

UNIT 2:

SPREADSHEET

PACKAGE

CONCEPT OF WORKSHEET

A worksheet or sheet is a single page in a file created with an electronic spreadsheet program such as Spreadsheet or Spreadsheet. A workbook is the name given to a spreadsheet file and contains one or more worksheets. The term spreadsheet is often used to refer to a workbook, when, as mentioned, it more correctly refers to the computer program itself. When you open an electronic spreadsheet program, it loads an empty workbook file consisting of one or more blank worksheets for you to use.

A worksheet is used to store, manipulate, and display data.

The basic storage unit for data in a worksheet is the rectangular-shaped cells arranged in a grid pattern in every worksheet known as cell.

A cell is an intersection of rows and columns in a worksheet.

Individual cells of data are identified and organized using the vertical column letters and horizontal row numbers of a worksheet which create a cell reference - such as A1, D15, or Z467.

Worksheet specifications for current versions of Spreadsheet include:

- 32,000 rows per worksheet;
- 255 columns per worksheet;
- by default, each new file contains three worksheet;
- the number of sheets per file is limited only by the amount of memory available on the computer.

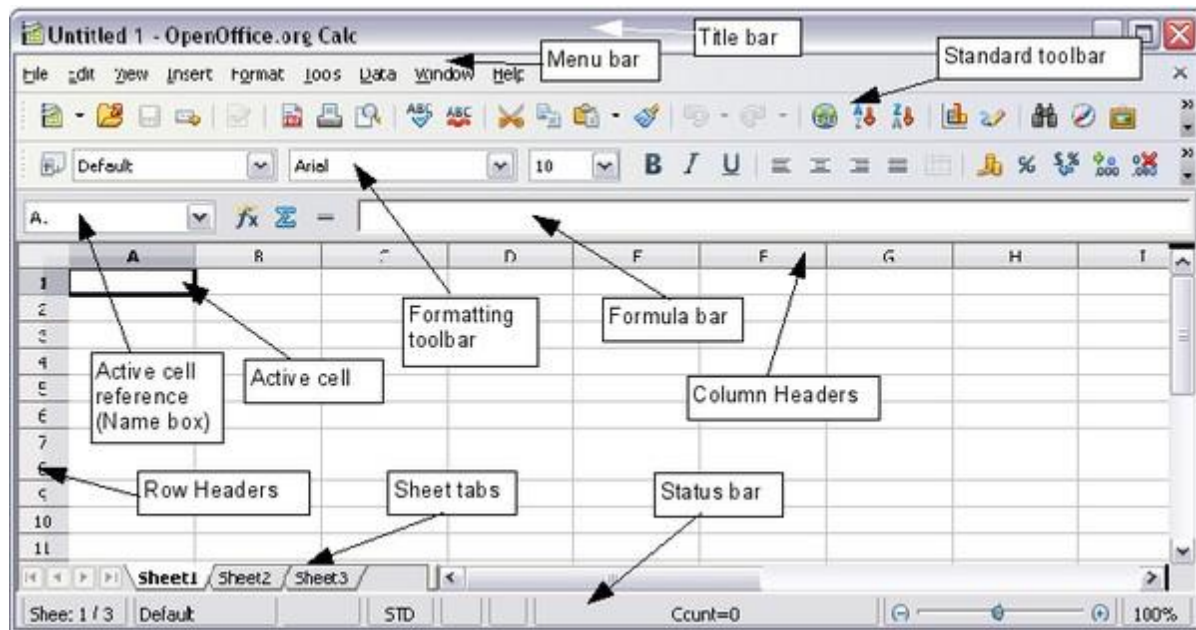
Each worksheet has a name. By default, the worksheets are named Sheet1, Sheet2, Sheet3 and so on, but these can easily be changed.

It is possible to delete or to hide individual worksheets in a workbook;

It is also possible to rename individual worksheets and to change worksheet tab colors to make it easier to identify individual sheets in a workbook using the context menu.

Changing from one worksheet to another in a workbook can be done by clicking on the sheet tab at the bottom of the screen;

The Spreadsheet Screen



ACTIVE CELL

- The active cell is recognized by its black outline. Data is always entered into the active cell. Different cells can be made active by clicking on them with the mouse or by using the arrow keys on the keyboard.

CELL

- Cells are the rectangular boxes located in central area of a worksheet.
- Data entered into a worksheet is stored in a cell. Each cell can hold only one piece of data at a time.
- A cell is the intersection point of a vertical column and a horizontal row.
- Each cell in the worksheet can be identified by a cell reference, which is a combination of letters and numbers such as A1, F456, or AA34.

COLUMN HEADERS

- Columns run vertically on a worksheet and each one is identified by a letter in the

column header.

ROW HEADERS

- Rows run horizontally on a worksheet and each one is identified by a number in the row header.

FORMULA BAR

- Located above the worksheet, this area displays the contents of the active cell. The formula bar can also be used for entering or editing data and formulas.

NAME BOX

- Located next to the formula bar, the Name Box displays the cell reference or the name of the active cell.

SHEET TABS

- By default there are three worksheets in a Calc file.
- The tab at the bottom of a worksheet tells you the name of the worksheet - such as Sheet1, Sheet2 etc.
- Renaming a worksheet or changing the tab color can make it easier to keep track of data in large spreadsheet files.
- Switching between worksheets can be done by clicking on the tab of the sheet you wish to access or by using this keyboard shortcut to change between worksheets.

STATUS BAR

- The status bar, which runs horizontally along the bottom of screen, can be customized to display a number of options, most of which give the user information about the current worksheet, data the worksheet contains, and even the user's keyboard - such as

whether the Caps Lock, Scroll Lock, and Num Lockkeys are turned on or off.

- The status bar also contains the zoom slider, discussed below, which allows users to alter the magnification of a worksheet.

RANGE

A range is any rectangular area in the worksheet. A range may include just a single cell, a number of consecutive cells in a row or column, or cells from consecutive rows and columns. A range must form a rectangle in order to be valid.

TABLE

A table is a range of cells with related data.

❖ CELL REFERENCE:

| | A | B | C | D | E |
|----|-------------------------|-----------|--------|---|---|
| | TechTerms Example Table | | | | |
| 1 | ID | Shape | Color | | |
| 2 | 1 | Circle | White | | |
| 3 | 2 | Oval | Yellow | | |
| 4 | 3 | Triangle | Red | | |
| 5 | 4 | Rectangle | Green | | |
| 6 | 5 | Pentagon | Blue | | |
| 7 | 6 | Hexagon | Purple | | |
| 8 | 7 | Heptagon | Orange | | |
| 9 | 8 | Octagon | Black | | |
| 10 | 9 | | | | |
| 11 | 10 | | | | |

← **Cell Reference: C5**

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A cell reference refers to a cell or a range of cells on a worksheet and can be used in a formula so that Calc or spreadsheet can find the values or data that you want that formula to calculate. Cell references behave differently when copied and filled to other cells.

For example:

- Cell reference C2 refers to value in C2.
- A1:F1 refers to the cell range A1 to F1.

There are two types of cell references:

1. **Relative:** Relative references **change** when a formula is copied to another cell. By default, all cell references are **relative references**. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2**. Relative references are especially convenient whenever you need to repeat the same calculation across multiple rows or columns.

2. **Absolute:** Absolute references remain **constant** no matter where they are copied. There may be times when you do not want a cell reference to change when copying or filling cells. You can use an **absolute reference** to keep a row and/or column constant in the formula. An absolute reference is designated in the formula by the addition of a **dollar sign (\$)**. It can precede the column reference, the row reference, or both.

Eg. \$A\$2 The row and column do not change when copied.

A\$2 The row does not change when copied

\$A2 The column does not change when copied

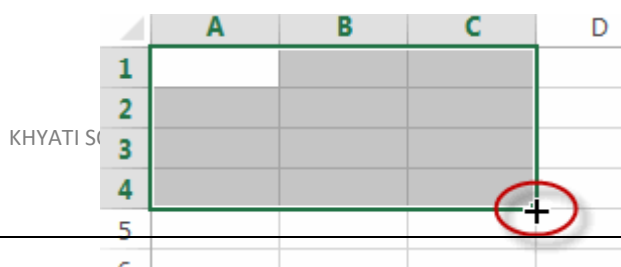
WORKING & EDITING IN WORKBOOKS

❖ Entering Information in a Worksheet

Spreadsheets are made up of rows and columns. Rows are defined by numbers and columns are defined by letters. When you open Spreadsheet, cell **A1** is automatically highlighted. Anything you type will show up in this cell. To enter text into a different cell, simply select the cell by double clicking on it and then begin typing.

Before entering text, it is helpful to be aware of the shape your cursor will take and what each it means:

1. **The thin black cross.** This is used for autofilling data and for copying formulas, both of which will be covered later in this course



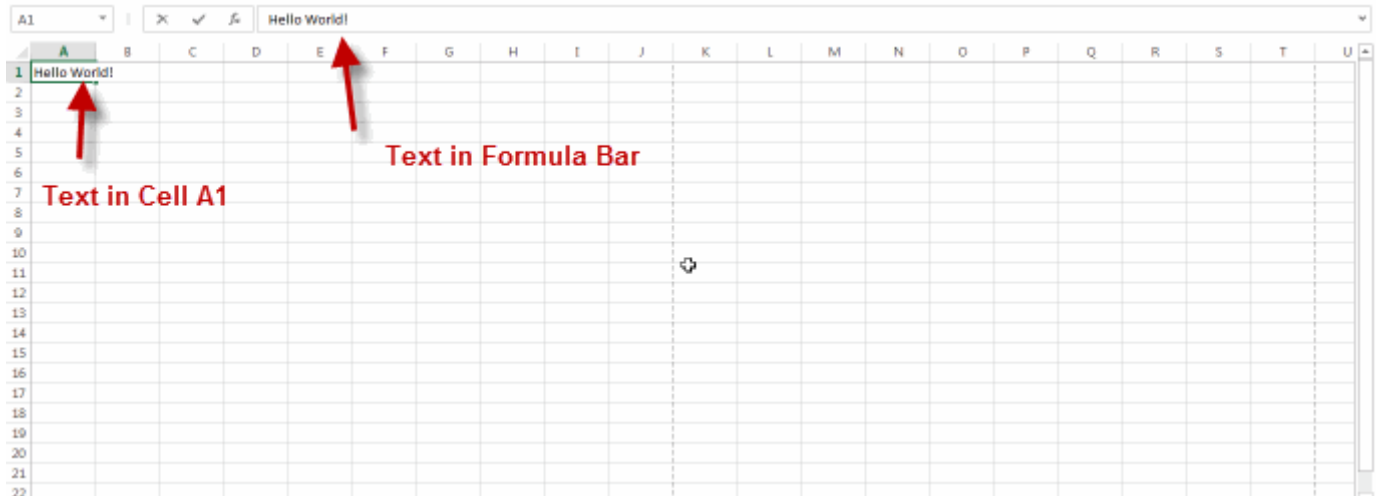
2. This is used for moving cells or other items.

| | A | B | C | D | E |
|----|---|---|---|----|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | 12 | 1 |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |

To edit data in the spreadsheet:

1. Double click the cell that you want to edit.
2. Move the cursor with the arrow keys to where you want to edit.
3. Type in your change.
4. Press Enter.

Note that in addition to showing up in the cell, the text you are typing also shows up in the **Formula Bar**:



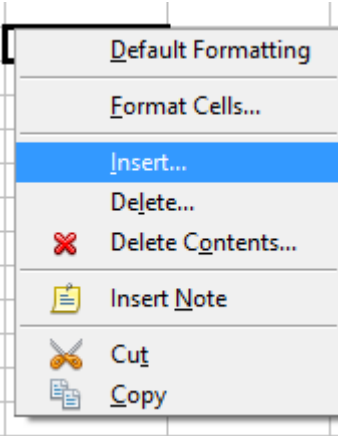
If you are entering a lot of text, it is sometimes easier to type directly into the formula bar. To do this, simply select the cell by clicking on it and then click in the Formula Bar and begin typing.

❖ Adding and Deleting Cells

You can add and delete cells when working with a worksheet:

To add a cell to a worksheet:

1. Select the cell where you want to insert a new cell.

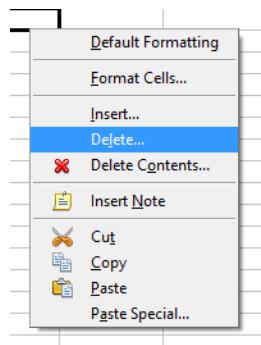


2. Right-click and select **Insert**.
3. In the **Insert** dialog box, select an option and click **OK**.

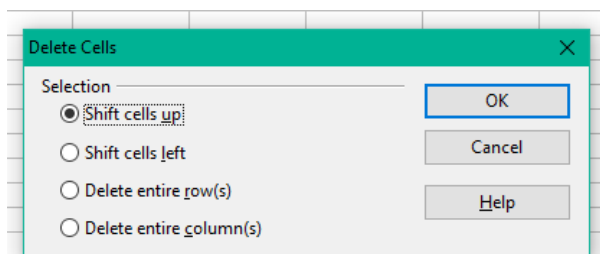


To delete a cell in a worksheet:

1. Select the cell you want to delete.
2. Right-click and select **Delete**.



3. In the **Delete** dialog box, select an option and click **OK**.



❖ Entering Numbers and Dates

To enter numbers in Spreadsheet:

1. Select the cell into which you wish to enter a number by clicking on it.
2. Begin typing a number.

Things to be aware of when entering numbers:

1. There is no need to enter commas. If you wish to display commas, you can format your numbers to display them. This will be covered in the next lesson.
2. By default, trailing zeroes are not shown. For example, if you enter "5.00" into a cell and press Enter, the value shown will change to just "5". We will cover displaying decimals in the later part.

To enter dates in Spreadsheet:

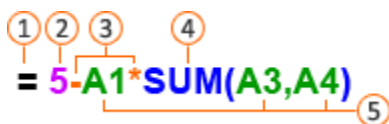
1. Select the cell into which you wish to enter a date by clicking on it.
2. Type the date in the following format: *mm/dd/yy* (e.g., 12/21/12) or *m/d/yy* (e.g., 1/1/00).

❖ Entering a Formula

Formulas are equations that perform calculations on values in your sheet. All formulas begin with an equal sign (=). You can create a simple formula by using constant and calculation operator. For example, the formula **=5+2*3**, multiplies two numbers and then adds a number to the result.

When you want to refer to variables instead of constants, you can use cell values, for example, **=A1+A2**. If you are working with long columns of data, or data that is located in different parts of a sheet or on another sheet, you can use a range—for example, **=SUM(A1:A100)/SUM(B1:B100)**, which represents the division of the sum of the first hundred numbers in column A by the sum of those numbers in column B. When your formula refers to other cells, any time that you change the data in any of the cells Spreadsheet recalculates the results automatically.

You can also create a formula by using a function, a predefined formula that simplifies entering calculations.



- 1 Equal signs start all formulas.

- ② **Constants**, such as numbers or text values, can be entered directly into a formula.
- ③ **Operators** specify the kind of calculation that the formula performs. For example, the ^ (caret) operator raises a number to a power, and the * (asterisk) operator multiplies numbers.
- ④ **Functions** are premade formulas that can be used alone, or as part of a longer formula. Each function has a specific argument syntax.
- ⑤ **Cell values** let you to reference in Spreadsheet cell, instead of the specific value inside the cell so that the contents of the cell can change without the function that refers to the cell having to change.

Enter a formula that refers to values in other cells:

1. In a sheet that contains columns of numbers, click the cell where you want the formula results to appear.
2. Type an equal sign =
3. Click the first cell that you want to include in your calculation.

| | A | B | C | D |
|---|----|---|-----|---|
| 1 | 22 | 2 | =A1 | |
| 2 | 25 | 4 | | |
| 3 | 28 | 6 | | |

4. Type an operator. An operator is the kind of calculation that the formula performs. For example, the * (asterisk) operator multiplies numbers. In this example, use the / (forward slash) operator to divide. At this point your formula should look like this:

| | A | B | C | D |
|---|----|---|------|---|
| 1 | 22 | 2 | =A1/ | |
| 2 | 25 | 4 | | |
| 3 | 28 | 6 | | |

5. Click the next cell that you want to include in your calculation. Now your formula should look like this:

| | A | B | C | D |
|---|----|---|--------|---|
| 1 | 22 | 2 | =A1/B1 | |
| 2 | 25 | 4 | | |
| 3 | 28 | 6 | | |

6. Press RETURN.

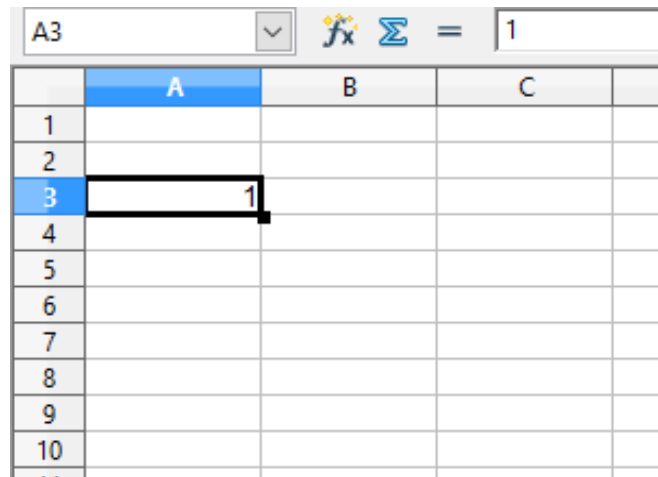
The result of the calculation appears in the cell.

| | A | B | C | D |
|---|----|---|----|---|
| 1 | 22 | 2 | 11 | |
| 2 | 25 | 4 | | |
| 3 | 28 | 6 | | |

Filling cells automatically (Auto-generation):

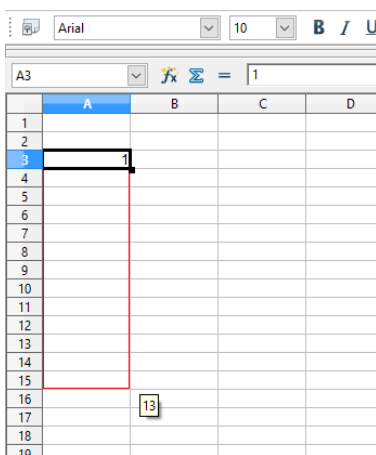
Calc has a feature for automatically inputting values. If you want to enter numbers sequentially or in regular intervals, then we use auto generation.

1. Type the number that you want to begin with in the cell.
2. Return the active cell to the cell that contains your number.

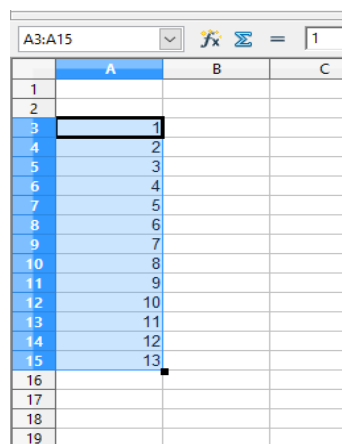


| | A | B | C |
|----|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | 1 | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

3. Click and drag the cells either up, down or across the cells.



| | A | B | C | D |
|----|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | 1 | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |



| | A | B | C |
|----|----|---|---|
| 1 | | | |
| 2 | | | |
| 3 | 1 | | |
| 4 | 2 | | |
| 5 | 3 | | |
| 6 | 4 | | |
| 7 | 5 | | |
| 8 | 6 | | |
| 9 | 7 | | |
| 10 | 8 | | |
| 11 | 9 | | |
| 12 | 10 | | |
| 13 | 11 | | |
| 14 | 12 | | |
| 15 | 13 | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |

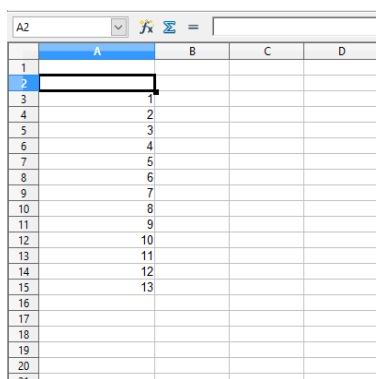
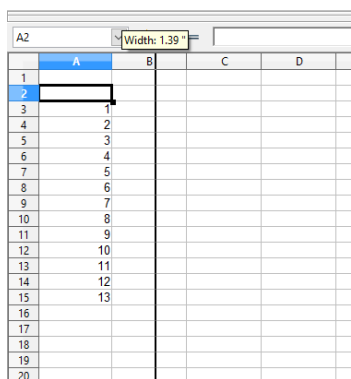
Your range is outlined in red, and the box shows the uppermost value in cell. When you stop dragging, your numbers appears.

Managing rows and columns:

When you create a new spreadsheet, Calc assigns each column a standard width and height. But the data does not always fit in that column. Calc provides with a feature that allows you to change the width and height of columns and rows easily.

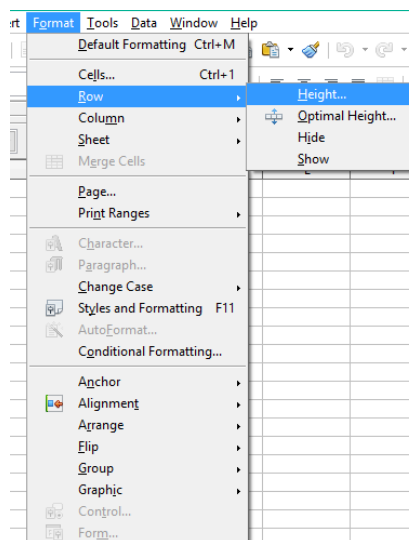
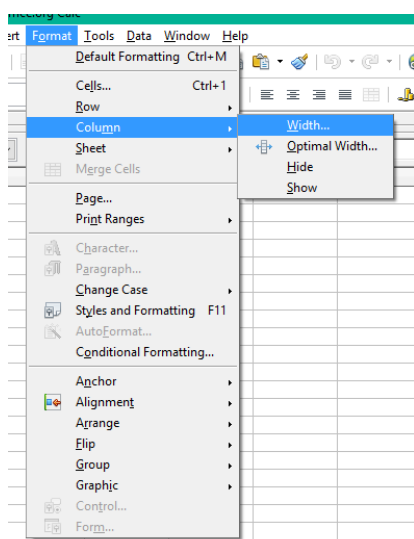
To change the width and height using mouse, follow the following steps:

1. Click the line that separates two column names and row names. Choose the line that is to the right of the column that you want to resize.
2. While holding the mouse button, drag the line to the desired column width or row height.



To change the width and height using main menu, follow the following steps:

1. Click a cell in the column or row that you want to resize.
2. Choose format > Column > Width to open the Column Width dialog box or choose format > Row > Height to open the Row height dialog box.
3. Enter the desired size of your column or row.
4. Click OK.



CREATING FORMATS

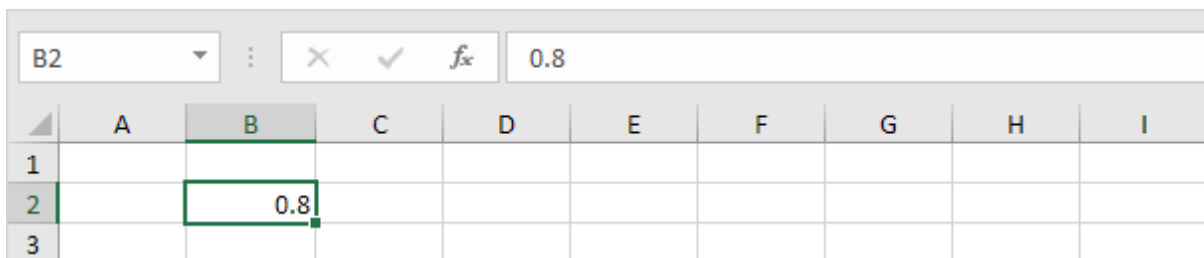
❖ Number Formatting:

When we format cells in Spreadsheet, we change the appearance of a number without changing the number itself. We can apply a number format (0.8, \$0.80, 80%, etc) or other formatting (alignment, font, border, etc).

Number can be formatted in the following ways:

- **Currency Icon:** This format allows you to add currency symbol with the numeric value and transforms the number to currency.
- **Percentage icon:** This format transforms the number into a percentage value by adding a percentage sign along with the number.
- **Increase/Decrease Decimal Places:** This increases or decreases the decimal places in a number.
- **Time:** This formats the numeric value into time format (hh:mm:ss)
- **Date:** This formats the numeric value into date format (dd\mm\yy)

1. Enter the value 0.8 into cell B2.



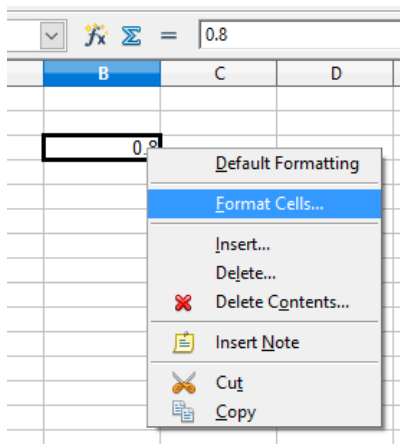
| | A | B | C | D | E | F | G | H | I |
|---|---|-----|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 2 | | 0.8 | | | | | | | |
| 3 | | | | | | | | | |

By default, Spreadsheet uses the General format (no specific number format) for numbers.

To apply a number format, use the 'Format Cells' dialog box.

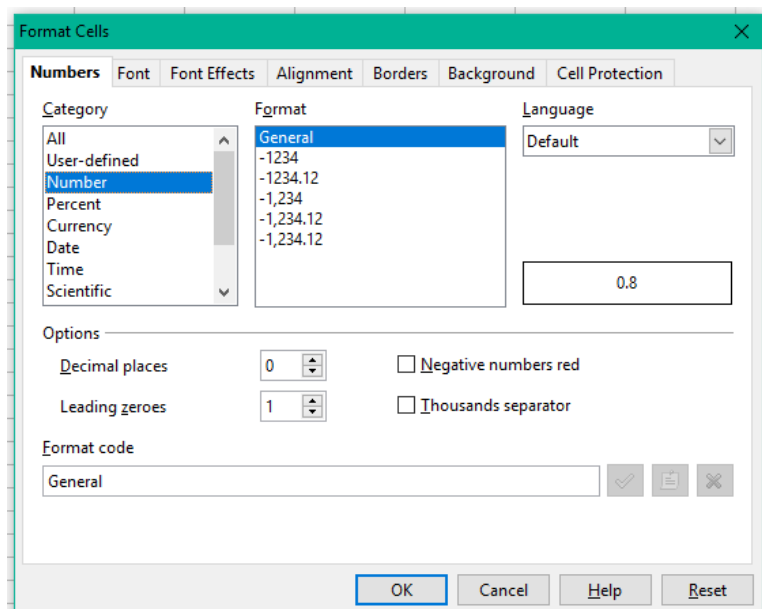
2. Select cell B2.

3. Right click, and then click Format Cells.



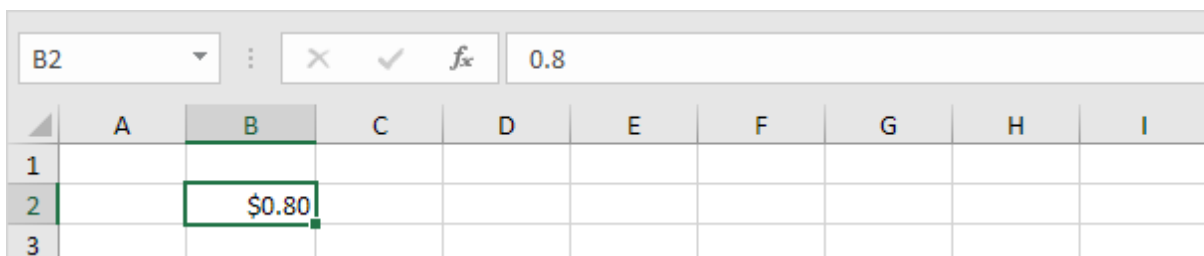
The 'Format Cells' dialog box appears.

4. For example, select Currency.



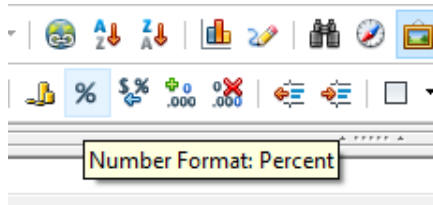
Note: Spreadsheet gives you a live preview of how the number will be formatted (under Sample).

5. Click OK.



Cell B2 still contains the number 0.8. We only changed the appearance of this number. The most frequently used formatting commands are available on the standard toolbar.

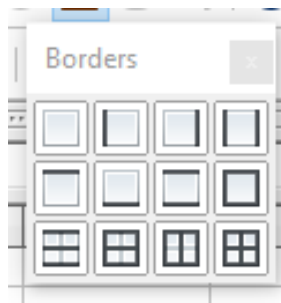
6. In the Number group, click the percentage symbol to apply a Percentage format.



7. In the Alignment group, you can change the alignment.



8. Add outside borders.

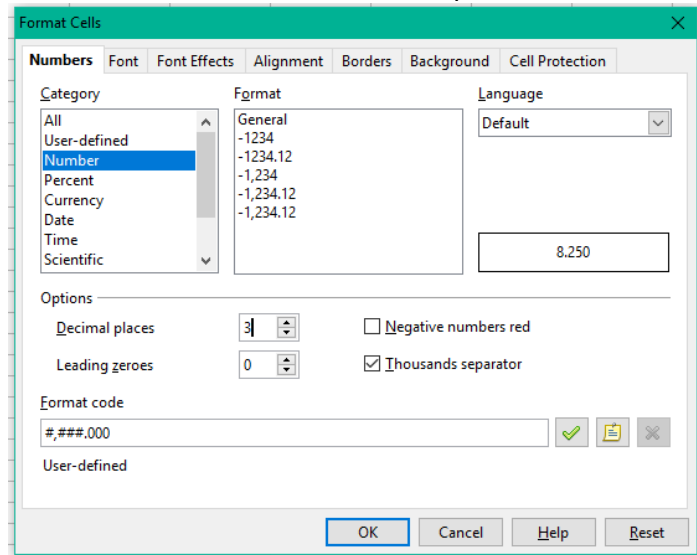


❖ To change decimal places

On the standard toolbar, click the Decrease/Increase Decimal button twice.



Or Increase/decrease the decimal places' values in the options from the format cell option.



❖ Date Formatting:

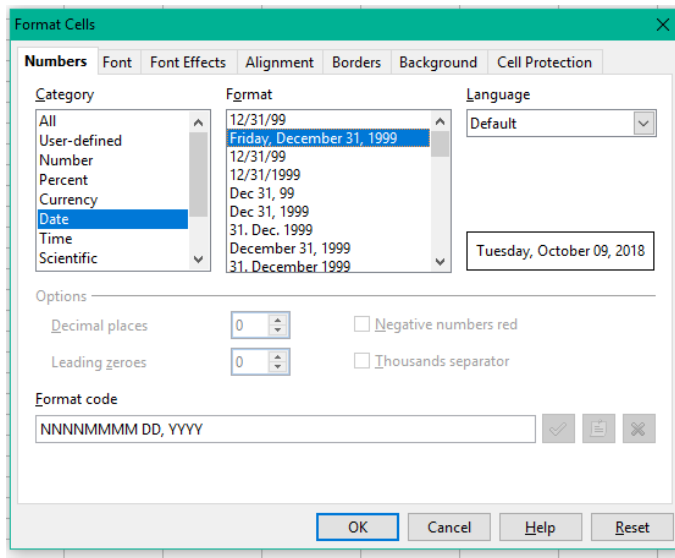
Dates and times in Spreadsheet can be displayed in a variety of ways. To apply a Date or Time format, execute the following steps.

1. Select cell A1.

| | | | | | | | |
|---|-----------|------|----------------|---|---|---|---|
| | A1 | | | | | | |
| | A | B | C | D | E | F | G |
| 1 | 6/23/2016 | 6:00 | 6/23/2016 6:00 | | | | |
| 2 | | | | | | | |

2. Right click, and then click Format Cells.

3. In the Category list, select Date, and select a Date format.



1. Click OK.

Note: to apply a Time format, in the Category list, select Time.

2. Dates are stored as numbers in Spreadsheet and count the number of days since January 0, 1900. Times are handled internally as numbers between 0 and 1. To clearly see this, change the number format of cell A1, B1 and C1 to General.

| | | | | | | | |
|---|-------|------|----------|---|---|---|---|
| | A1 | | | | | | |
| | A | B | C | D | E | F | G |
| 1 | 42544 | 0.25 | 42544.25 | | | | |
| 2 | | | | | | | |

Note: apparently, 42544 days after January 0, 1900 is the same as June 23, 2016. 6:00 is represented as 0.25 (quarter through the day).

3. You can enter times as 6:00, but Spreadsheet displays this time as 6:00:00 AM in the

| | | | | | | | |
|-----|-------------------------|------|----------------|---|---|---|---|
| KHY | B1 | | | | | | |
| | A | B | C | D | E | F | G |
| 1 | Thursday, June 23, 2016 | 6:00 | 6/23/2016 6:00 | | | | |
| 2 | | | | | | | |

formula bar. AM is used for times in the night and morning. PM is used for times in the afternoon and evening.

4. Change the number format of cell C1 to Date only.

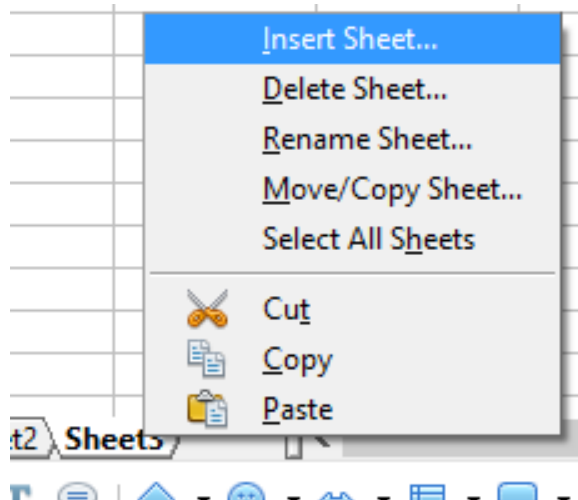
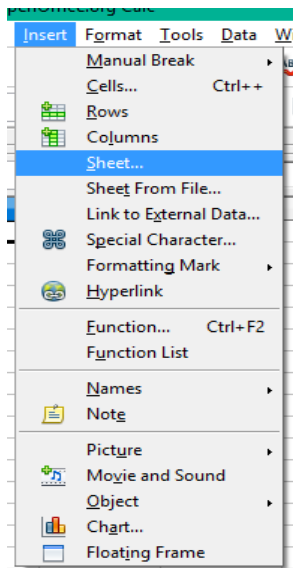
| C1 ✕ ✓ fx 6/23/2016 6:00:00 AM | | | | | | | |
|--|-------------------------|------|-----------|---|---|---|---|
| | A | B | C | D | E | F | G |
| 1 | Thursday, June 23, 2016 | 6:00 | 6/23/2016 | | | | |
| 2 | | | | | | | |

ADDING SHEETS:

When you use up the three sheets that Calc supplies, new sheets can be added. To add a sheet, follow the following steps:

1. Click a sheet name that is located either before or after where you want to add new sheets.
2. Choose Insert ➤ Sheet to open the Insert Sheet dialog box.
3. Mark the box to position the new sheet(s) either before or after the active sheet.
4. Indicate how many sheets you want to add

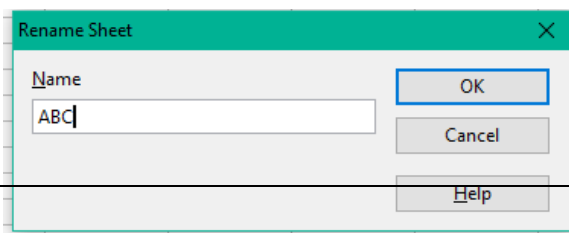
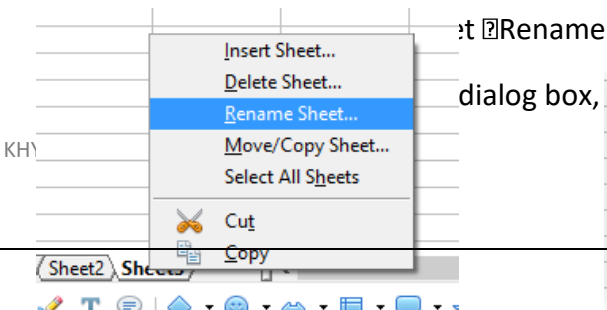
You can also right click the sheet name and choose Insert from the shortcut menu that appears.



RENAMING SHEETS:

To rename the sheets, follow these steps:

1. Select the sheet that you want to rename.



COPY/MOVE SHEETS:

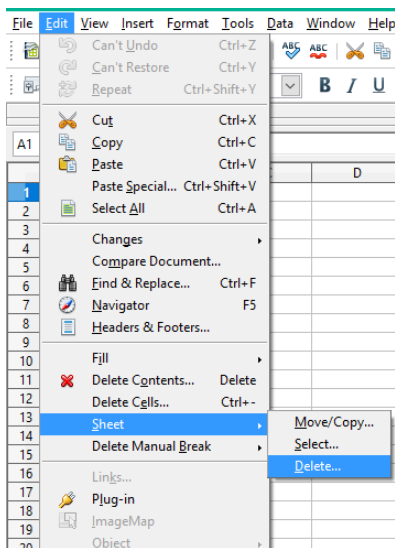
To move or copy the sheets, follow these steps:

1. Select the sheet name or names that you want to move or copy.
2. Choose Edit > Move/Copy Sheets.
3. In the move/copy dialog box, select the copy check box to copy your sheet(s). Deselect this check box to move your sheet rather than copy it.
4. Click the name of the sheet that you want to insert – either the original sheet or its copy – and click OK.

DELETING SHEETS:

To delete the sheets, follow these steps:

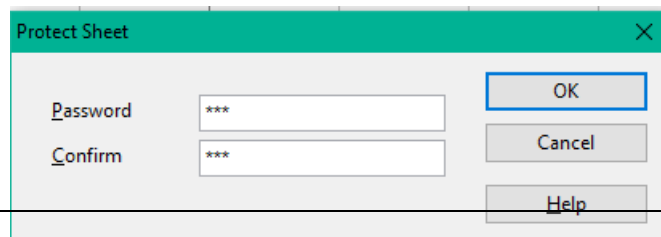
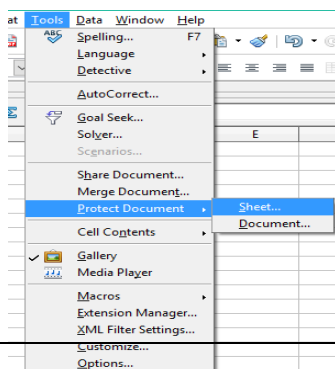
1. Select one or more sheets that you want to delete.
2. Choose Edit > Delete Sheet.
3. If you are sure that you want to delete those sheets that are selected, click the Yes button.



PROTECT DOCUMENT/SHEET:

To protect a document/sheet, follow the following steps:

1. Go to **Tools > Protect Document > Sheet/Document**.
2. Create a **password** and confirm it in the **protect sheet dialog box**.



BUILT IN FUNCTIONS

Calc does much more task than just addition and subtraction. You can perform a whole range functions such as mathematical, statistical, counting, database functions and much more.

You can directly write the formula simply by typing =1+1 or =A1+B1 or complex formula such as =(2+(5*3)-4)/2 in the formula bar and press Enter. To edit the formula you can double click the cell and edit it.

MATHEMATICAL FUNCTIONS:

1. SUM

It Sums the contents of

cells. Syntax:

=SUM(number1; number2; ... number30)

number1 to number30 are up to 30 numbers or ranges/arrays of numbers whose sum is to be calculated.

SUM ignores any text or empty cell within a range or array.

Example:

=SUM(2; 3; 4)

returns 9, because 2+3+4 = 9.

=SUM(B1:B3)

(where cells B1, B2, B3 contain 1.1, 2.2, 3.3) returns 6.6

2. ABS

It Returns the absolute value of a number.

Syntax:

=ABS(number)

number is the number whose absolute value is to be calculated. The absolute value of a number is its value without the +/- sign.

Example:

=ABS(-56)

returns 56.

=ABS(12.3)

returns 12.3.

=ABS(0)

returns 0.

3. ROUND

It Rounds a number to a certain precision.

Syntax:

=ROUND(number; places)

returns number rounded to places decimal places. If places is omitted or zero, the function rounds to the nearest integer. If places is negative, the function rounds to the nearest 10, 100, 1000, etc.

Example:

=ROUND(2.348; 2)

returns 2.35

=ROUND(2.348; 0)

returns 2

=ROUND(2.5)

returns 3

4. INT

It Rounds a number down to the nearest integer.

Syntax:

=INT(number)

returns number rounded down to the nearest integer.

Negative numbers round down to the integer below: -1.3 rounds to -2.

Example:

=INT(5.7)

returns 5

=INT(-1.3)

returns -2.

5. SIGN

It Returns the sign of a number:- 1 if the number is positive, -1 if negative and 0 if zero.

Syntax:

=SIGN(number)

number is the number whose sign is to be determined.

Example:

=SIGN(3.4)

returns 1.

=SIGN(-4.5)

returns -1.

=SIGN(0)

returns 0

6. SQRT

It returns the positive square root of a number.

Syntax:

=SQRT(number)

Returns the positive square root of number; number must be positive.

Example:

=SQRT(16)

returns 4.

7. RAND

It returns a random number between 0 and

1 Syntax:

RAND()

8. FACT

It returns the factorial of a number.

Syntax:

=FACT(number)

Example:

=FACT(3) returns 6

9. POWER

It returns a number raised to a

power Syntax:

=POWER(number; power)

returns $\text{number}^{\text{power}}$, that is number raised to the power of power.

Example:

=POWER(4; 3)

returns 64, which is 4 to the power of 3.

10. EXP

It returns the mathematical constant e raised to the power of a number.

Syntax:

=EXP(number)

returns e^{number} .

Example:

=EXP(1)

returns 2.71828182845904

11. LOG

It returns the logarithm of a number to the specified base.

Syntax:

=LOG(number; base)

returns the logarithm to base base of number.

Example:

=LOG(10; 3)

returns the logarithm to base 3 of 10 (approximately 2.0959)

12. LOG10

It returns the base 10 logarithm of a number.

Syntax:

=LOG10(number)

returns the logarithm to base 10 of number.

Example:

=LOG10(5)

returns the base-10 logarithm of 5 (approximately 0.69897)

13. LN

It returns the natural logarithm of a number
Syntax:

=LN(number)

returns the natural logarithm (the logarithm to base e) of number

Example:

=LN(3)

returns the natural logarithm of 3 (approximately 1.0986)

14. PRODUCT

It multiplies all the numbers given as arguments and returns the product.

Syntax:

=PRODUCT(number1; number2; ... number30)

Example:

=PRODUCT(2; 3; 4)

returns 24 ($2 * 3 * 4$).

=PRODUCT(A1:A2)

where A1 and A2 contain 3 and 5, returns 15 ($3 * 5$).

STATISTICAL FUNCTIONS:

1. MIN

It returns the minimum of a list of arguments, ignoring text entries.

Syntax:

=MIN(number1; number2; ... number30)

Example:

=MIN(2; 6; 4)

returns 2, the smallest value in the list.

=MIN(B1:B3)

where cell range is B1, B2, B3

2. MAX

It returns the maximum of a list of arguments, ignoring text entries.

Syntax:

=MAX(number1; number2; ... number30)

Example:

=MAX(2; 6; 4)

returns 6, the largest value in the list.

=MAX(B1:B3)

3. AVERAGE

It returns the average of the arguments, ignoring text.

Syntax:

=AVERAGE(number1; number2; ... number30)

Example:

=AVERAGE(2; 6; 4)

returns 4, the average of the three numbers in the list.

=AVERAGE(B1:B3)

4. MEDIAN

It returns the median of a set of

numbers Syntax:

=MEDIAN(number1; number2; ... number30)

number1 to number30 are up to 30 numbers or ranges containing numbers.

MEDIAN returns the median (middle value) of the numbers. If the count of numbers is odd, this is the exact middle value. If the count of numbers is even, the average of the two middle values is returned.

Example:

=MEDIAN(1; 5; 9; 20; 21)

returns 9, the number exactly in the middle.

=MEDIAN(1; 5; 9; 20)

returns 7, which is the average of 5 and 9, the two numbers in the middle.

5. MODE

It returns the most common value in a set of numbers.

Syntax:

=MODE(number1; number2; ... number30)

Example:

=MODE(A1:A4)

where cells A1:A4 contain 1, 3, 2, 3 returns 3, the number occurring most often.

6. AVEDEV

It returns the average of the absolute deviations of values from their mean.

Syntax:

=AVEDEV(number1; number2; ... number30)

Example:

=AVEDEV(1; 4; 7)

returns 2. The mean is 4, and the absolute deviations from the mean are 3, 0, 3 respectively.

7. COMBIN

It returns the number of combinations of a subset of items.

Syntax:

=COMBIN(n; k)

n is the number of items in the set.

k is the number of items to choose from the set.

COMBIN returns the number of ways to choose these items. For example if there are 3 items A, B and C in a set, you can choose 2 items in 3 different ways, namely AB, AC and BC.

Example:

COMBIN(3,2)

returns 3.

8. PERMUT

It returns the number of ordered permutations for a given number of objects.

Syntax:

=PERMUT(n; k)

where n and k are integers.

PERMUT returns the number of ordered ways that k objects can be chosen from a set of n objects, where an object can only be chosen once. For example with a set of 3 objects A, B, C, we can choose 2 as follows: AB, AC, BA, BC, CA, CB.

Example:

=PERMUT(3; 2)

returns 6, as in the example above.

COUNTING FUNCTIONS:

1. COUNT

It counts the numbers in the list of arguments, ignoring text entries.

Syntax:

=COUNT(value1; value2; ... value30)

EXAMPLE:

=COUNT(B1:B3)

2. COUNTA

It counts the non-empty values in the list of arguments. Syntax:

=COUNTA(value1; value2; ... value30)

EXAMPLE:

=COUNTA(B1:B3)

TEXT/STRING FUNCTIONS:

1. LOWER

Converts a text string to lowercase.

Syntax:

=LOWER(text)

returns text with all characters converted to lower case.

Example:

=LOWER("Good MORNING")

returns good morning

2. **UPPER**

Converts a text string to uppercase.

Syntax:

=UPPER(text)

returns text with all characters converted to upper case.

Example:

=UPPER("Good Morning") returns
GOOD MORNING

3. **TEXT**

Converts a number into text according to a given

format. Syntax:

=TEXT(number; format)

returns number converted to text, according to the format code specified by format.

Example:

=TEXT(12.34567;"###.###")
returns the text 12.35

4. **TRIM**

It removes excess spaces from a text string.

Syntax:

=TRIM(text)

returns text with any leading or trailing spaces removed, and with any multiple spaces replaced with a single space.

Example:

=TRIM(" Good Morning ")
returns Good Morning.

DATE AND TIME FUNCTIONS:

1. **TODAY**

It returns the current date.

=TODAY()

returns the current date (as a date-time serial number). TODAY is updated at every recalculation, for instance if a cell is modified.

2. **NOW**

It returns the current date and

time Syntax:

=NOW()

returns the current date and time (as a date-time serial number).

3. **YEAR**

It returns the year of a given date.

Syntax:

=YEAR(date)

returns the year of date as a number.

Example:

=YEAR("2008-06-04")

returns 2008.

4. **MONTH**

It returns the month of a given date.

Syntax:

=MONTH(date)

returns the month of date as a number, where January is 1 and December is 12.

Example:

=MONTH("2008-06-04") returns 6.

5. **DAY**

It returns the day of a given date.

Syntax:

=DAY(date)

returns the day of date as a number (1-31).

Example:

=DAY("2008-06-04") returns 4.

=DAY(A1)

where cell A1 contains the date 23Nov83 as a date-time serial number, returns 23.

6. **TIME**

It returns the time, given hours, minutes and seconds.

Syntax:

=TIME(hours; minutes; seconds)

Example:

=TIME(9; 31; 20)

returns the time 9:31:20 am

7. **HOUR**

Returns the hour of a given

time. Syntax:

=HOUR(time)

returns the hour of time as a number, 0 - 23.

Example:

=HOUR("2008-01-06 21:30:15")

returns 21.

8. MINUTE

Returns the minutes of a given

time. Syntax:

=MINUTE(time)

returns the minutes of time as a number, 0 - 59.

Example:

=MINUTE("2008-01-06 21:30:15") returns 30.

9. SECOND

It returns the seconds of a given time.

Syntax:

=SECOND(time)

returns the seconds of time as a number, 0 - 59.

Example:

=SECOND("2008-01-06 21:30:15") returns 15.

LOGICAL FUNCTIONS:

This includes logical conjectures such as if..then statements.

1. AND()

This function returns the TRUE if all the arguments are TRUE and FALSE if any or more arguments are false.

Syntax:

=AND(condition; TRUE)

Example:

=AND(2<4;FALSE)

2. **OR()**

This function returns TRUE if any argument is TRUE and FALSE if all arguments are FALSE.

Syntax:

=OR(condition1;condition2;TRUE)

Example:

=OR(1>2;TRUE)

3. **IF()**

This function checks the logical condition of a statement and returns one value if a condition you specify evaluates to TRUE and other value if evaluates to FALSE.

Syntax:

=IF(condition;true-value;false-value)

Example:

=IF(A1>5;100;"too small")

FINANCIAL FUNCTIONS:

This function includes calculating and tracking loan functions, principal, interest rate, depreciation and future values.

1. **PMT()**

This function finds a periodic payment for a fixed loan.

Syntax:

=PMT(interest_rate;no_of_periods;present_value;future_value;type)

2. **RATE()**

This function is used to calculate the interest rate charged to pay off a loan.

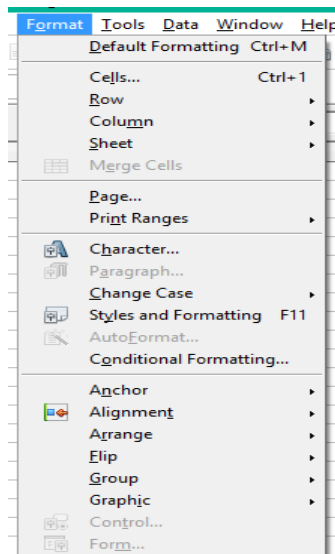
Syntax:

=RATE(no_of_periods;fixed_periodic_payments;present_value)

FORMATTING A WORKSHEET:

There are many types of formatting that can be applied to spreadsheet worksheets. The most commonly used formatting commands show up on the **Format Menu**.

Formatting changes can be applied to a whole worksheet, a range of cells within a worksheet, individual cells, and sometimes even text within a cell.

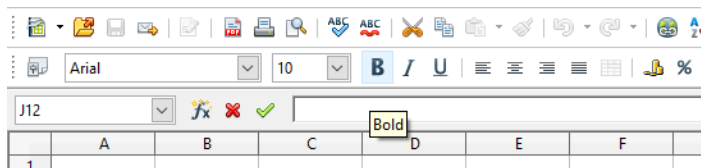


❖ The Font Group

Bold, Italicize and Underline Text

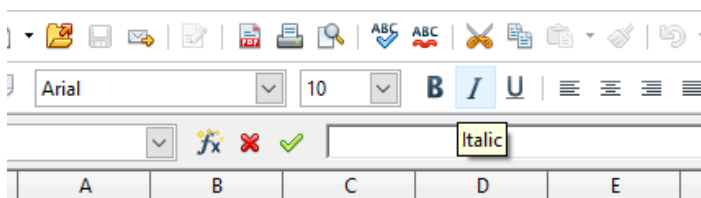
To bold text in Spreadsheet:

1. Select the cell or cells in which you wish to bold the text.
2. From the formatting bar, click the **Bold** command.



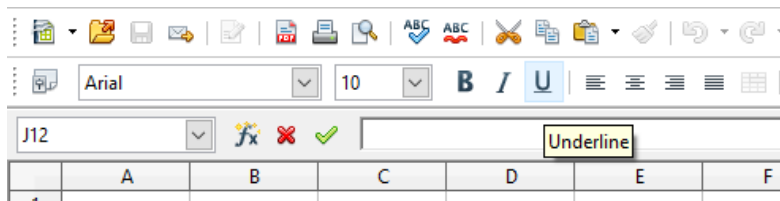
To italicize text in Spreadsheet:

1. Select the cell or cells in which you wish to italicize the text.
2. From the formatting bar, click the **Italic** command.



To underline text in Spreadsheet:

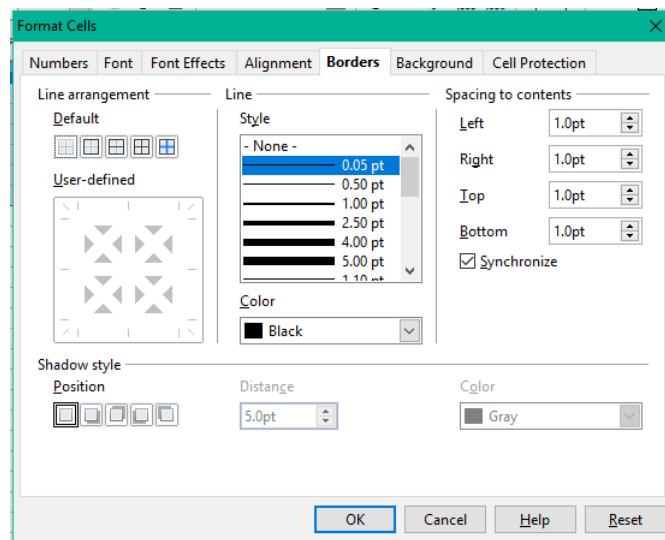
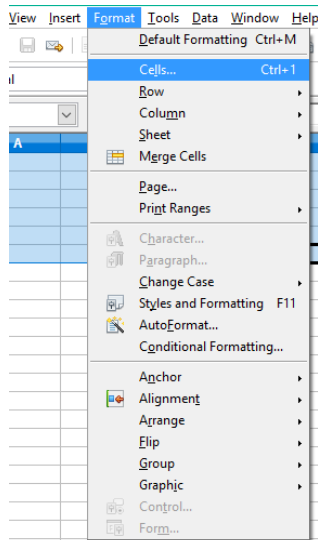
1. Select the cell or cells in which you wish to underline the text.
2. From the formatting bar, click the **Underline** command.



Add Borders to Cells

To add borders to cells in Spreadsheet:

1. Select the cell or cells to which you wish to add borders.
2. From the format menu, select Cells.

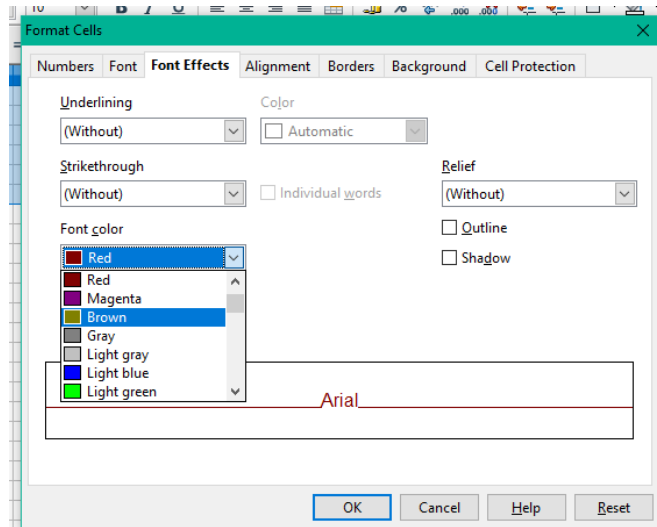


3. From the Borders Tab, select the type of border you wish to add from the line arrangement and select the type of border you wish to add.

Change Text and Cell Colors

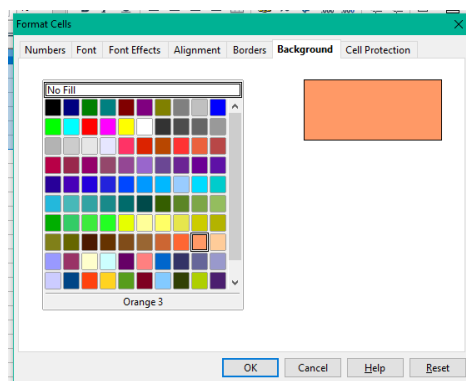
To change the color of text in cells in Spreadsheet:

1. Select the cell or cells to which you wish to add borders.
2. From the format menu, select Cells.
3. From the Font Effects tab, select the color that you wish to apply.



To change the fill (i.e., background) color of cells in Spreadsheet:

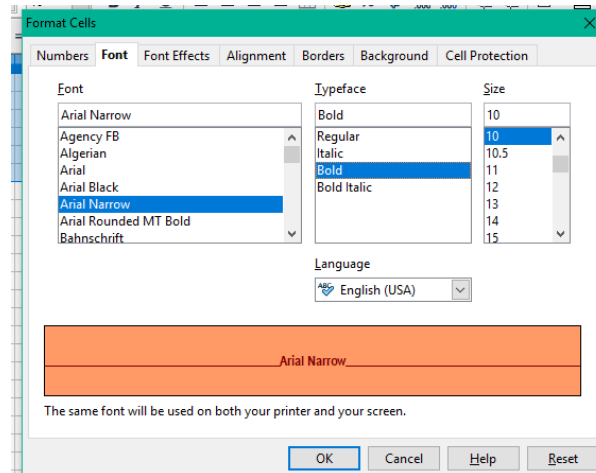
1. Select the cell or cells in which you wish to change the fill color.
2. From the format menu, select Cells.
3. From the Background tab, select the color that you wish to apply.



Set Font and Font Size

To change the font of text or numbers in cells in Spreadsheet:

1. Select the cell or cells in which you wish to change the font.
2. From the format menu, select Cells.
3. From the Font tab, font style, type and font size that you wish to apply.

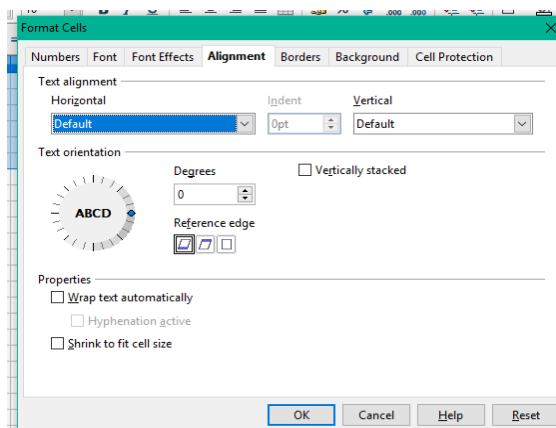


Align Text:

Text within cells in Spreadsheet can be aligned both vertically (top, center and bottom) and horizontally (left, center and right) or at any angle diagonally.

To align text vertically within a cell or cells in Spreadsheet:

1. Select the cell or cells in which you wish to align the text.
2. From the Format Menu, select Cells.
3. From the Alignment Tab, you can align the text horizontally, vertically or any diagonal angle that you wish.



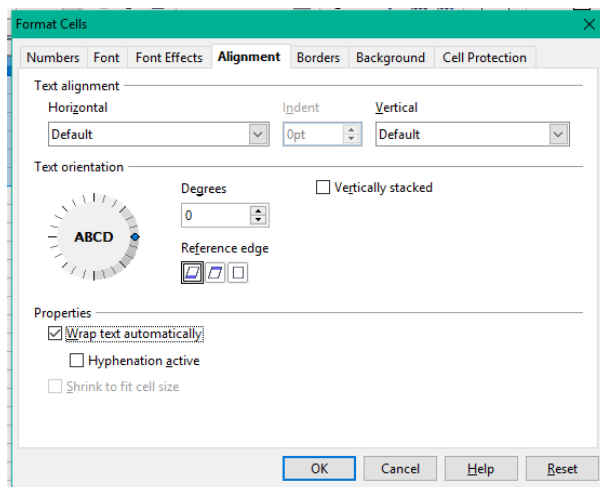
Wrap Text

By default, text in Spreadsheet remains on one line. Wrapping text is a way of getting text to show up on multiple lines within a cell. See the following example:

| | | |
|----------------------------|--|--|
| This text does not wrap. | | |
| This text does wrap. | | |

To wrap text within a cell or cells in Spreadsheet:

1. Select the cell or cells in which you wish to wrap the text.
2. From the Format Menu, select Cells.
3. From the Alignment Tab, tick the Wrap text automatically check box to enable wrap text facility.



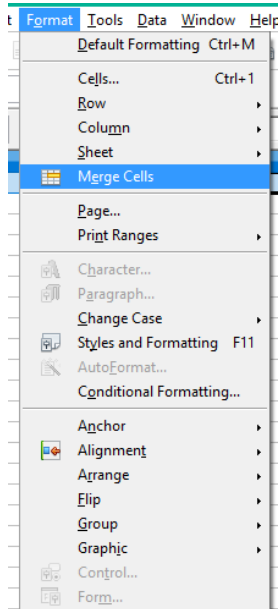
Merge & Center Text

Often a label applies to multiple columns. In these cases, it is useful to merge cells to show this. In the following example, the years "2012" and "2013" each apply to four columns

:

To merge cells in Spreadsheet:

1. Select the cells you wish to merge.
2. From the Format Menu, Select Merge Cells, to merge the selected cells.



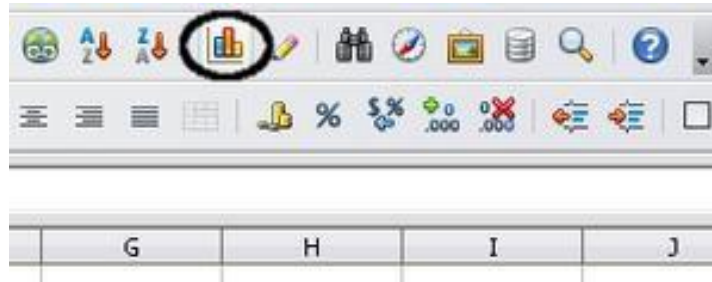
CREATING CHARTS (GRAPHICS)

A **chart** is a tool you can use in Spreadsheet to communicate your **data graphically**. Charts allow your audience to more easily see the meaning behind the numbers in the spreadsheet, and to make showing comparisons and trends much easier. In this lesson, you will learn how to **insert** and **modify** Spreadsheet charts and see how they can be an effective tool for communicating information.

Charts can be a useful way to communicate data. When you insert a chart in Spread

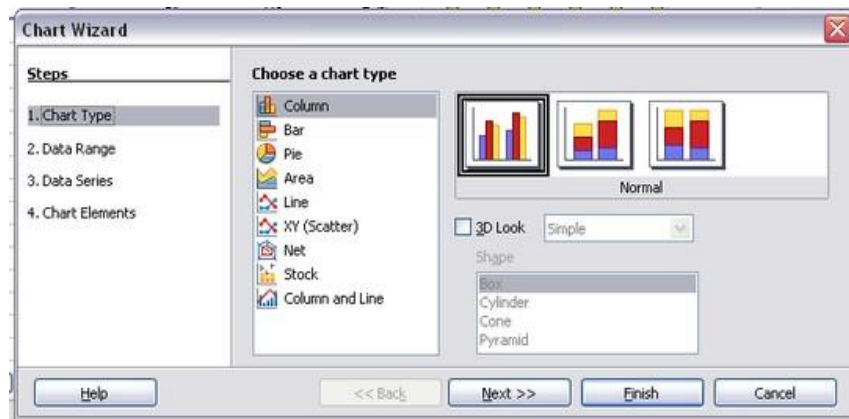
To create a chart:

- ? Select the worksheet you want to work with.
- ? Select the cells you want to chart, including the column titles and row labels.
- ? Select Insert > Chart from the menu bar.
- ? Or, click the Chart icon on the main toolbar.
- ? Select one of the Chart options. In this example, we'll use the Columns command.
- ? Select a type of chart from the list that appears.



Step 1: Choosing a chart type

The Chart Wizard includes a sample chart with your data. This sample chart updates to reflect the changes you make in the Chart Wizard. The Chart Wizard has three main parts: a list of the steps involved in setting up the chart, the list of chart types, and the options for each chart type. At any time you can go back to a previous step and change selections.



Step 2: Changing data label and axes labels

In Step 2, Data Range, you can manually correct any mistakes you have made in selecting the data. On this page you can also change the way you are plotting the data by using the rows—rather than the columns—as data series. This is useful if you use a style of chart such as Donut or Pie to display your data. Lastly, you can choose whether to use the first row or first column, or

both, as labels on the axes of the chart. You can confirm what you have done so far by clicking the **Finish** button, or click **Next** to change some more details of the chart.



Step 3: Selecting data series

On the Data Series page, you can fine tune the data that you want to include in the chart. Perhaps you have decided that you do not want to include the data for canoes. If so, highlight *Canoes* in the **Data series** box and click on **Remove**. Each named data series has its ranges and its individual Y-values listed. This is useful if you have very specific requirements for data in your chart, as you can include or leave out these ranges.



Step 4: Adding or changing titles, legend, and grids

On the Chart Elements page, you can give your chart a title and, if desired, a subtitle. It may be of benefit to have labels for the x axis or the y axis. This is where you give people an idea as to the proportion of your data. For example, if we put Thousands in the y axis label of our graph, it changes the scope of the chart entirely. For ease of estimating data you can also display the x or y axis grids by selecting the *Display grids* options. To finish the chart, click **Finish**.



Identifying the parts of a chart

Have you ever read something you didn't fully understand but when you saw a chart or graph, the concept became clear and understandable? Charts are a visual representation of data in a worksheet. Charts make it easy to see comparisons, patterns, and trends in the data.



Source data: The range of cells that make up a chart. The chart is updated automatically whenever the information in these cells changes.

Title: The title of the chart.

Legend: The chart key, which identifies what each color on the chart represents.

Axis: The vertical and horizontal parts of a chart. The vertical axis is often referred to as the Y axis, and the horizontal axis is referred to as the X axis.

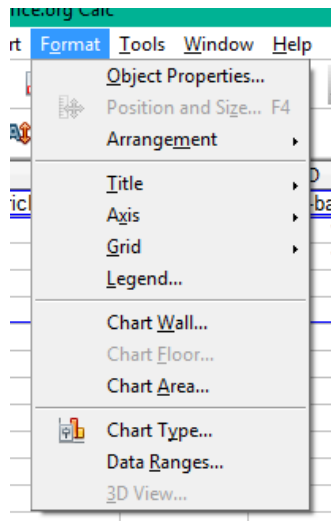
Data series: The actual charted values, which are usually rows or columns of the source data.

Value axis: The axis that represents the values or units of the source data.

Category axis: The axis identifying each data series.

Chart tools

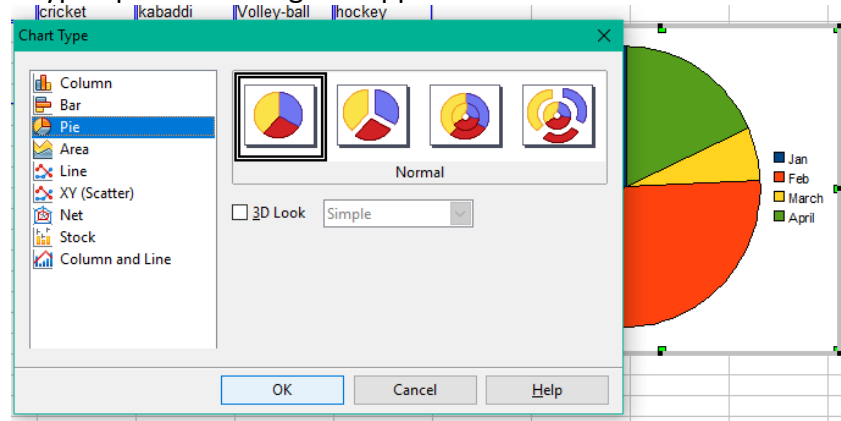
Once you insert a chart, a new set of Chart Tools are available in the Format Menu. These are only visible when the chart is selected.



To change the chart type:

The first tier of choice is for two-dimensional (2D) charts. Only those types which are suitable for 3D (Column, Bar, Pie, and Area) give you an option to select a 3D look.

- ? Select Format
- ? Click Chart Type option. A dialog box appears.

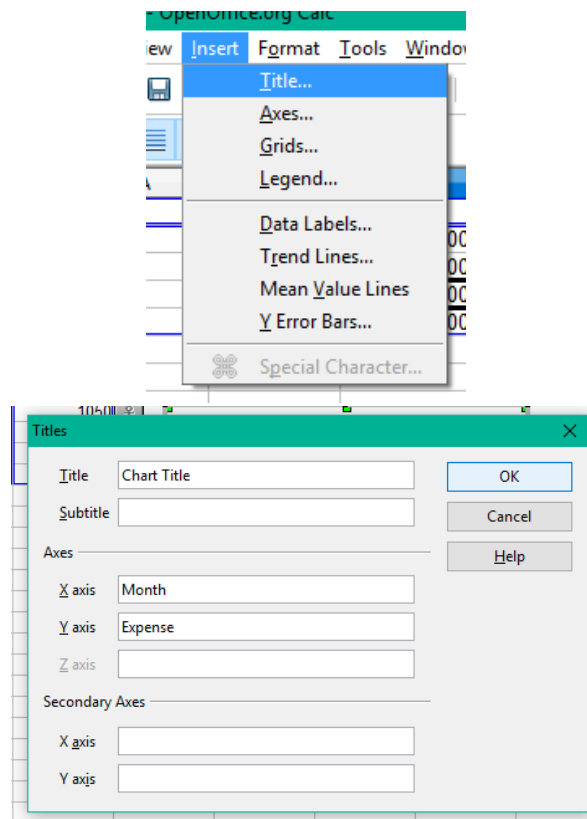


- ? Select another chart type.
- ? Click OK.

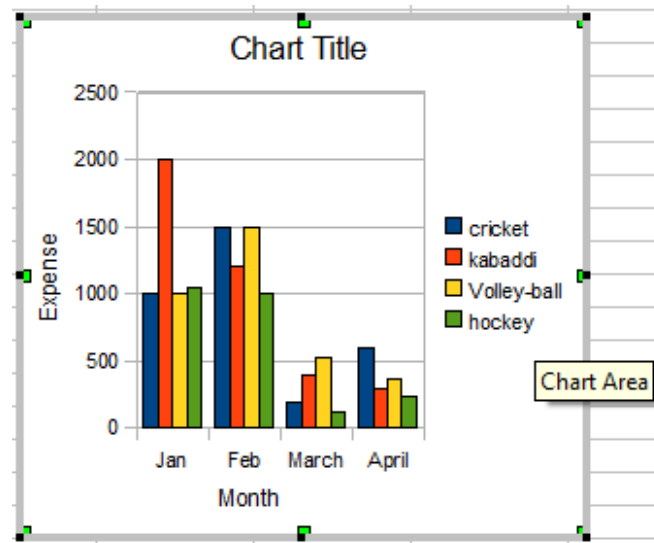
To insert title and axis of chart:

- ? Select Insert Menu.

? Select Title.



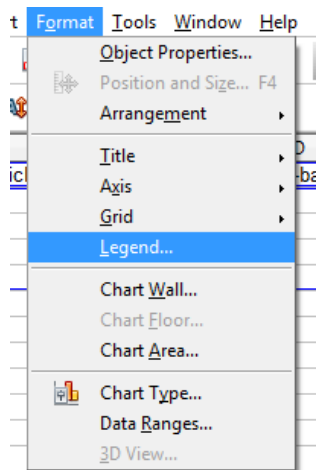
? Insert the values and click on OK.



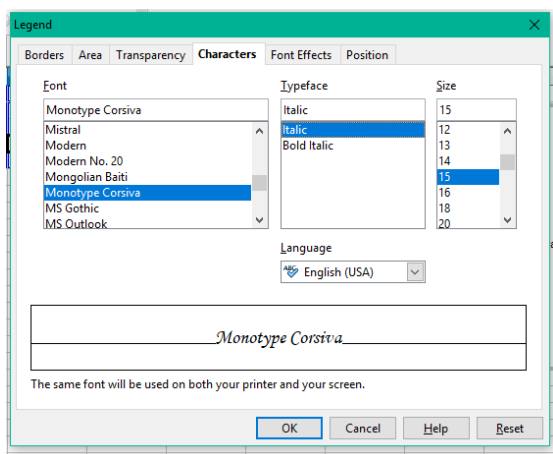
To format chart legend :

? Select Format Menu.

? Select Legend.



? Format the legends as per your choice.

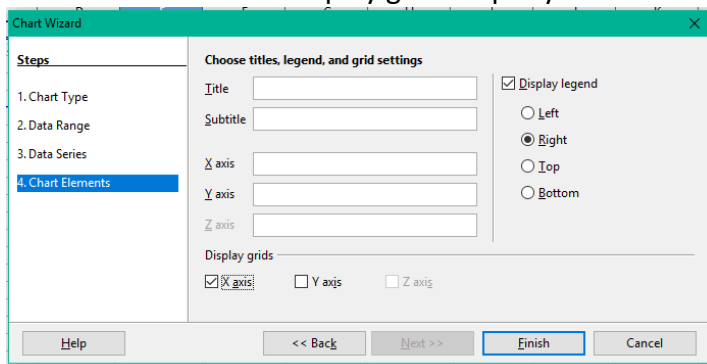


? **To change gridlines of the chart:**

? Select Insert chart.

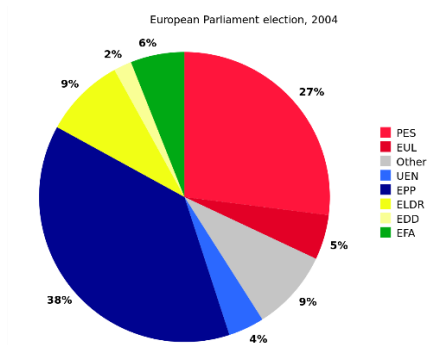
? In the Chart Wizard, go to chart elements.

? Check the box on the display grids as per your choice.

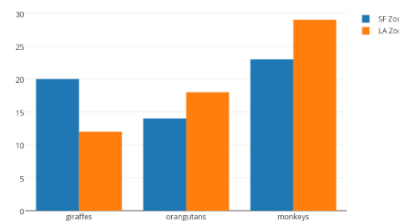


Types of chart:

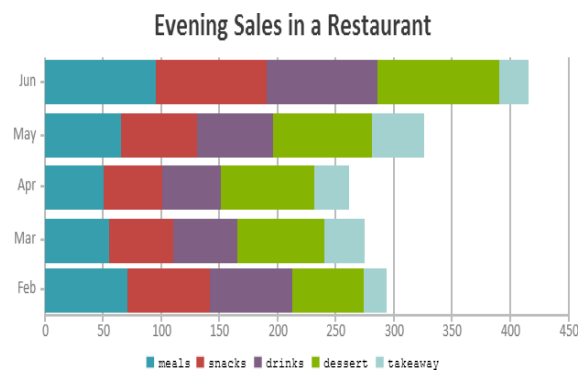
- Pie Chart
- Column Chart
- Line Chart
- Bar Chart
- Doughnut Chart
- Area Chart
- Scatter Chart



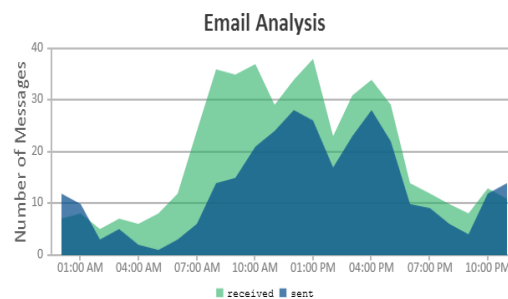
PIE CHART



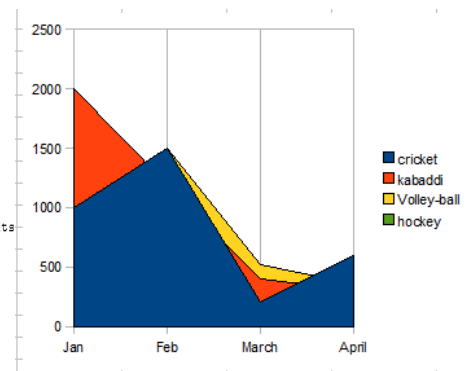
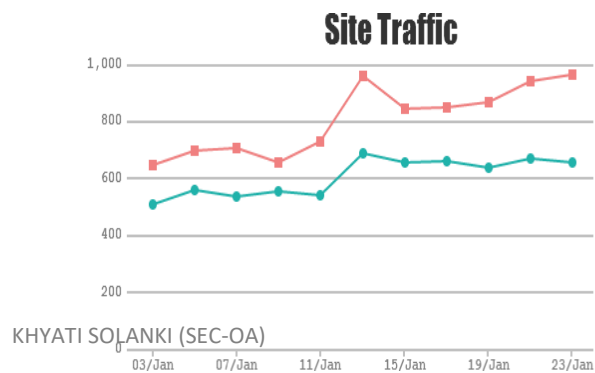
BAR CHART



COLUMN CHART



AREA CHART



ORGANIZING DATA IN A LIST

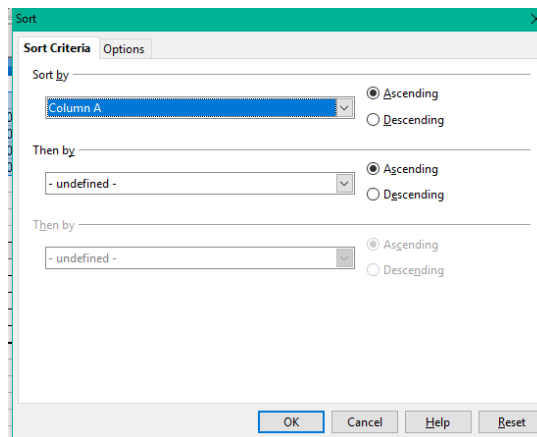
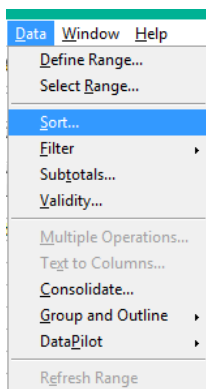
➤ **SORTING OF DATA:**

If your Spreadsheet worksheet has become quite large, using the Sort dialog box to sort on multiple columns can make it easier to find the data you need. The Sort dialog box lets you tell Spreadsheet what column to sort on next if two cells in the main sort column contain the same value or data.

Sorting lists is a common spreadsheet task that allows you to easily reorder your data. The most common type of sorting is alphabetical ordering, which you can do in ascending or descending order.

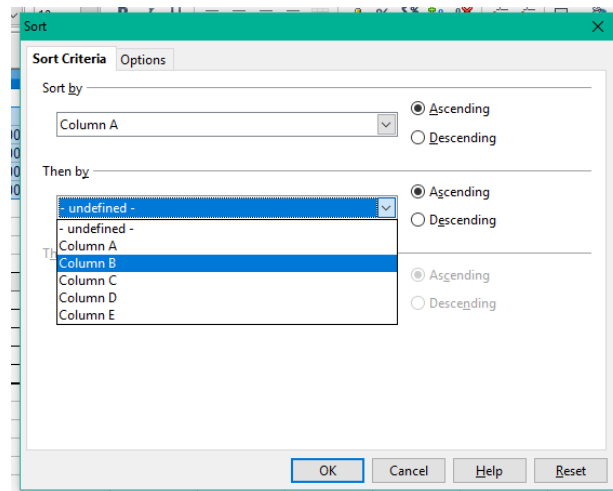
To sort in alphabetical order:

- Select a cell in the column you want to sort.
- From the Data Menu, select Sort.
- A dialog box for Sort will appear.
- In the Sort by option select the column name by which you want to sort.
- You have two options by which you can sort:
 - Ascending
 - Descending
- Click on OK.



To sort in multiple levels:

- Select a cell in the column you want to sort.
- From the Data Menu, select Sort.
- A dialog box for Sort will appear.
- In the Sort by option select the column name by which you want to sort first.
- You have two options by which you can sort that particular column:
 - Ascending
 - Descending
- Add the next level of sorting by selecting a column name from the **Then By..** option.



- Choose how to order the results. (Ascending or Descending)
- Click OK.

The spreadsheet has been sorted. All of the categories are organized in alphabetical order, and within each category the next data is arranged according to the next level sorting option.

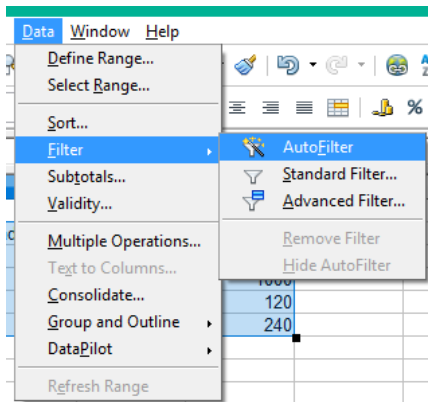
➤ **FILTERING OF DATA**

Filtering, or temporarily hiding, data in a spreadsheet is simple. This allows you to focus on specific spreadsheet entries.

The basic Spreadsheet filter allows you to view specific rows in an Spreadsheet spreadsheet, while hiding the other rows. This is commonly known as AutoFilter in Spreadsheet. When the Spreadsheet AutoFilter is added to the header row of a spreadsheet, a drop-down menu appears in each cell of the header row. This provides you with many filter options that can be used to specify which rows of the spreadsheet are to be displayed.

To filter data:

- Select a cell in the column you want to sort.
- From the Data Menu, select Filter.
- From the sub-menu, select AutoFilter.
- Drop-down arrows will appear beside each column heading.



| | A | B | C | D | E |
|---|-------|---------|---------|-------------|--------|
| 1 | | | | | |
| 2 | month | cricket | kabaddi | Volley-ball | hockey |
| 3 | Jan | 1000 | 2000 | 1000 | 1050 |
| 4 | Feb | 1500 | 1200 | 1500 | 1000 |
| 5 | March | 200 | 400 | 520 | 120 |
| 6 | April | 600 | 300 | 360 | 240 |
| 7 | | | | | |

- Click the drop-down arrow next to the heading you would like to filter. For example, if you would like to only view data of March, click the drop-down arrow next to month.

| | A | B | C | D | E |
|---|--------------------|---------|---------|-------------|--------|
| 1 | | | | | |
| 2 | month | cricket | kabaddi | Volley-ball | hockey |
| 3 | All | 1000 | 2000 | 1000 | 1050 |
| 4 | Top 10 | 1500 | 1200 | 1500 | 1000 |
| 5 | Standard Filter... | 200 | 400 | 520 | 120 |
| 6 | April | 600 | 300 | 360 | 240 |
| 7 | Feb | | | | |
| 8 | Jan | | | | |
| 9 | March | | | | |

- Select only March from the drop down list.
- All other data will be filtered, or hidden, and only the March data is visible.

| | A | B | C | D | E | F |
|---|-------|---------|---------|-------------|--------|---|
| 1 | | | | | | |
| 2 | month | cricket | kabaddi | Volley-ball | hockey | |
| 5 | March | 200 | 400 | 520 | 120 | |
| 7 | | | | | | |

Advanced Filter:

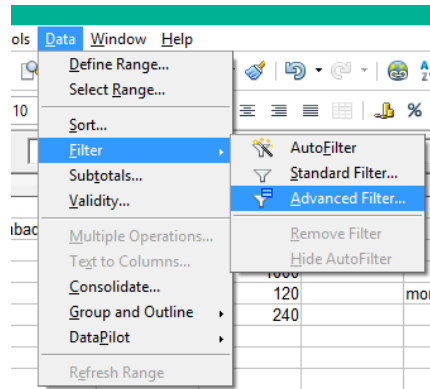
When you use the Advanced Filter, you need to enter the criteria on the worksheet. Create a Criteria range above your data set. Use the same column headers. Be sure there's at least one blank row between your Criteria range and data set.

To display the month in which expense in kabbadi greater than 1000, execute the following steps.

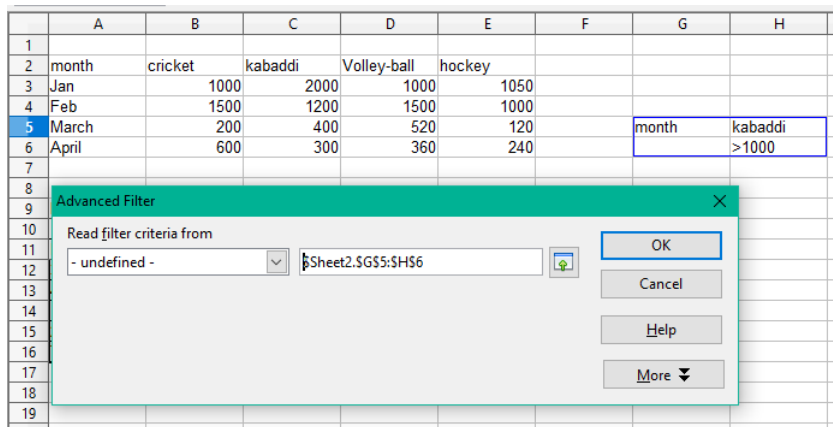
1. Enter the criteria shown below on the worksheet.

| | A | B | C | D | E | F | G | H |
|---|-------|---------|---------|-------------|--------|-------|---------|---|
| 1 | | | | | | | | |
| 2 | month | cricket | kabaddi | Volley-ball | hockey | | | |
| 3 | Jan | 1000 | 2000 | 1000 | 1050 | | | |
| 4 | Feb | 1500 | 1200 | 1500 | 1000 | | | |
| 5 | March | 200 | 400 | 520 | 120 | month | kabaddi | |
| 6 | April | 600 | 300 | 360 | 240 | | >1000 | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |

2. Click any single cell inside the data set.
3. From the Data Menu, select Filter.
4. From the sub-menu, select Advanced Filter.



5. Click in the Criteria range box and select the range A1:D2 (blue).



6. Click OK.

Notice the options to copy your filtered data set to another location and display unique records only (if your data set contains duplicates).

Result.

| | A | B |
|---|-------|---------|
| 1 | | |
| 2 | month | kabaddi |
| 3 | Jan | 2000 |
| 4 | Feb | 1200 |
| 7 | | |
| 8 | | |

GOAL SEEK

Usually, you run a formula to calculate a result based upon existing values. By contrast, using **Tools > Goal Seek**, you can discover what values will produce the result that you want.

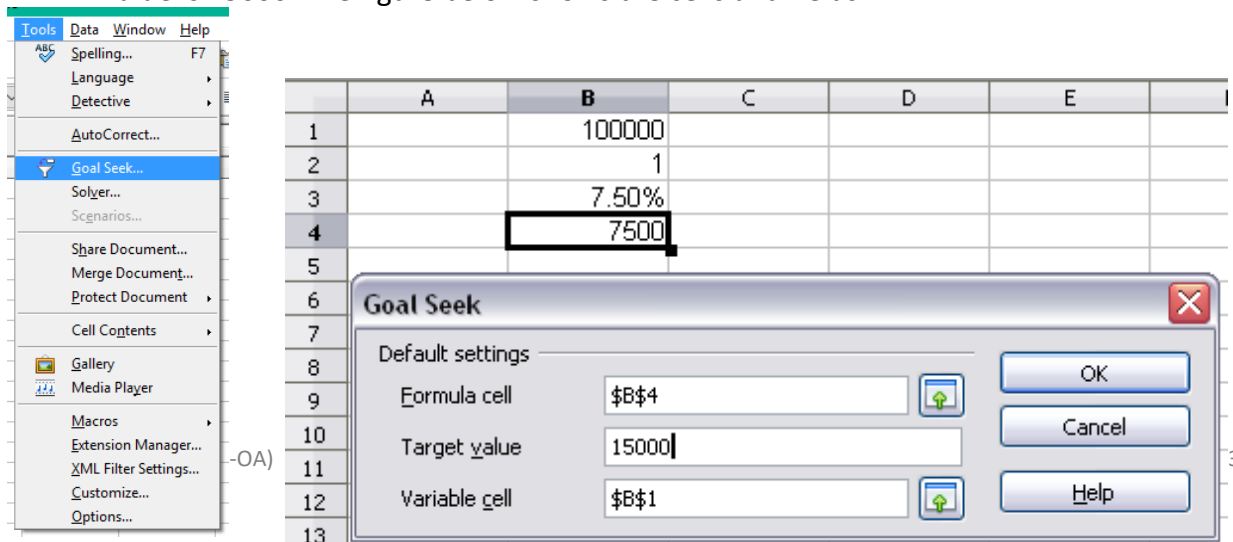
Goal Seek example

To calculate annual interest (I), create a table with the values for the capital (C), number of years (n), and interest rate (i). The formula is $I = C * n * i$.

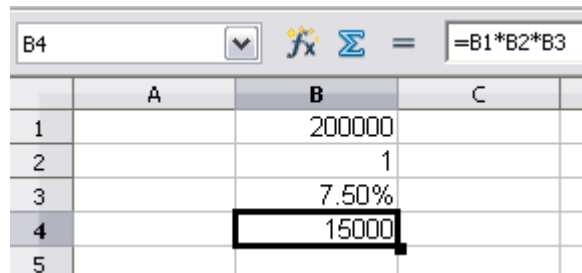
Let us assume that the interest rate i of 7.5% and the number of years n (1) will remain constant. However, you want to know how much the investment capital C would have to be modified in order to attain a particular return I . For this example, calculate how much capital C would be required if you want an annual return of \$15,000.

Enter each of the values mentioned above into adjacent cells (for Capital C , an arbitrary value like \$100,000 or it can be left blank; for number of years n , 1; for interest rate i , 7.5%). Enter the formula to calculate the interest I in another cell. Instead of C , n , and i use the reference to the cell with the corresponding value. In our example, this would be $=B1*B2*B3$.

1. Place the cursor in the formula cell (B4), and choose **Tools > Goal Seek**.
2. On the Goal Seek dialog, the correct cell is already entered in the *Formula cell* field.
3. Place the cursor in the *Variable cell* field. In the sheet, click in the cell that contains the value to be changed, in this example it is B1.
4. Enter the desired result of the formula in the *Target value* field. In this example, the value is 15000. The figure below shows the cells and fields.



1. Click **OK**. A dialog appears informing you that the Goal Seek was successful. Click **Yes** to enter the result in the cell with the variable value. The result is shown below.



| | A | B | C |
|---|---|--------|---|
| 1 | | 200000 | |
| 2 | | 1 | |
| 3 | | 7.50% | |
| 4 | | 15000 | |
| 5 | | | |

EXCEL SHORTCUTS:

OpenOffice Calc, a spreadsheet program, offers various keyboard shortcuts to help you work more efficiently. Here are some commonly used shortcuts in OpenOffice Calc:

1. Navigation and Selection:

- **Arrow Keys:** Move the active cell in the direction of the arrow key.
- **Tab:** Move to the next cell to the right.
- **Shift + Tab:** Move to the next cell to the left.
- **Enter:** Move to the cell below.
- **Shift + Enter:** Move to the cell above.
- **Ctrl + Arrow Key:** Jump to the edge of data region in the current direction.
- **Ctrl + Space:** Select the entire column.
- **Shift + Space:** Select the entire row.
- **Ctrl + A:** Select all cells in the current sheet.

2. Editing:

- **F2:** Edit the active cell.
- **Delete or Backspace:** Delete the contents of the selected cell(s).
- **Ctrl + X:** Cut selected cell(s).
- **Ctrl + C:** Copy selected cell(s).
- **Ctrl + V:** Paste cut or copied cell(s).
- **Ctrl + Z:** Undo the last action.
- **Ctrl + Y:** Redo the last action.

3. Formatting:

- **Ctrl + B:** Bold text.
- **Ctrl + I:** Italicize text.
- **Ctrl + U:** Underline text.
- **Ctrl + 1:** Format cells dialog.
- **Ctrl + Shift + L:** Add or remove bullet points in a cell.

4. Insert and Delete:

- **Ctrl + + (Plus Key):** Insert cells, rows, or columns.
- **Ctrl + - (Minus Key):** Delete cells, rows, or columns.
- **Ctrl + Shift + + (Plus Key):** Insert a new sheet.
- **Ctrl + Shift + - (Minus Key):** Delete the current sheet.

5. **Function Wizard:**

- **Ctrl + F2:** Open the Function Wizard.

6. **Other Useful Shortcuts:**

- **Ctrl + S:** Save the current spreadsheet.
- **Ctrl + O:** Open a new spreadsheet.
- **Ctrl + P:** Print the current spreadsheet.
- **Ctrl + F:** Find and replace.
- **Ctrl + H:** Find and replace dialog.
- **Ctrl + W:** Close the current spreadsheet.
- **Ctrl + N:** Open a new spreadsheet.

These shortcuts can help you navigate, edit, and format your spreadsheets more efficiently in OpenOffice Calc. Keep in mind that some shortcuts may vary depending on your operating system and configuration.

Using conditional formatting

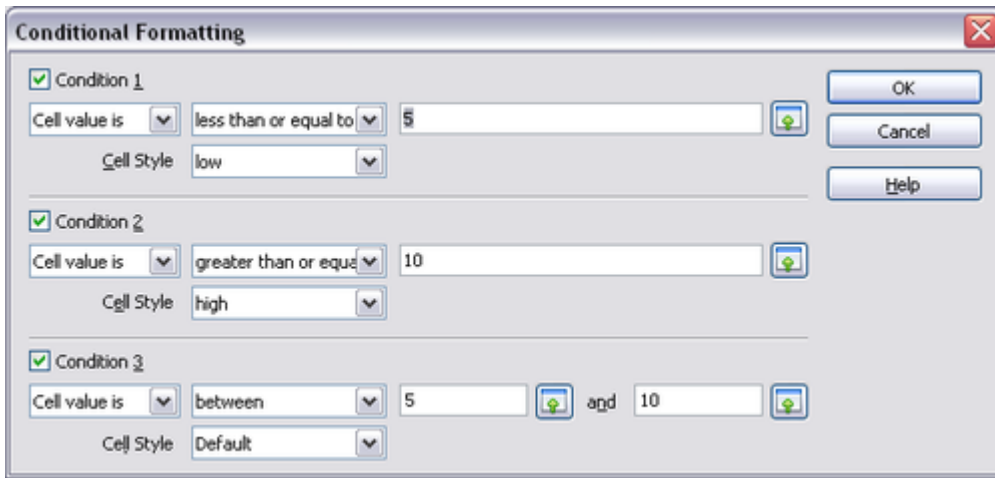
You can set up cell formats to change depending on conditions that you specify. For example, in a table of numbers, you can show all the values above the average in green and all those below the average in red.

To apply conditional formatting, AutoCalculate must be enabled. Choose **Tools > Cell Contents > AutoCalculate**.

Conditional formatting depends upon the use of styles. An easy way to set up the required styles is to format a cell the way you want it and click the New Style from Selection icon in the Styles and Formatting window.

After the styles are set up, here is how to use them.

1. In your spreadsheet, select the cells to which you want to apply conditional formatting.
2. Choose **Format > Conditional Formatting** from the menu bar.
3. On the Conditional Formatting dialog, enter the conditions. Click **OK** to save. The selected cells are now formatted in the relevant style.



Cell value is / Formula is

Specifies whether conditional formatting is dependent on a *cell value* or on a *formula*. If you select *cell value is*, the **Cell Value Condition** box is displayed, as shown in the example. Here you can choose from conditions including *less than*, *greater than*, *between*, and others.

Parameter field

Enter a reference, value, or formula in the parameter field, or in both parameter fields if you have selected a condition that requires two parameters. You can also enter formulas containing relative references.

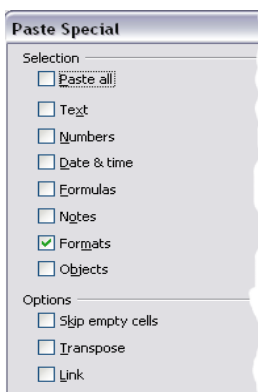
'Cell style'

Choose the cell style to be applied if the specified condition matches. The style must have been defined previously.

See the Help for more information and examples of use.

To apply the same conditional formatting later to other cells:

1. Select one of the cells that has been assigned conditional formatting.
2. Copy the cell to the clipboard.
3. Select the cells that are to receive this same formatting.
4. Choose **Edit > Paste Special**.
5. On the Paste Special dialog, in the Selection area, select *only* the **Formats** option. Make sure all other options are not selected. Click **OK**.



Applying conditional format

Important aspect of the data tools lies in the visualization of those data for easy understanding of the user. Conditional formatting gives different font size, font colour and background colour for different data, based on the user requirements.

You can set up cell formats to change font size, font colour, background colour depending on conditions that you specify. For example, in a table of numbers, you can show all the values above the average in green and all those below the average in red.

For example, the marks of the students are entered in the spreadsheet. The marks should be shown in different colours for the different marks ranges.

Illustration 11.1: Apply the conditional formatting for **Table 11.1** as for the condition given below.

1. Marks less than or equal to 50 in Lightgreen
2. Marks greater than 50 in blue

Table 11.1 Data with conditional Formatting

Table 11.1 Data with conditional Formatting

| Name | Marks |
|----------|-------|
| Kumar | 32 |
| Arun | 67 |
| Gayathri | 50 |
| Chandru | 98 |

Procedure to apply conditional formatting:

1. Select the cells which contain marks
2. Choose **Format → Conditional Formatting** from the menu bar

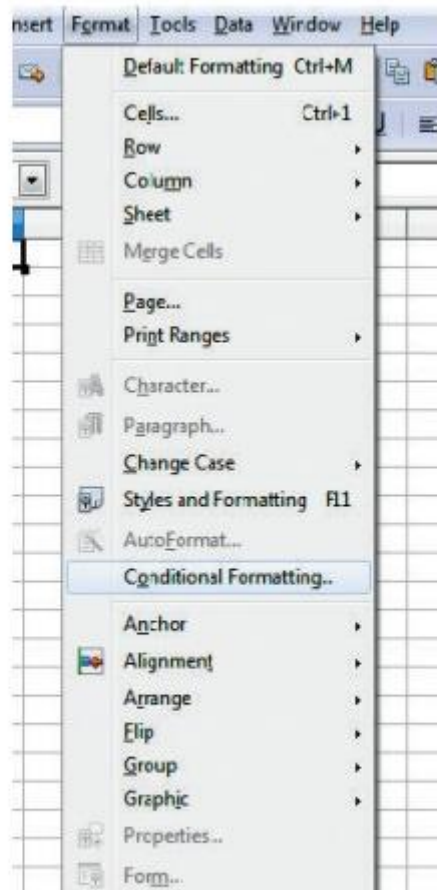


Figure 11.1 Format → Conditional Formatting

3. Conditional formatting dialog box appears as shown in **Figure 11.2**



Figure 11.2 Conditional Formatting Dialog Box

4. Select Condition 1, choose **cell value** is “greater than” and type **50** in the value box.
5. Then click **New Style** button. The New Style button has various options such as Font Style, Font Size, Font colour, Font alignment, Border Colour, and Background colour.

Now, the cell style dialog box appears as shown in Figure 11.3a will appear. Click Background Tab and choose light green.

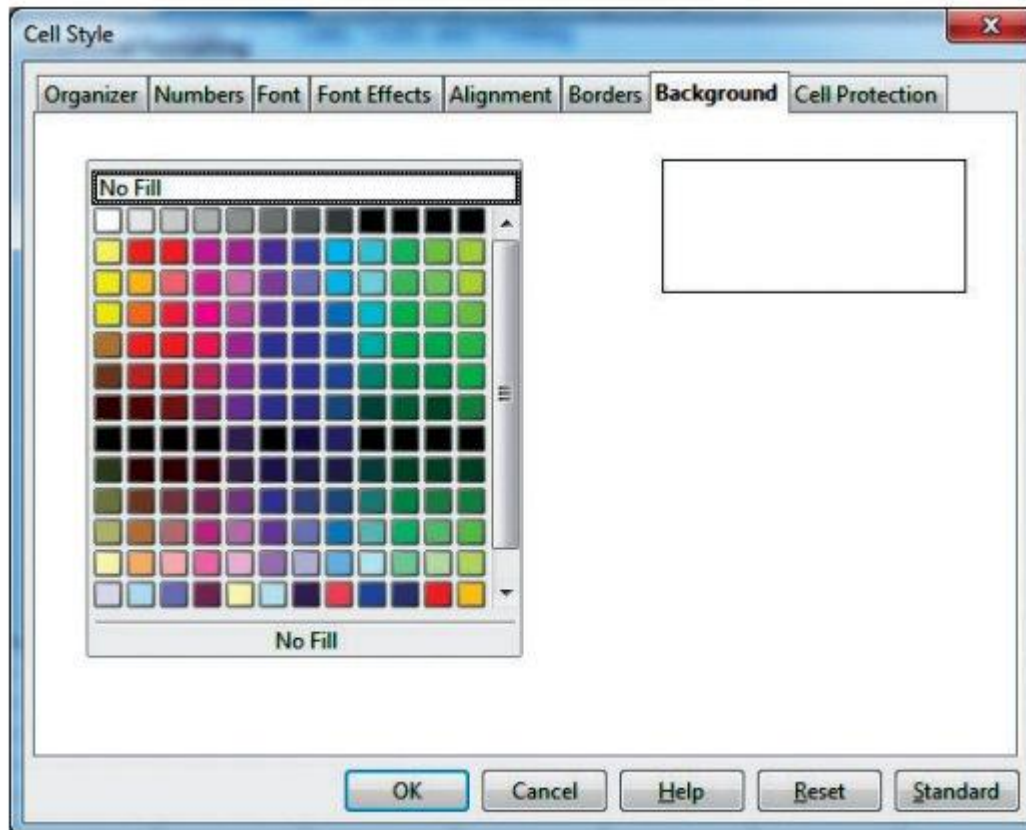


Figure 11.3a Conditional Formatting → New Style → Background

6. Similarly, Select Condition 2, choose cell value is “less than” and type 50 in the value box. In the background tab, choose blue colour.

Finally OpenOffice calc shows the result as given below:

| | A | B | C | D |
|---|-------------|--------------|---|---|
| 1 | Name | Marks | | |
| 2 | Kumar | 32 | | |
| 3 | Arun | 67 | | |
| 4 | Gayathri | 50 | | |
| 5 | Chandru | 98 | | |
| 6 | | | | |

Figure 11.3b Background Colour

DATA VALIDATION

Validating cell contents

When creating spreadsheets for other people to use, you may want to make sure they enter data that is valid or appropriate for the cell. You can also use validity in your own work as a guide to entering data that is either complex or rarely used.

Fill series and selection lists can handle some types of data, but they are limited to predefined information. For a more general case, you can select a cell and use **Data > Validity** to define the type of contents that can be entered in that cell. For example, a cell might require a date or a whole number, with no alphabetic characters or decimal points; or a cell may not be blank.

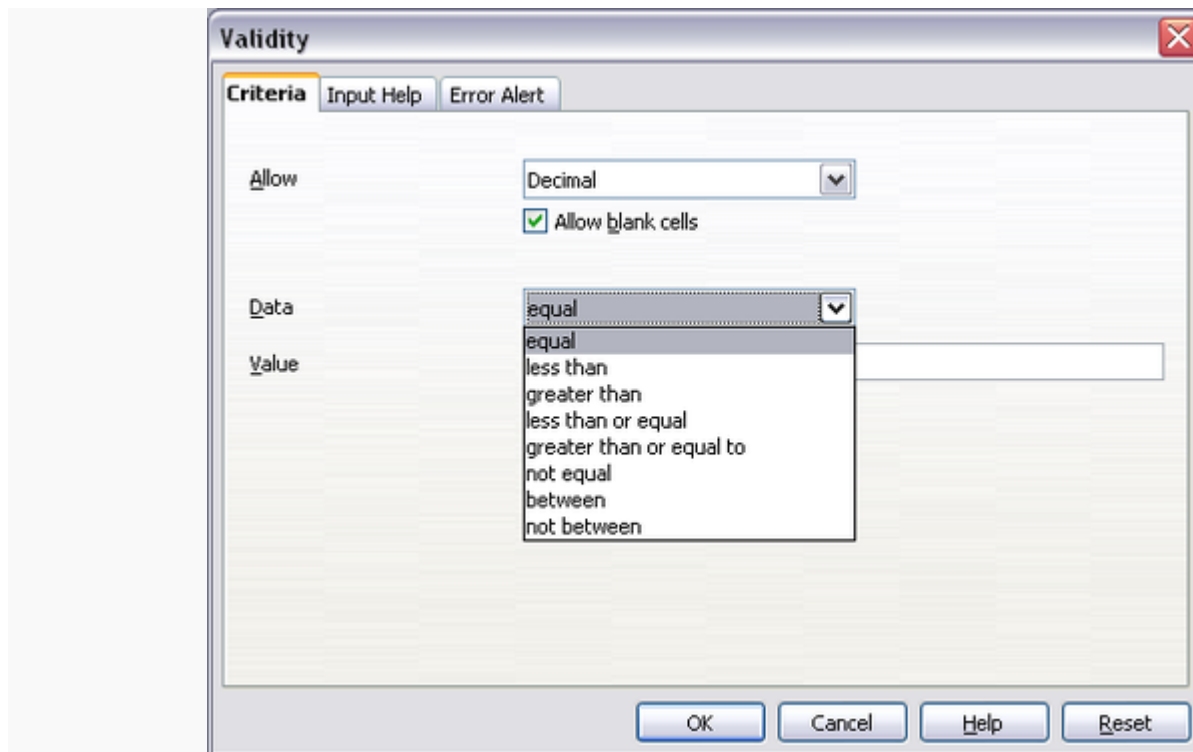
Depending on how validation is set up, the tool can also define the range of contents that can be entered and provide help messages that explain the content rules you have set up for the cell and what users should do when they enter invalid content. You can also set the cell to refuse invalid content, accept it with a warning, or—if you are especially well-organized—start a macro when an error is entered.

Validation is most useful for cells containing functions. If cells are set to accept invalid content with a warning, rather than refusing it, you can use **Tools > Detective > Mark Invalid Data** to find the cells with invalid data. The Detective marks with a circle any cells containing invalid data.

Note that a validity rule is considered part of a cell's format. If you select **Format** or **Delete All** from the Delete Contents window, then it is removed. (Repeating the Detective's Mark Invalid Data command then

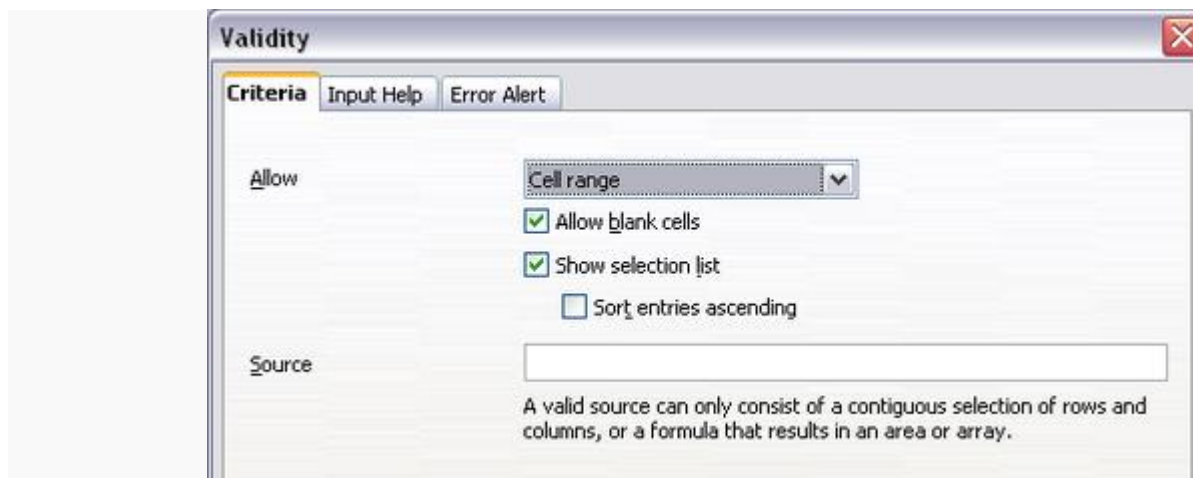
removes the invalid data circle, because the data is no longer invalid.) If you want to copy a validity rule with the rest of the cell, use **Edit > Paste Special > Paste Formats** or **Paste All**.

The figure below shows the choices for a typical validity test. Note the **Allow blank cells** option under the *Allow* list.



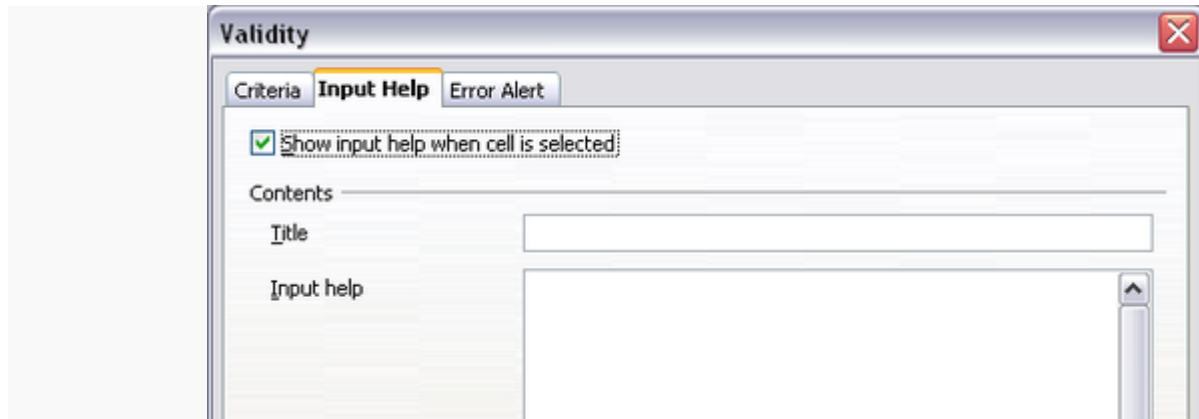
Typical validity test choices.

The validity test options vary with the type of data selected from the *Allow* list. For example, the figure below shows the choices when a cell must contain a cell range.



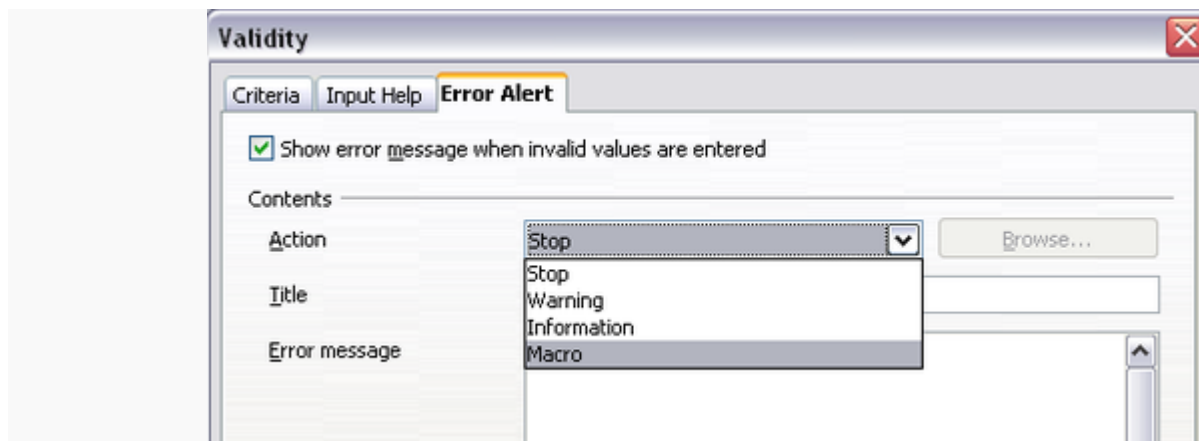
Validity choices for a cell range.

To provide input help for a cell, use the Input Help page of the Validity dialog.



Defining input help for a cell

To show an error message when an invalid value is entered, use the Error Alert page. Be sure to write something helpful, explaining what a valid entry should contain—not just “Invalid data—try again” or something similar.



Defining an error message for a cell with invalid data

Applying Validation

Validation will limit the data to be entered in the selected row/column/cell. For example, in the student database, the maximum roll no is 50. Hence, if the user enters a roll no above 50, it should give an error message.

Step 1: Enter Roll No in a cell A1 and select the entire column (column A)

Step 2: Go to **Data** → **Validity**, then a dialogue box will appear. In that, Go to **Criteria** Tab, Select whole numbers in the **Allow** field. It means only integer values are allowed.

Fractional values are not allowed. In the Data Field, select less than and in the maximum field type 50. Refer **Figure 11.16**.

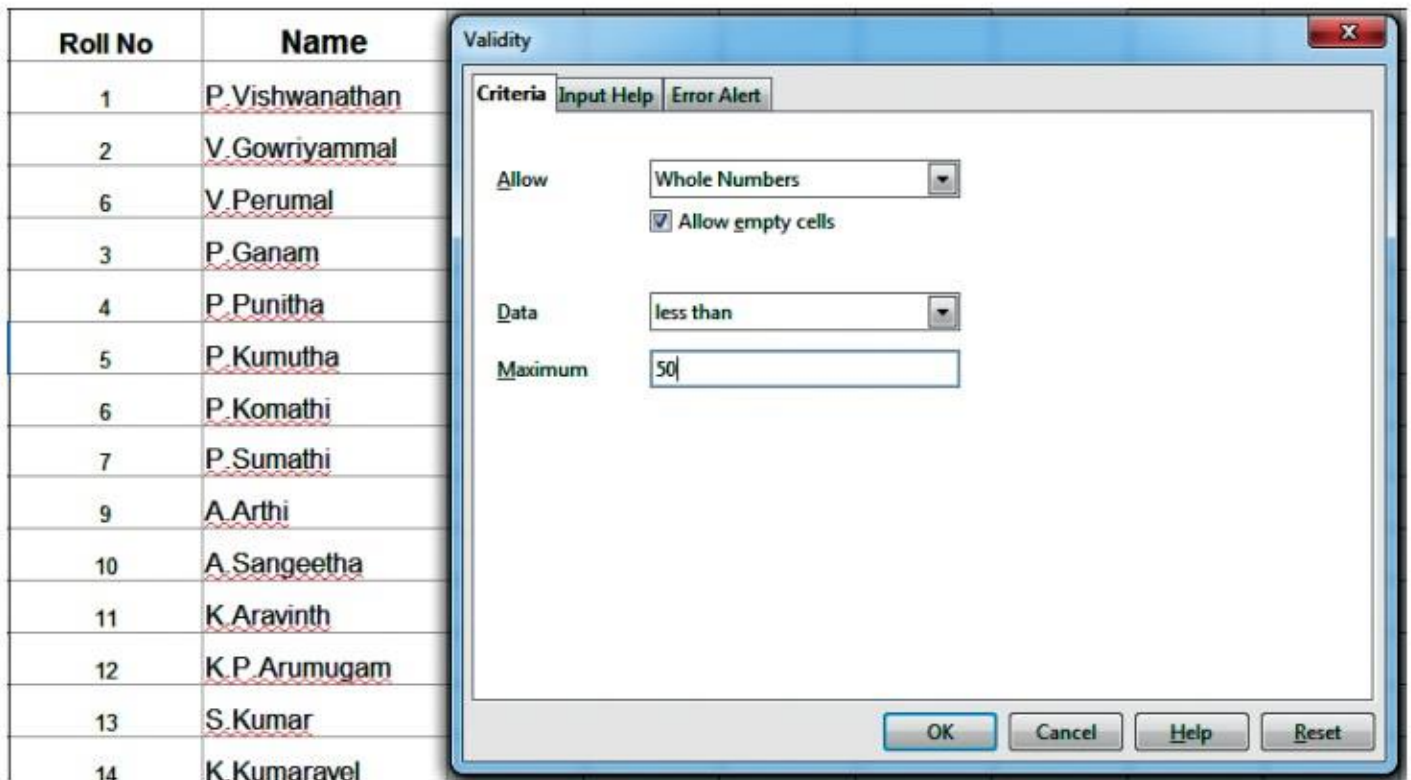


Figure 11.16 Screen shot of validity dialogue box (Criteria Tab)

Then go to Error Alert Tab, in that select Show error message when invalid values are entered check box. Then select Warning in the Action checklist, Enter title of the error message (such as invalid) in the Title text box. Then Type the error message in the Error message multi line text box. Refer **Figure 11.17**.

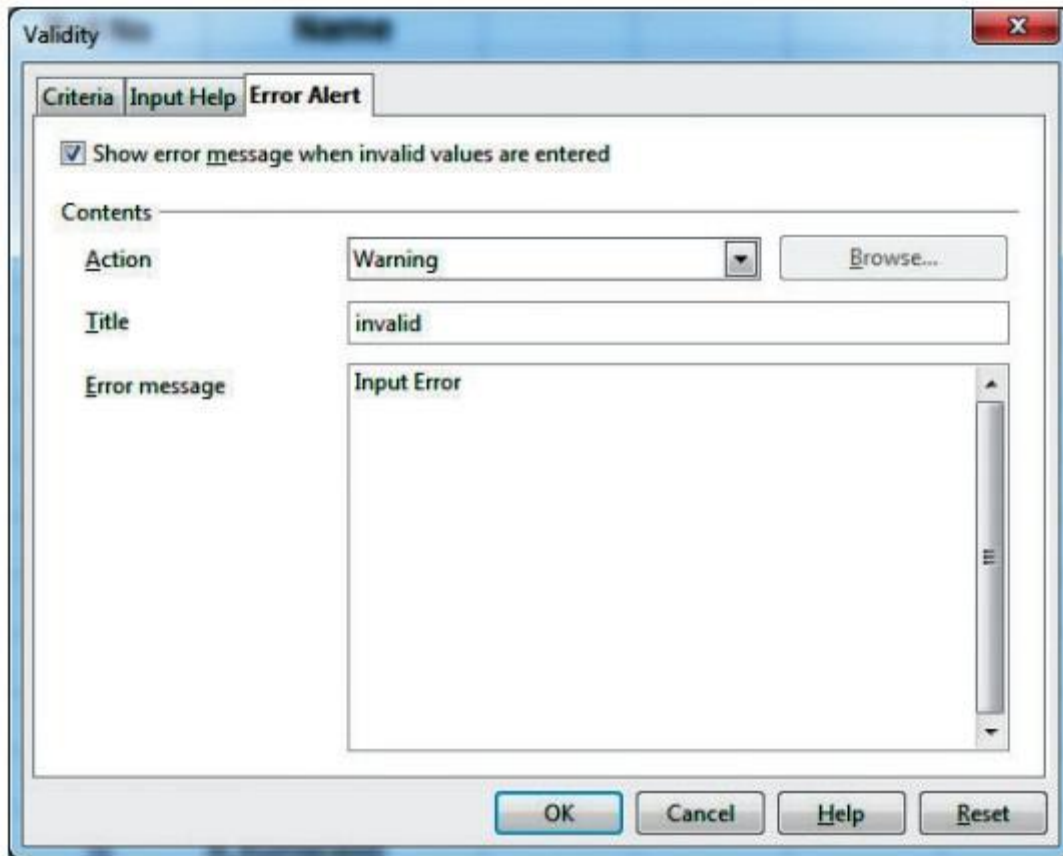


Figure 11.17 Screen shot of validity dialogue box (Error Alert Tab)

Now, in the Roll No column, if the user types values above 50, the error message will appear as shown in **Figure 11.18**.

| Roll No | Name | | | | |
|---------|-----------------|--|--|--|--|
| 1 | P. Vishwanathan | | | | |
| 2 | V. Gowriyammal | | | | |
| 6 | V. Perumal | | | | |
| 3 | P. Ganam | | | | |
| 4 | P. Punitha | | | | |
| 55 | P. Kumutha | | | | |
| 6 | P. Komathi | | | | |
| 7 | P. Sumathi | | | | |
| 9 | A. Arthi | | | | |
| 10 | A. Sangeetha | | | | |
| 11 | K. Aravinth | | | | |
| 12 | K. P. Arumugam | | | | |
| 13 | S. Kumar | | | | |
| 14 | K. Kumaravel | | | | |

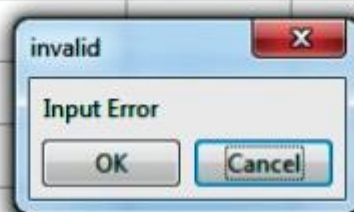


Figure 11.18 Screen shot of validity error

scenarios

Scenarios are a tool to test “what-if” questions. Each scenario is named, and can be edited and formatted separately. When you print the spreadsheet, only the contents of the currently active scenario is printed.

A scenario is essentially a saved set of cell values for your calculations. You can easily switch between these sets using the Navigator or a drop-down list which can be shown beside the changing cells. For example, if you wanted to calculate the effect of different interest rates on an investment, you could add a scenario for each interest rate, and quickly view the results. Formulas that rely on the values changed by your scenario are updated when the scenario is opened. If all your sources of income used scenarios, you could efficiently build a complex model of your possible income.

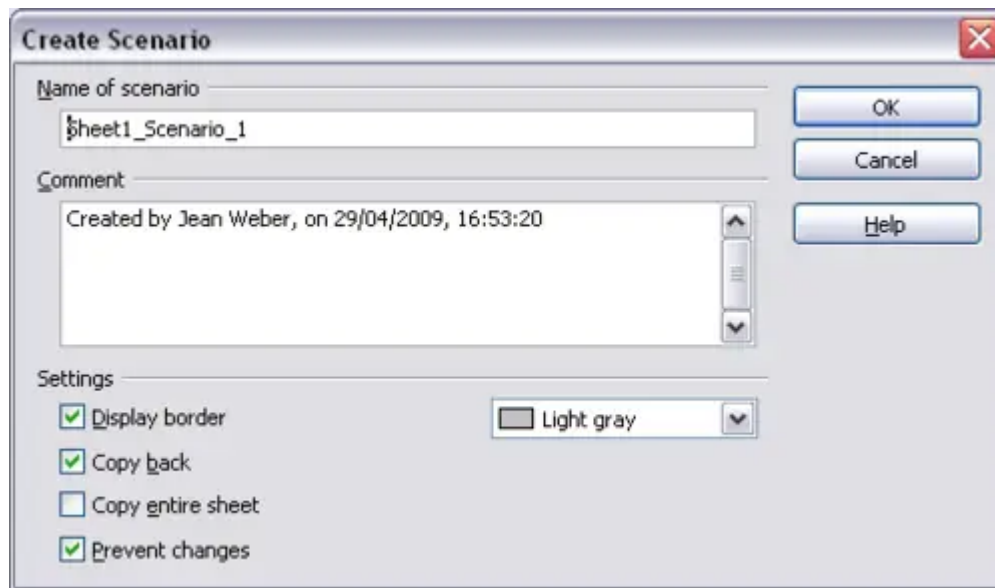
Creating scenarios

To create a scenario, select all the cells that provide the data for the scenario.

Select the cells that contain the values that will change between scenarios. To select multiple cells, hold down the *Ctrl* key as you click each cell.

Choose **Tools > Scenarios**.

On the Create Scenario dialog, enter a name for the new scenario. It's best to use a name that clearly identifies the scenario, not the default name as shown in the illustration. This name is displayed in the Navigator and on the title bar of the scenario on the sheet itself.



Optionally add some information to the **Comment** box. The example shows the default comment. This information is displayed in the Navigator when you click the Scenarios icon and select the desired scenario.

Optionally select or deselect the options in the *Settings* section. See below for more information about these options.

Click **OK** to close the dialog. The new scenario is automatically activated.