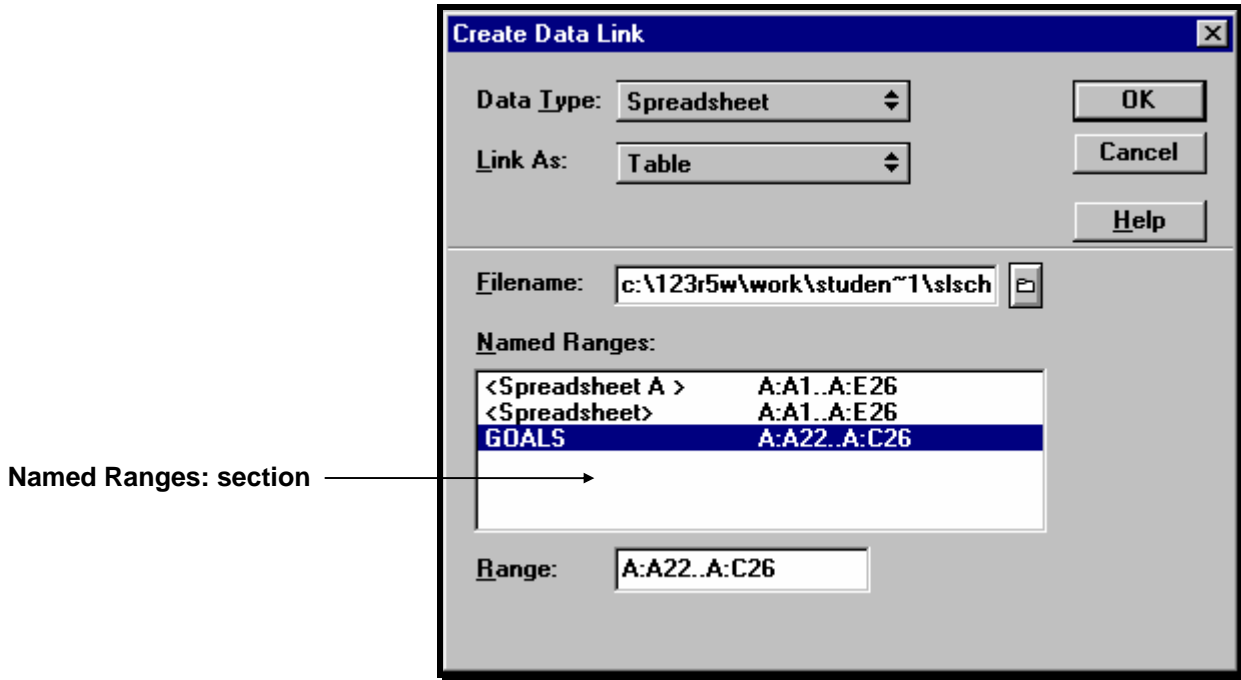


Figure 41: Create Data Link dialog box

21. Click <OK>.

*The data is placed in the WordPerfect document as a table with no formatting.*

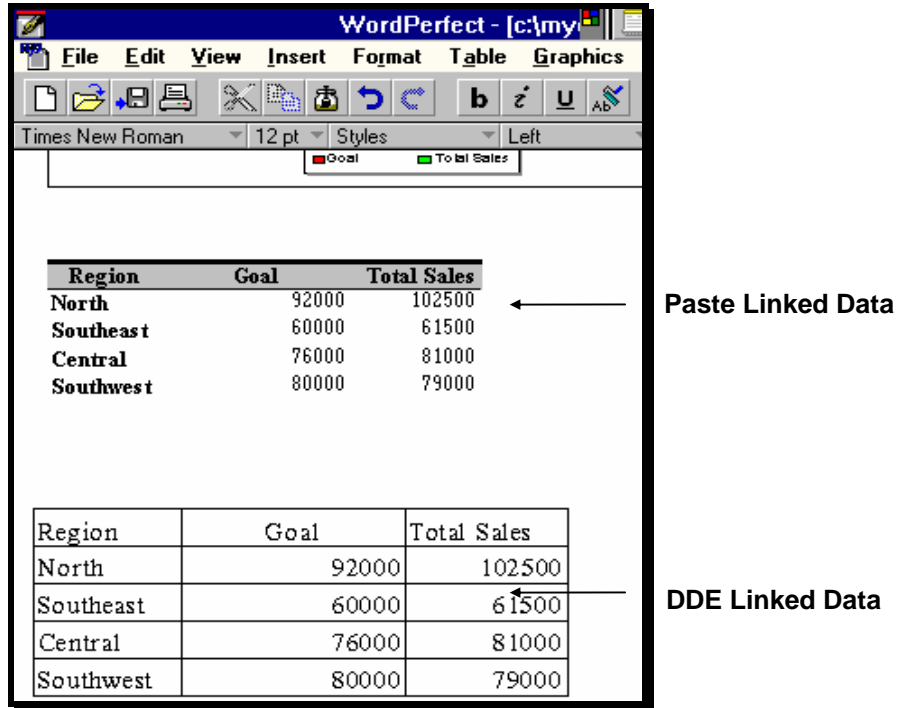


Figure 42: Linked data

22. Save the WordPerfect file.

## Modify Paste Linked Data

To modify data that has been linked using the Paste Special command, you double-click the data in the destination document. This activates the linked application which is Lotus in this scenario.

In the next exercise, you will modify the linked object.

1. Double-click the Paste Linked Object.  
*The source file (SLSCHRT1.WK4) is opened in Lotus 123.*
2. Select cells **B23** through **C26**.
3. Format the cells for **Commas**.
4. Switch to WordPerfect.  
*There are commas and two decimal places in the linked object in WordPerfect.*

## Modify DDE Linked Data

To modify a DDE link, go to the source file, make the changes, and save the file. Then go to the destination file, use the **I**nsert, **S**preadsheet/**D**atabase, **U**ppdate command to update the link.

In the next exercise, we will modify the data in the **SLSCHRT1.WK4** file, then update the links in the **SLSRPT1.WPD** file.

1. Switch to 123.
2. Double-click cell **A23**.
3. Change the entry to **Northeast**.
4. Save the file.
5. Switch to WordPerfect.
6. Select **I**nsert from the menu bar.
7. Choose **S**preadsheet/**D**atabase.
8. Choose **U**ppdate.  
*The Update dialog box is displayed.*

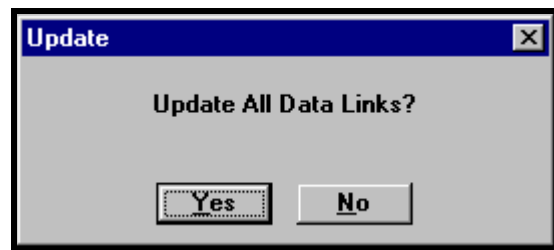


Figure 43: Update dialog box

9. Click [**Y**es].  
*The table is updated in WordPerfect.*

10. Save the file in WordPerfect.
11. Close the file in WordPerfect.
12. Save the file in Lotus.
13. Close the file in Lotus.



**NOTE:** Be sure the cursor is in the table before you execute the command to update the links.

## Section 4

### Summary Exercise

#### Part 1

#### Linking Objects

1. Open the file **AVGSLS1.WK4**.
2. Save as **AVGSLS2.WK4**.
3. Copy the chart.
4. Open WordPerfect.
5. Open the file **QTRCOMP.WPD**.
6. Press <Ctrl><End> to position cursor at end of the document.
7. Using the Paste Special command to paste the chart in the document.
8. Save the file.
9. Edit the chart type in the **AVGSLS2.WK4** file to be a **3D Bar** chart.
10. Review the change in the WordPerfect file.
11. Save and close both files.

#### Part 2

#### Quick Quiz

1. Sharing of data can be done using \_\_\_\_\_ and \_\_\_\_\_ functions, or by using the \_\_\_\_\_ feature.
2. The advantage of linking versus copying is that when you link, if the source document changes, the destination document will change also.  
( True / False )
3. Using DDE linking, the destination document will automatically update when the source document is changed. ( True / False )
4. To modify data that has been linked using the Paste Special command, you \_\_\_\_\_ - \_\_\_\_\_ the data in the destination document.

## The Final Exercise

1. Create the following worksheet, applying formatting as listed below:
2. Save the file as **SALES.WK4**.

A	A	B	C	D	E
1	Regional Sales 1995				
2					
3		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
4	North	650	530	670	720
5	South	720	640	690	770
6	East	540	660	730	840
7	West	\$590	\$670	\$650	\$730
8					
9					
10					
11					

3. Insert two additional sheets.
4. Rename Sheet A to **1995**.
5. Rename Sheet B to **1994**.
6. Rename Sheet C to **1993**.
7. On Sheet A, center the title across columns A-E.
8. To the title, apply bold and 14 point.
9. Add a **Totals** row in row 9.
10. Use B&W3 from the Gallery to format the data on all three sheets (Hint: Use Group Mode).
11. Copy the data from Sheet A to Sheets B and C.
12. Change the title for Sheet 1994 to **Regional Sales 1994**.
13. Change the title for Sheet 1993 to **Regional Sales 1993**.
14. Edit the data on Sheets 1994 and 1993 as follows:

**1994:**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
North	650	700	850	900
South	550	700	800	900
East	600	650	700	750
West	700	750	800	850

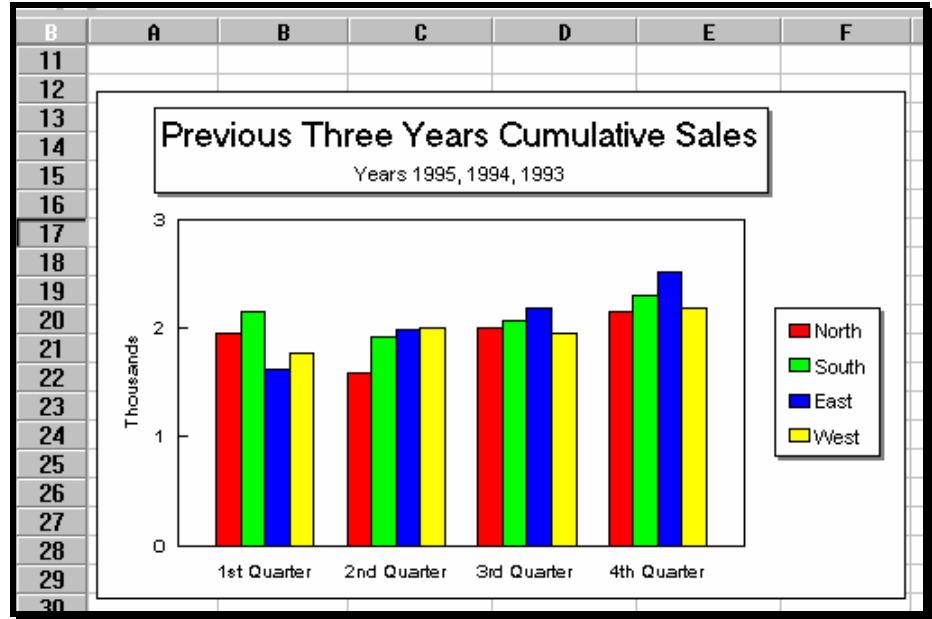
**1993:**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
North	500	600	550	650
South	475	550	700	675
East	550	650	750	850
West	600	650	700	750

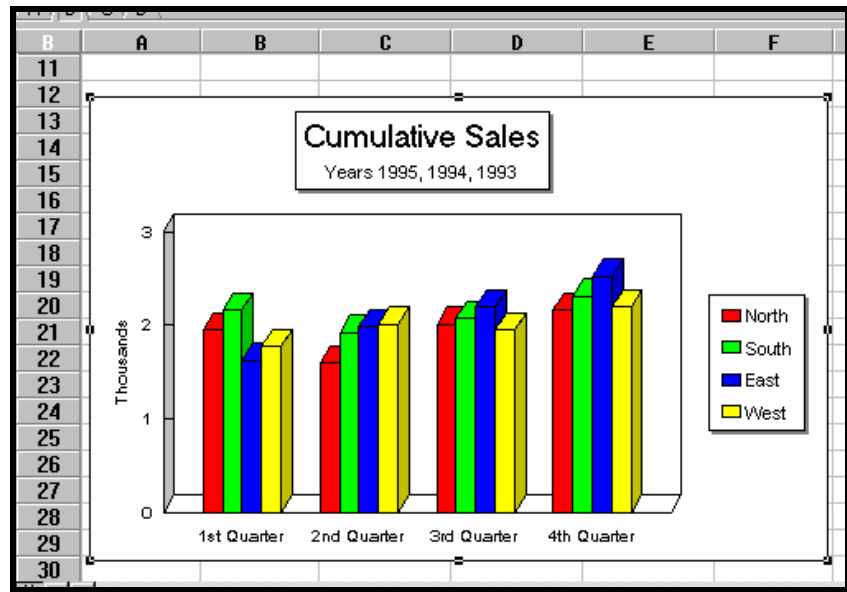
15. Insert a new sheet.
16. Copy data from one of the existing sheets.
17. Edit to look like the one below:

	A	B	C	D	E
1	<b>Previous Three Years Cumulative Sales</b>				
2	<b>Years 1995, 1994, 1993</b>				
3					
4		<b>1st Quarter</b>	<b>2nd Quarter</b>	<b>3rd Quarter</b>	<b>4th Quarter</b>
5	<b>North</b>				
6	<b>South</b>				
7	<b>East</b>				
8	<b>West</b>				
9	<b>Total</b>	\$0	\$0	\$0	\$0
10					
11					

18. Create formulas that will give the summation of the three years, beginning in cell B5.
19. On all four sheets, in cell F4, enter the heading **Quarterly Average**.
20. On all four sheets, create a formula that will average the quarterly sales for each region.
21. On the **Previous Three Years Cumulative Sales** sheet, create a bar chart and place beneath the data in cell A12.



22. Change the chart type to **3D Bar**.
23. Switch to WordPerfect.
24. Enter **Below is a chart pasted as an object from Lotus 123.**
25. Link the chart from Lotus 123 to WordPerfect using the Paste Special.
26. Save the WordPerfect document as **regsales.wpd**.
27. Edit the chart title to **Cumulative Sales**.



28. Verify that the changes are reflected in the WordPerfect document.
29. Save and close the file.



