CHAPTER 11

Data Tools and Printing

Learning Objective

- To Learn various data processing tools in spreadsheet.
- To Learn about page formatting and printing in the spreadsheet.

QXTA6H

11.1 Data tools

Data Tools are used to manipulate the information in spreadsheet. The data tools in spreadsheet are used for automated manipulation. For the new users, these tools may be like advanced options. But, a user who is experienced in these tools can do complex manipulation in a simple way.

11.2 Applying conditional format

An 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 requirement.

Cell formats help to change the font size, font colour, background colour depending on conditions that we specify. For example, in a table of numbers, all the values above average can be displayed in green and below average in red by specifying condition.

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

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

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

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

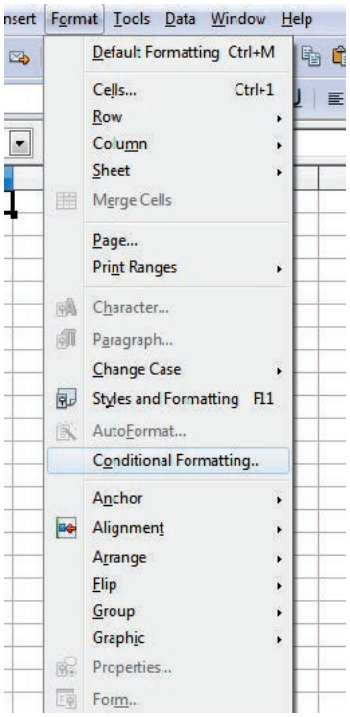


Figure 11.1 Format → Conditional Formatting

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

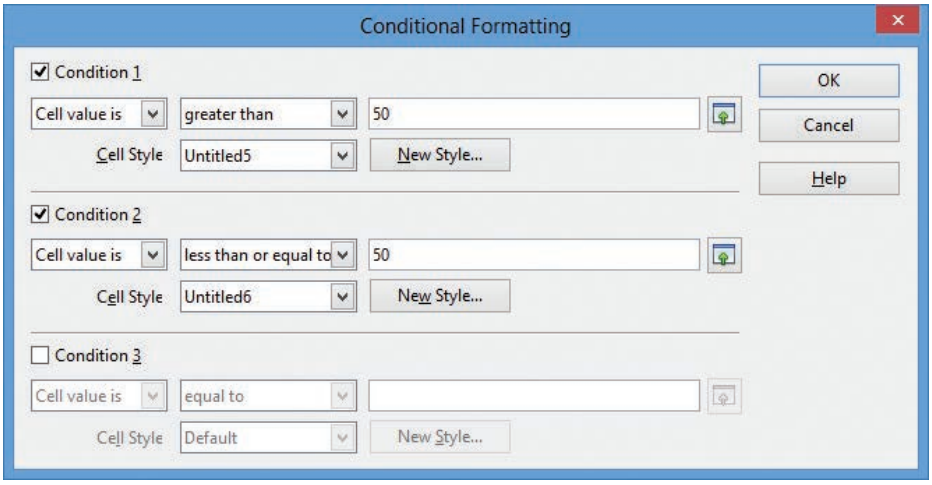


Figure 11.2 Conditional Formatting Dialog Box

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 and click **Ok** button.

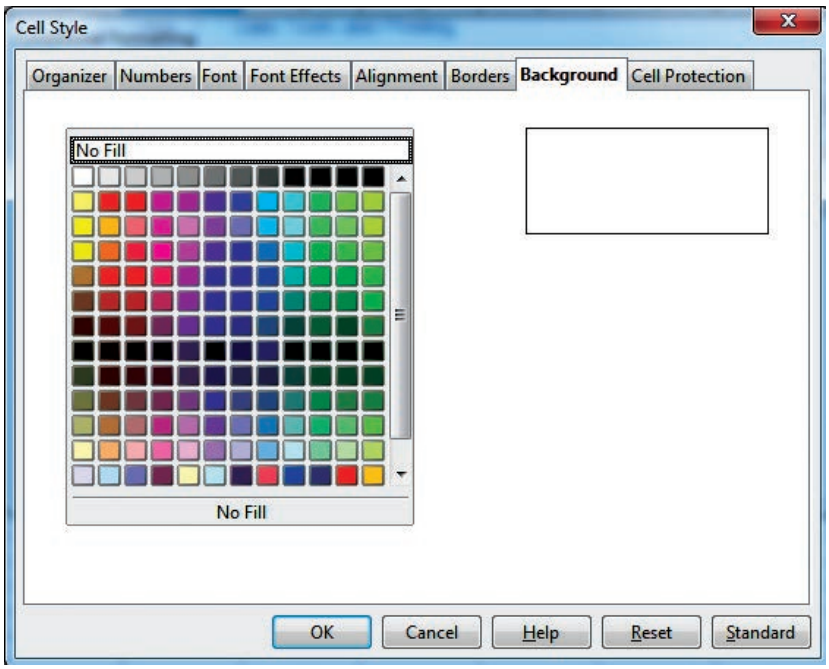


Figure 11.3a Conditional Formatting → New Style → Background

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 and click **Ok** button.

Finally OpenOffice calc shows the result as given below:

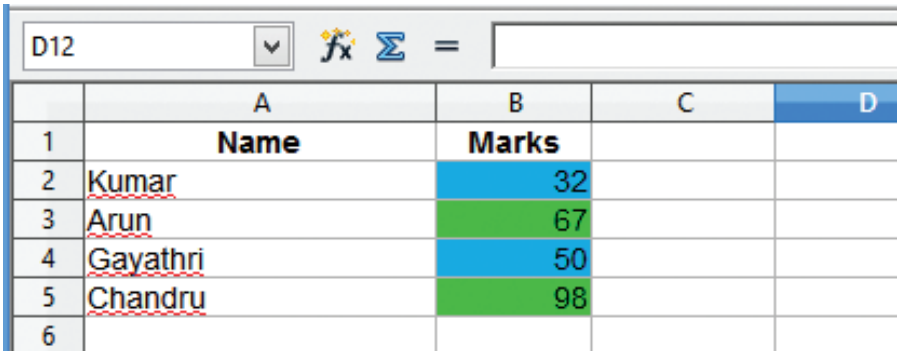


Figure 11.3b Background Colour

11.3 Sorting

Sorting is the process of re-arranging data in ascending or descending order. There are three types of sorting in OpenOffice Calc. They are,

(1) Simple Sorting

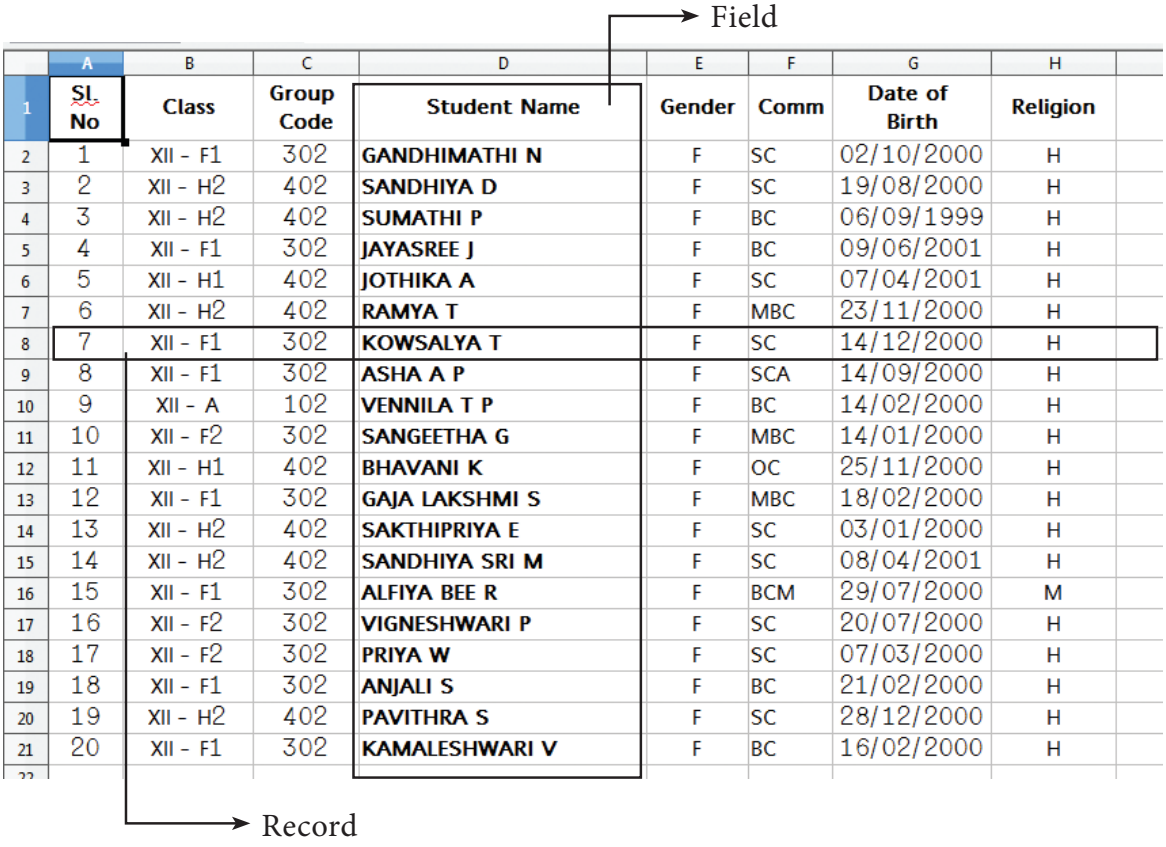
(2) Multi Sorting

(3) Sort by selection

11.3.1 Simple Sorting

Arranging data using a single column is known as simple sorting. To sort the data, calc provides two icons on the standard tool bar viz. (1) Sort Ascending (2) Sort Descending.

- Sort Ascending – Arranging data in alphabetical order (A to Z / Small to Large)
- Sort Descending – Arranging data in reverse order (Z to A / Large to Small)



	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
2	1	XII - F1	302	GANDHIMATHI N	F	SC	02/10/2000	H
3	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
4	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
5	4	XII - F1	302	JAYASREE J	F	BC	09/06/2001	H
6	5	XII - H1	402	JOTHIKA A	F	SC	07/04/2001	H
7	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
8	7	XII - F1	302	KOWSALYA T	F	SC	14/12/2000	H
9	8	XII - F1	302	ASHA A P	F	SCA	14/09/2000	H
10	9	XII - A	102	VENNILA T P	F	BC	14/02/2000	H
11	10	XII - F2	302	SANGEETHA G	F	MBC	14/01/2000	H
12	11	XII - H1	402	BHAVANI K	F	OC	25/11/2000	H
13	12	XII - F1	302	GAJA LAKSHMI S	F	MBC	18/02/2000	H
14	13	XII - H2	402	SAKTHIPRIYA E	F	SC	03/01/2000	H
15	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
16	15	XII - F1	302	ALFIYA BEE R	F	BCM	29/07/2000	M
17	16	XII - F2	302	VIGNESHWARI P	F	SC	20/07/2000	H
18	17	XII - F2	302	PRIYA W	F	SC	07/03/2000	H
19	18	XII - F1	302	ANJALI S	F	BC	21/02/2000	H
20	19	XII - H2	402	PAVITHRA S	F	SC	28/12/2000	H
21	20	XII - F1	302	KAMALESHWARI V	F	BC	16/02/2000	H

Figure 11.4 Spreadsheet Data Table

Sorting data

Step 1: Place the cell pointer in the field (column) to be sorted

Step 2: Click Sort Ascending or Sort Descending icon

OpenOffice Calc, sorts the data based on selected column and its corresponding values present in other columns are also arranged simultaneously. Refer **Figure 11.6.**

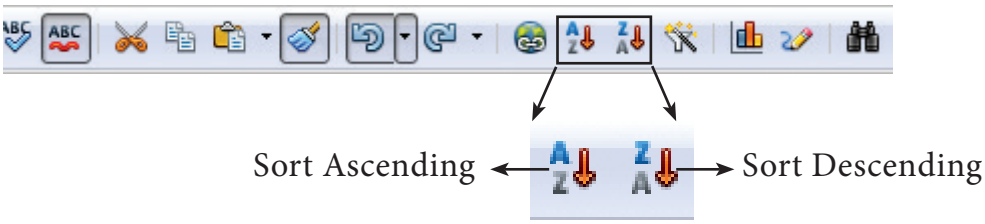
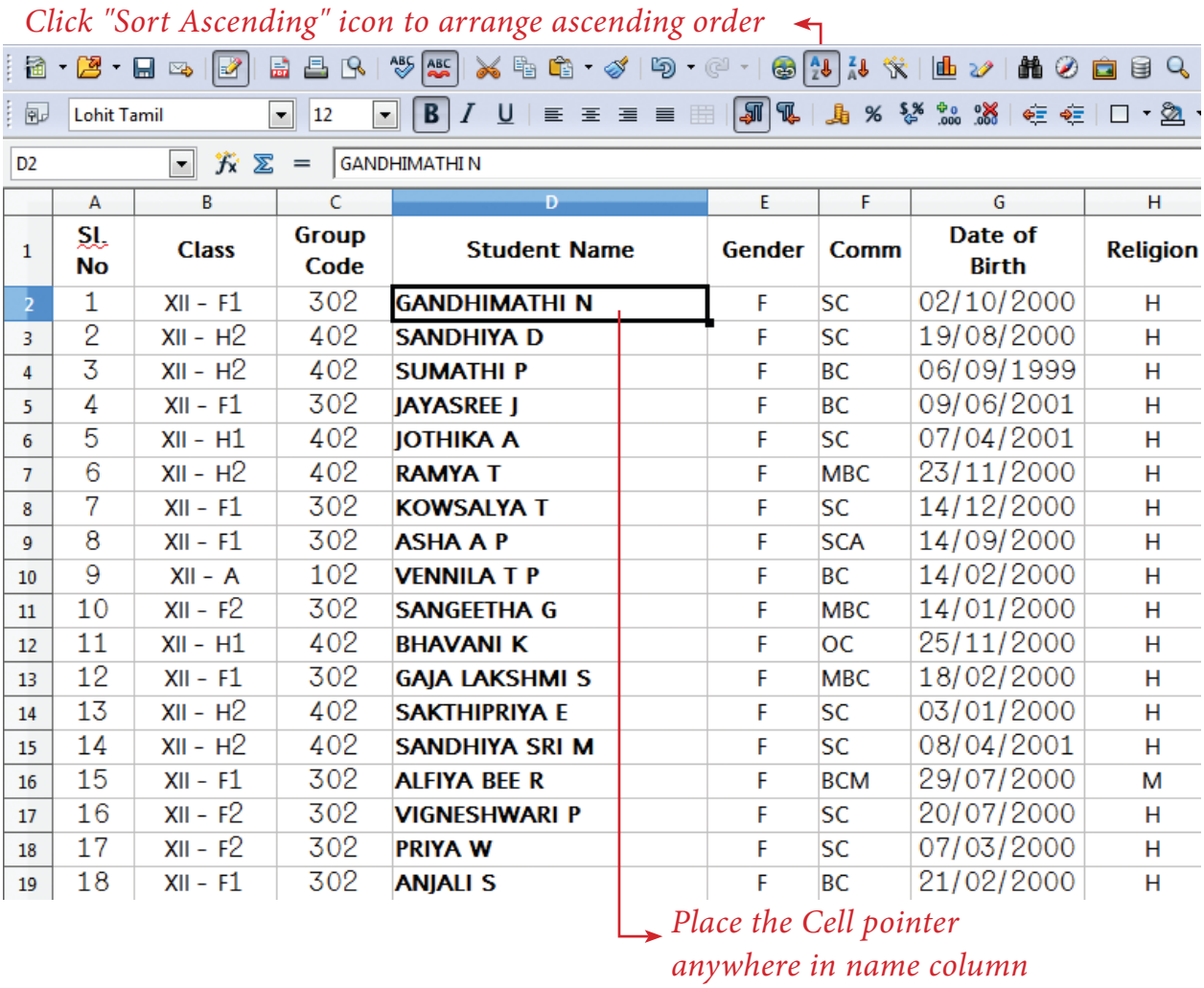


Figure 11.5 Standard Tool Bar with Sort Ascending / Descending



	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
2	1	XII - F1	302	GANDHIMATHI N	F	SC	02/10/2000	H
3	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
4	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
5	4	XII - F1	302	JAYASREE J	F	BC	09/06/2001	H
6	5	XII - H1	402	JOTHIKA A	F	SC	07/04/2001	H
7	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
8	7	XII - F1	302	KOWSALYA T	F	SC	14/12/2000	H
9	8	XII - F1	302	ASHA A P	F	SCA	14/09/2000	H
10	9	XII - A	102	VENNILA T P	F	BC	14/02/2000	H
11	10	XII - F2	302	SANGEETHA G	F	MBC	14/01/2000	H
12	11	XII - H1	402	BHAVANI K	F	OC	25/11/2000	H
13	12	XII - F1	302	GAJA LAKSHMI S	F	MBC	18/02/2000	H
14	13	XII - H2	402	SAKTHIPRIYA E	F	SC	03/01/2000	H
15	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
16	15	XII - F1	302	ALFIYA BEE R	F	BCM	29/07/2000	M
17	16	XII - F2	302	VIGNESHWARI P	F	SC	20/07/2000	H
18	17	XII - F2	302	PRIYA W	F	SC	07/03/2000	H
19	18	XII - F1	302	ANJALI S	F	BC	21/02/2000	H

Figure 11.6 Sort Ascending

11.3.2 Multi Sorting

Sorting data based on more than one field (column) is known as **multi sorting**. For example, consider a worksheet containing data of 20 students belonging to different groups and classes. To rearrange this data alphabetically by name and group code, multi sorting is used. Refer **Figure 11.6.**

Multi-sorting data

Step 1: Select **Data** → **Sort**

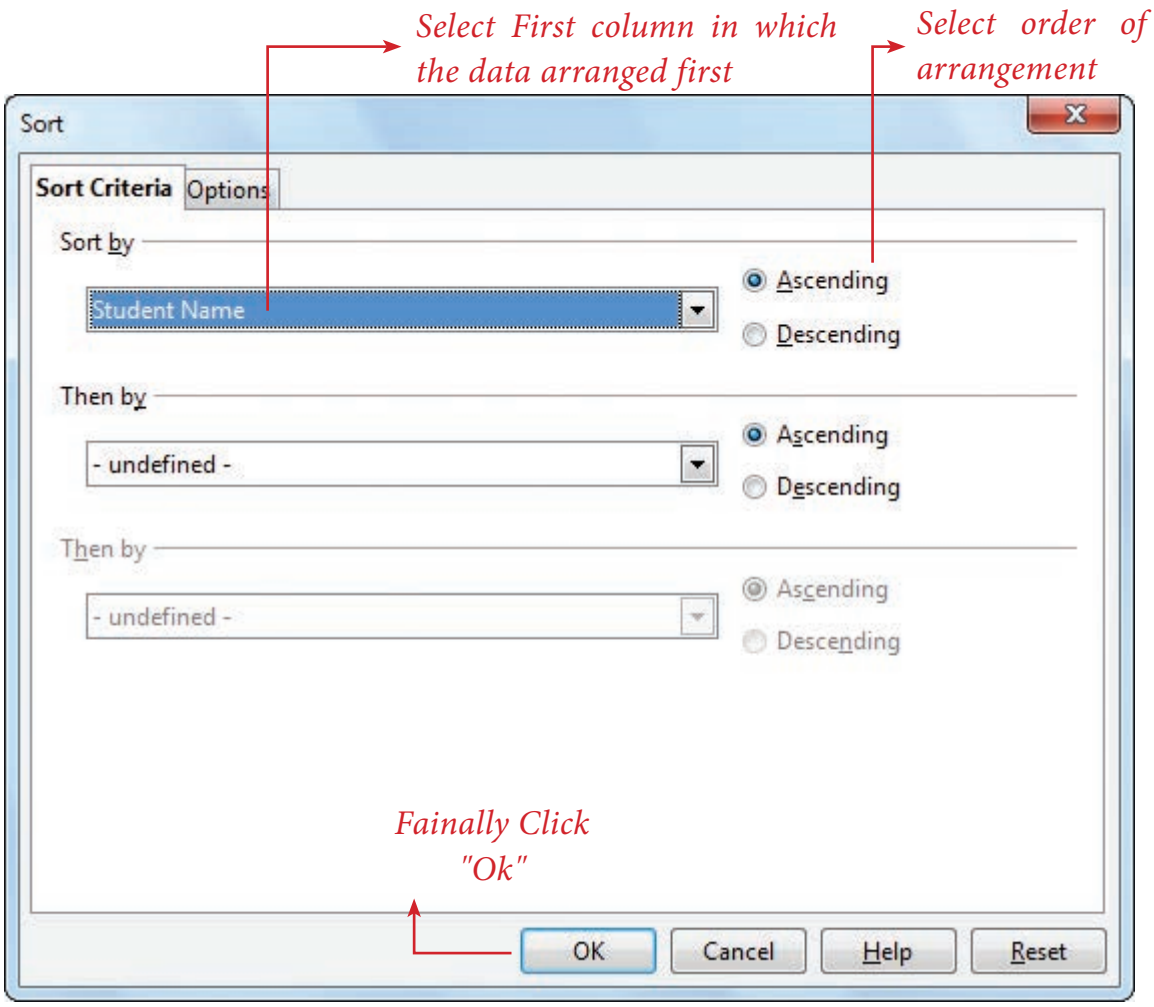


Figure 11.7 Multi-sorting dialog box

Step 2: Sort dialog box appears. (Refer **Figure 11.7**).

Step 3: Select the field name (Student name) in which you want to sort from the "**sort by**" dropdown list box and then choose order of sorting i.e. **Ascending or Descending**. Ascending is the default selection.

Step 4: Select another field name (Group Code) from the "**Then by**" dropdown list box and choose the order of sorting to this column.

Step 5: Click "OK" button.

In OpenOffice Calc, multi sort can be done only for three fields.

	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
2	15	XII - F1	302	ALFIYA BEE R	F	BCM	29/07/2000	M
3	18	XII - F1	302	ANJALI S	F	BC	21/02/2000	H
4	8	XII - F1	302	ASHA A P	F	SCA	14/09/2000	H
5	11	XII - H1	402	BHAVANI K	F	OC	25/11/2000	H
6	12	XII - F1	302	GAJA LAKSHMI S	F	MBC	18/02/2000	H
7	1	XII - F1	302	GANDHIMATHI N	F	SC	02/10/2000	H
8	4	XII - F1	302	JAYASREE J	F	BC	09/06/2001	H
9	5	XII - H1	402	JOTHIKA A	F	SC	07/04/2001	H
10	20	XII - F1	302	KAMALESHWARI V	F	BC	16/02/2000	H
11	7	XII - F1	302	KOWSALYA T	F	SC	14/12/2000	H
12	19	XII - H2	402	PAVITHRA S	F	SC	28/12/2000	H
13	17	XII - F2	302	PRIYA W	F	SC	07/03/2000	H
14	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
15	13	XII - H2	402	SAKTHIPRIYA E	F	SC	03/01/2000	H
16	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
17	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
18	10	XII - F2	302	SANGEETHA G	F	MBC	14/01/2000	H
19	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
20	9	XII - A	102	VENNILA T P	F	BC	14/02/2000	H
21	16	XII - F2	302	VIGNESHWARI P	F	SC	20/07/2000	H

Figure 11.8 Sorted Table

Note: Names are arranged in Ascending order according to names, while the other data are also rearranged simultaneously.

11.3.3 Sort by selection

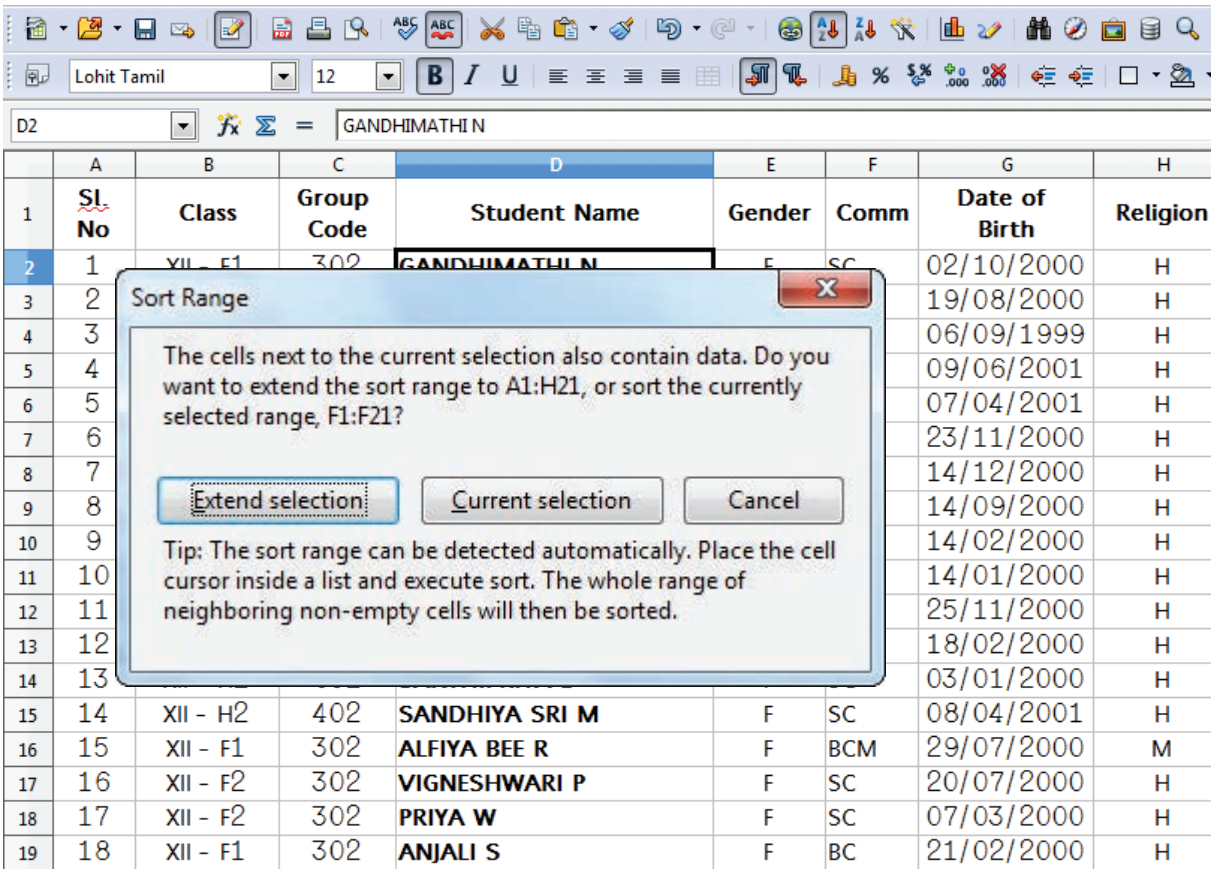
In Calc sorting can be done on selected range. But this kind of sorting is generally not recommended, because the other relevant data are also not sorted. Therefore, OpenOffice Calc displays a warning message for this type of sorting. Refer **Figure 11.9.**

Sorting data by selection:

Step 1: Select any particular field in which you want sort.

Step 2: Click required Sort icon from standard tool bar or **Data** → **Sort** command.Calc displays a **"Sort Range"** warning message as shown in the **Figure 11.9** "Sort Range" message box has two options, viz. (1) Extend selection (2) Current selection.

Step 3: "Extend Selection" – Sorts the data beyond on the selection. "Current Selection" – Sort only the selected range of data, remaining data are not sorted.



	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
2	1	XII - F1	302	GANDHIMATHI N	F	SC	02/10/2000	H
3	2						19/08/2000	H
4	3						06/09/1999	H
5	4						09/06/2001	H
6	5						07/04/2001	H
7	6						23/11/2000	H
8	7						14/12/2000	H
9	8						14/09/2000	H
10	9						14/02/2000	H
11	10						14/01/2000	H
12	11						25/11/2000	H
13	12						18/02/2000	H
14	13						03/01/2000	H
15	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
16	15	XII - F1	302	ALFIYA BEE R	F	BCM	29/07/2000	M
17	16	XII - F2	302	VIGNESHWARI P	F	SC	20/07/2000	H
18	17	XII - F2	302	PRIYA W	F	SC	07/03/2000	H
19	18	XII - F1	302	ANJALI S	F	BC	21/02/2000	H

Figure 11.9 Sort by selection

11.4 Filtering

Filter is a way of limiting the information that appears on screen. Filters are a feature for displaying and browsing a selected list or subset of data from a worksheet. The visible records satisfy the condition set by the user. Those that do not satisfy the condition are only hidden, but not removed.

OpenOffice Calc allows three types of filters. They are ***AutoFilter, Standard Filter*** and ***Advanced Filter***.

11.4.1 Auto Filter:

Auto Filter applies a drop-down list box to each field (columns) filled with similar data available in that field. Using the list box item, you can filter the data that matches the criteria of the data concerned.

Using Auto Filter:

- Click Auto Filter icon available on the "Standard tool bar" (or) Click **Data → Filter → Auto Filter**

- The list box contains similar data in the fields. Refer Figure 11.10 and 11.11
- Each list box item will be considered as filter criteria.

Drop down list box

	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
2	1	XII - F1	302	GANDHIMATHI N	F	SC	02/10/2000	H
3	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
4	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
5	4	XII - F1	302	JAYASREE J	F	BC	09/06/2001	H
6	5	XII - H1	402	JOTHIKA A	F	SC	07/04/2001	H
7	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
8	7	XII - F1	302	KOWSALYA T	F	SC	14/12/2000	H
9	8	XII - F1	302	ASHA A P	F	SCA	14/09/2000	H
10	9	XII - A	102	VENNILA T P	F	BC	14/02/2000	H

Figure 11.10 Spreadsheet table with Auto Filter

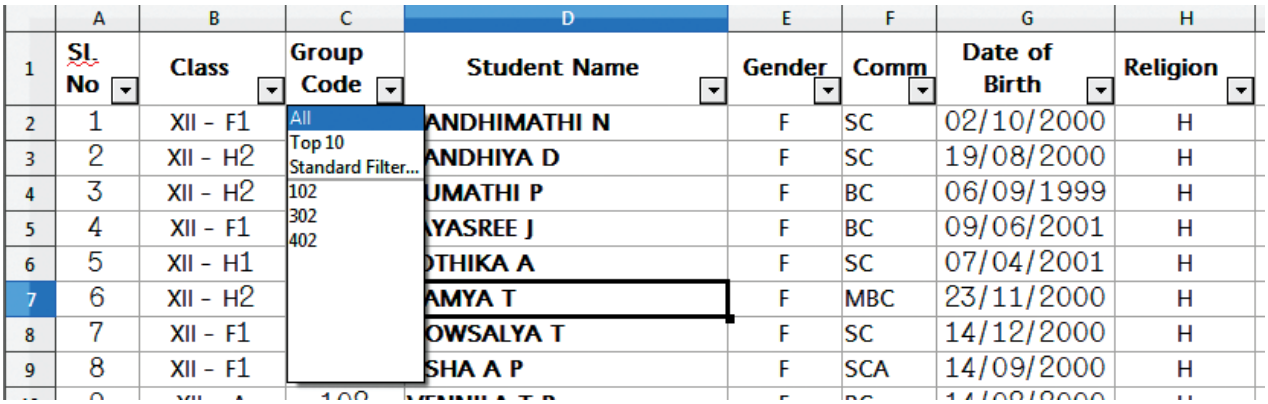


Figure 11.11 Auto Filter dropdown list box

- Select the data item from the list box. Now, Calc shows only the records which are satisfy the selected criteria.

Example:

If you want to apply an auto filter to the contents of the **Figure 11.4**, follow the following two steps

Step 1: Place cell pointer anywhere in the table

Step 2: Click Auto Filter icon available on the "Standard tool bar" (or) Click **Data → Filter → Auto Filter**

In the above table, if you want to view only the students belonging to the **Group Code 402**

- Click the dropdown list box's drop arrow (a tiny triangle) to get the filter criteria. (Refer **Figure 11.11**)

- Select group code 402 from the list
- The worksheet displays only the student's details who are studying in group code 402 (Refer **Figure 11.12**) and the remaining records are hidden.

	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
3	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
4	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
6	5	XII - H1	402	JOTHIKA A	F	SC	07/04/2001	H
7	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
12	11	XII - H1	402	BHAVANI K	F	OC	25/11/2000	H
14	13	XII - H2	402	SAKTHIPRIYA E	F	SC	03/01/2000	H
15	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
20	19	XII - H2	402	PAVITHRA S	F	SC	28/12/2000	H

Figure 11.12 Filtered details

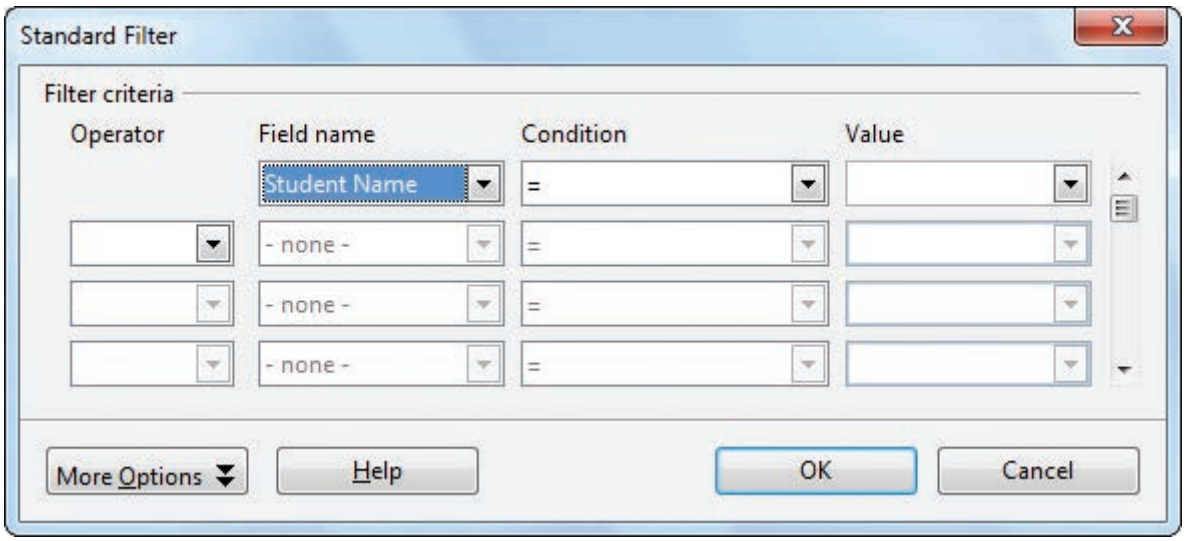


Figure 11.13 Standard Filter dialog box

Removing Auto Filter:

- To remove auto filter, click **"Auto filter"** icon once again .
- The original table is displayed without filter.

11.4.2 Standard Filter:

Auto filter is used only for a single criteria on data, whereas Standard filter is used for multiple critieria.

Step 1:

- Select **Data → Filter → Standard Filter.**
- Now, the entire data is selected and "Standard Filter" dialog box dispalys as shown in **Figure 11.14**.

Step 2:

- Select the column heading from the "**Field name**" list box for the first criteria.
- Select conditional opeator such as >, <, = etc., from "**Condition**" list box.
- Type or select the value of critera in the "**Value**" box.

Step 3:

- Select the one of the logical operator (AND / OR) from "**Operator**" list box to fix second criteria.
- Follow the step 2, for the next criteria.

Step 4:

- Click "**Ok**" to finish.

Example for Standard filter:

If you want to filter the records of "XII-H2" students of group code 402 from the **Figure 11.4.**

Step 1: Select **Data →Filter → Standard Filter**

- Now, "Standard Filter" dialog box appears as in **Figure 11.14.**

Step 2: In "Standard Filter" dialog box, select the first criteria:

- Select Field name as "Group code".
- Select Condition as "=".
- Type or select Value as "402".

Step 3: To select the second criteria:

- Select Operator as "AND".
- Select Field name as "Class".
- Select Condition as "= ".
- Type or select Value as "XII- H2".

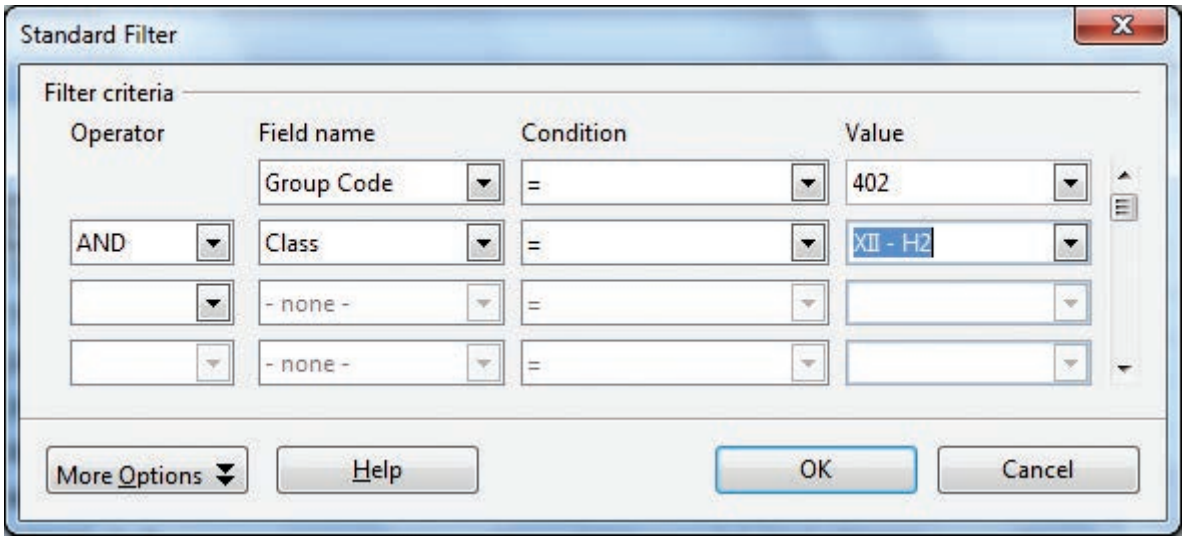


Figure 11.14 Standard Filter

Step 4: Click "OK"

- Now, the table displays only the records which match the given two criteria. Refer **Figure 11.15**.

To Remove Standard Filter:

- Select **Data → Filter → Remove Filter**

A1:H21 | GANDHIMATHI N

	A	B	C	D	E	F	G	H
1	Sl. No	Class	Group Code	Student Name	Gender	Comm	Date of Birth	Religion
3	2	XII - H2	402	SANDHIYA D	F	SC	19/08/2000	H
4	3	XII - H2	402	SUMATHI P	F	BC	06/09/1999	H
7	6	XII - H2	402	RAMYA T	F	MBC	23/11/2000	H
14	13	XII - H2	402	SAKTHIPRIYA E	F	SC	03/01/2000	H
15	14	XII - H2	402	SANDHIYA SRI M	F	SC	08/04/2001	H
20	19	XII - H2	402	PAVITHRA S	F	SC	28/12/2000	H
22								

Figure 11.15 XII-H2 students of Group 402

11.5 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: select **Data → Validity,** the validity dialogue box appears. Select 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.**

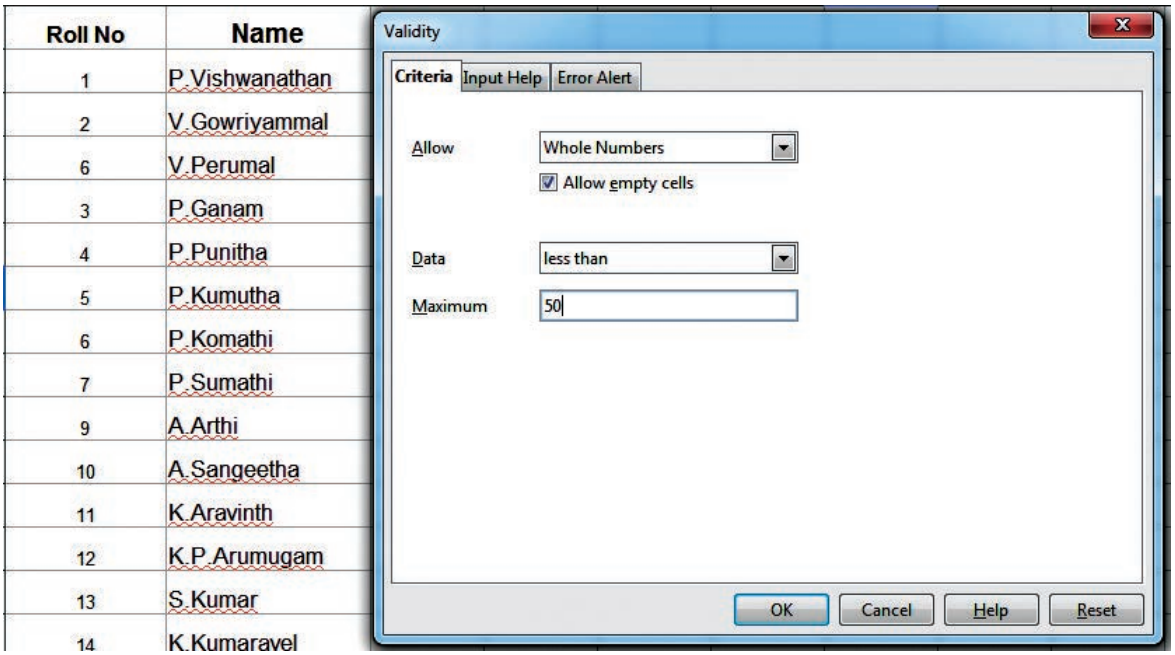


Figure 11.16 Screen shot of validity dialogue box (Criteria Tab)

Then select **Error Alert** Tab, select "Show error message when invalid values are entered" check box. Then select **Warning** in the Action dropdown list box, 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.**

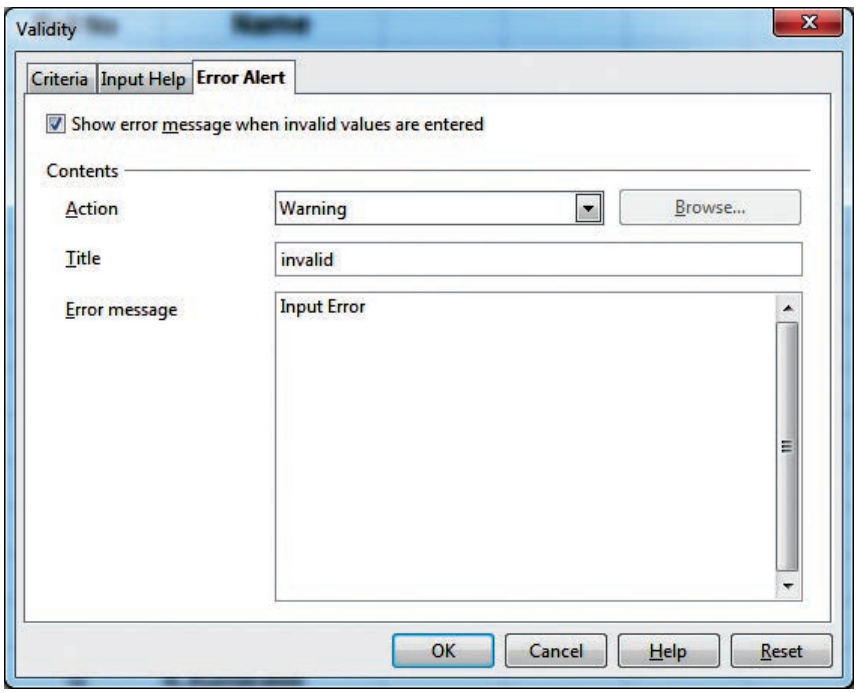


Figure 11.17 Screen shot of validity dialogue box (Error Alert Tab)

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

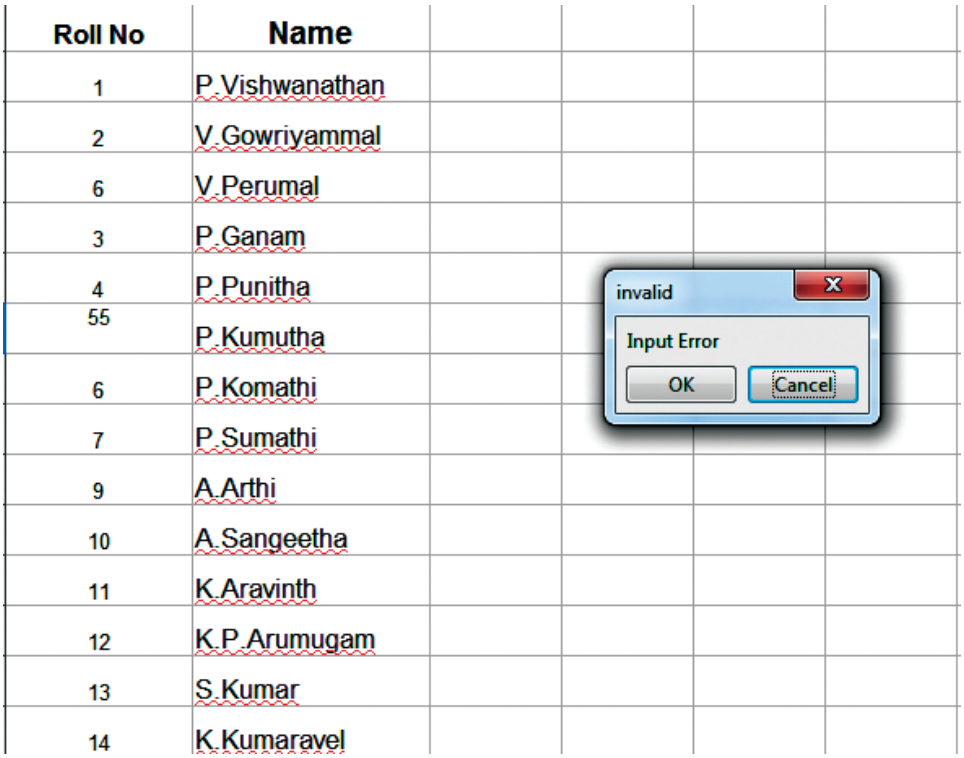


Figure 11.18 Screen shot of validity error

11.6 Creating and using Input Help List

Input Help is used to provide various options such as choosing the gender of a person (Male or Female), Month (Jan,Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec).

The following steps will guide to generate the List for Gender.

Step 1: In any one cell (ex: A1) type Gender

Step 2: Select the next cell (may be in A2 or B1)

Step 3: Go to **Data → Validity** then the dialogue box will appear (refer **Figure 11.19**)

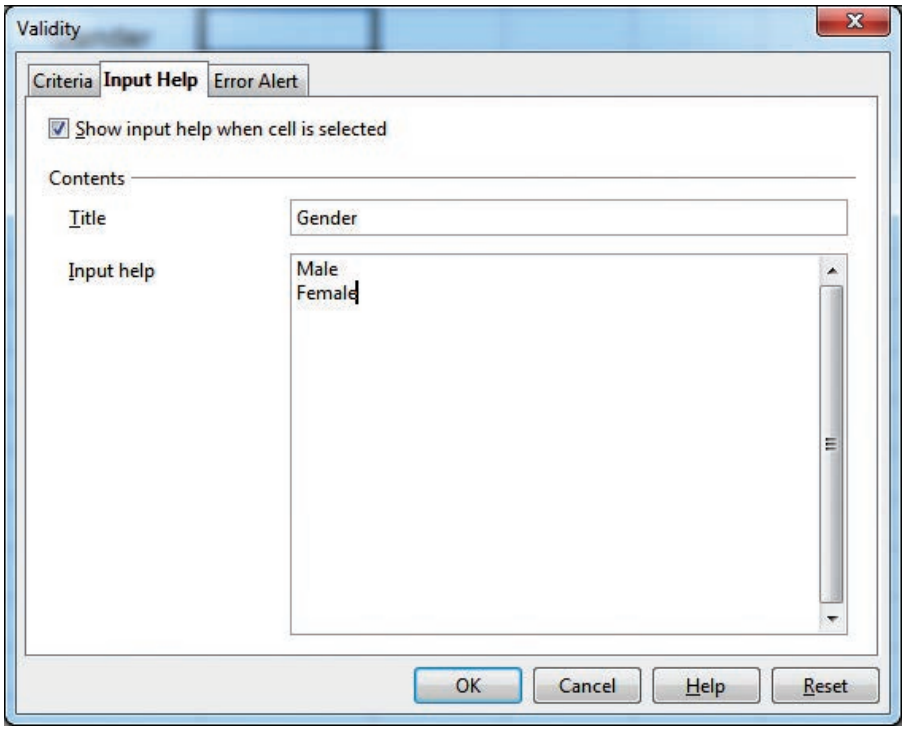


Figure 11.19 Screen shot of Input Help list

Step 4: Select **Input Help** Tab, type **Title** as Gender. then type, Male and Female in the **Input Help** Field. Then press "**Ok**".

Step 5: Goto the selected cell no, the input help message will appear (refer **Figure 11.20**).

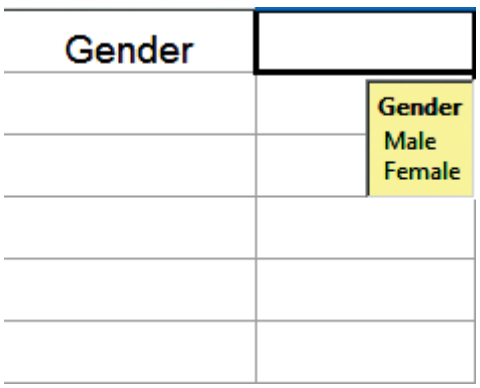


Figure 11.20 Screen shot of spread-sheet after applying Input Help list

11.8 Printing Spreadsheet

11.8.1 Setting the page size, Orientation and Margins

Step 1: To format the page size, go to **Format → Page** in the menu bar. The dialoge box will appear as shown in **Figure 11.21.**

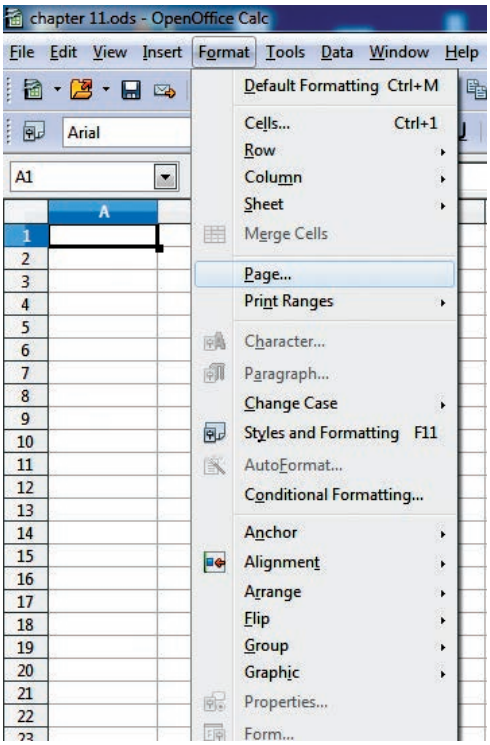


Figure 11.21 Page Style dialoge box

Step 2: Choose Page Tab (refer **Figure 11.22**)

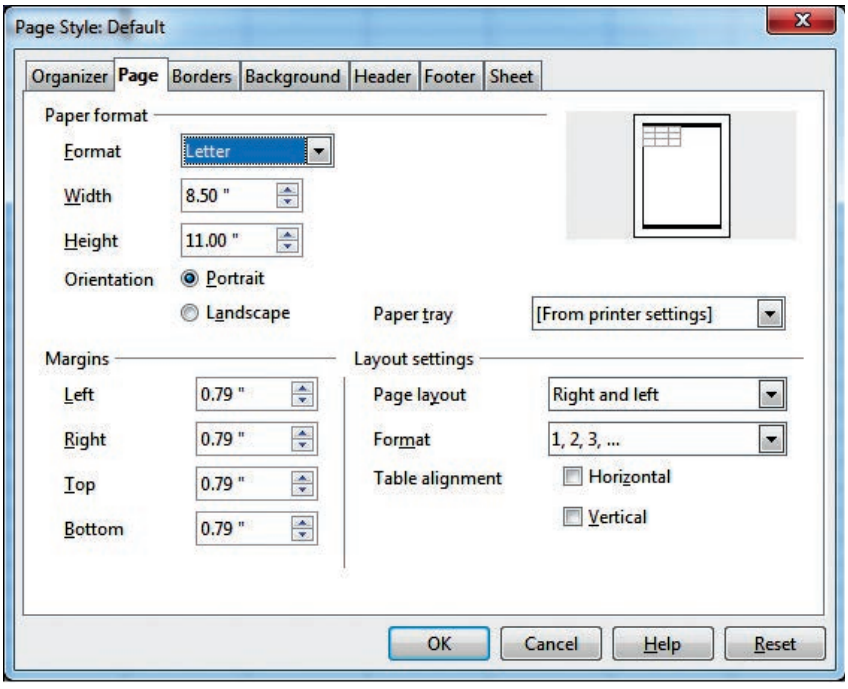


Figure 11.22 Screen shot of page formatting

Step 3: Choose the Page size, Orientation and Page Margin

Before printing the worksheet, it is necessary to verify the **Print Preview**, in order to check the required format.

For print preview, go to **File -> Page Preview**

If the worksheet appears in the required format, press close preview, otherwise choose **Format →Page** Tab in the top of the screen.

11.8.2 Inserting Header and Footer

Header and Footer are some titles (such as Document Title, Author Name) or references (such as page no, number of pages, date) or remarks to be printed in the top (called as Header) and bottom of the page (called as Footer). The header and footer dialoge boxes are shown in **Figure 11.23** and **11.24**.

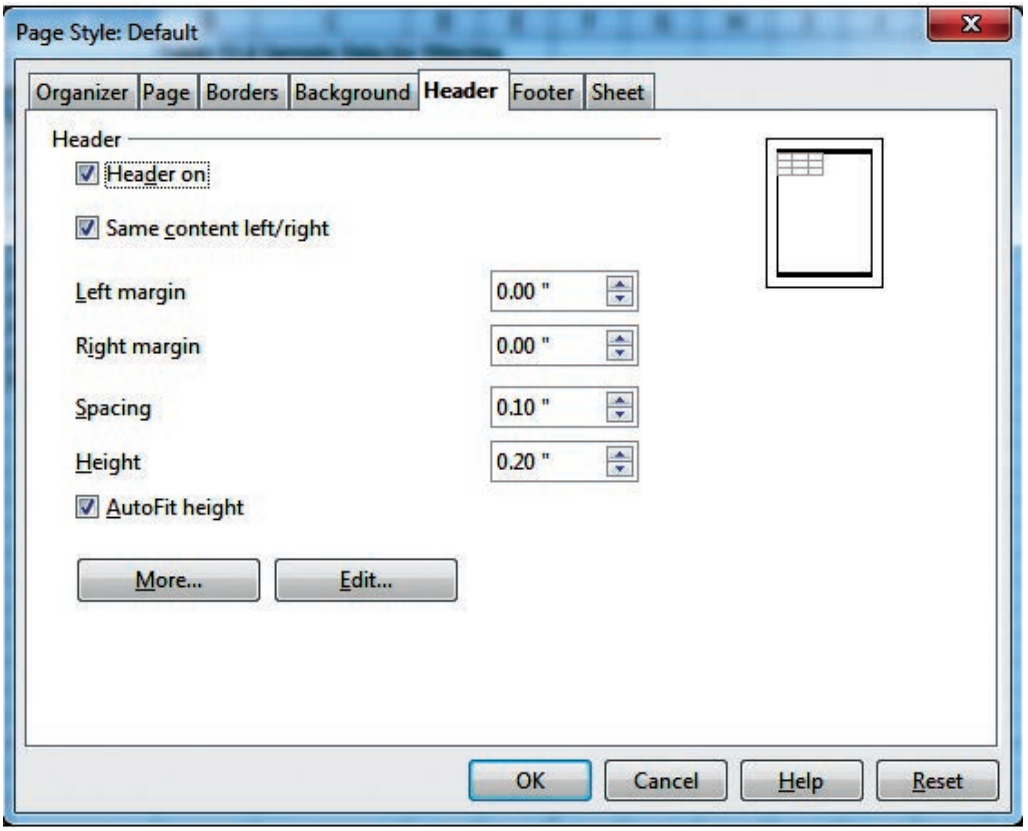


Figure 11.23 Header Dialogue Box

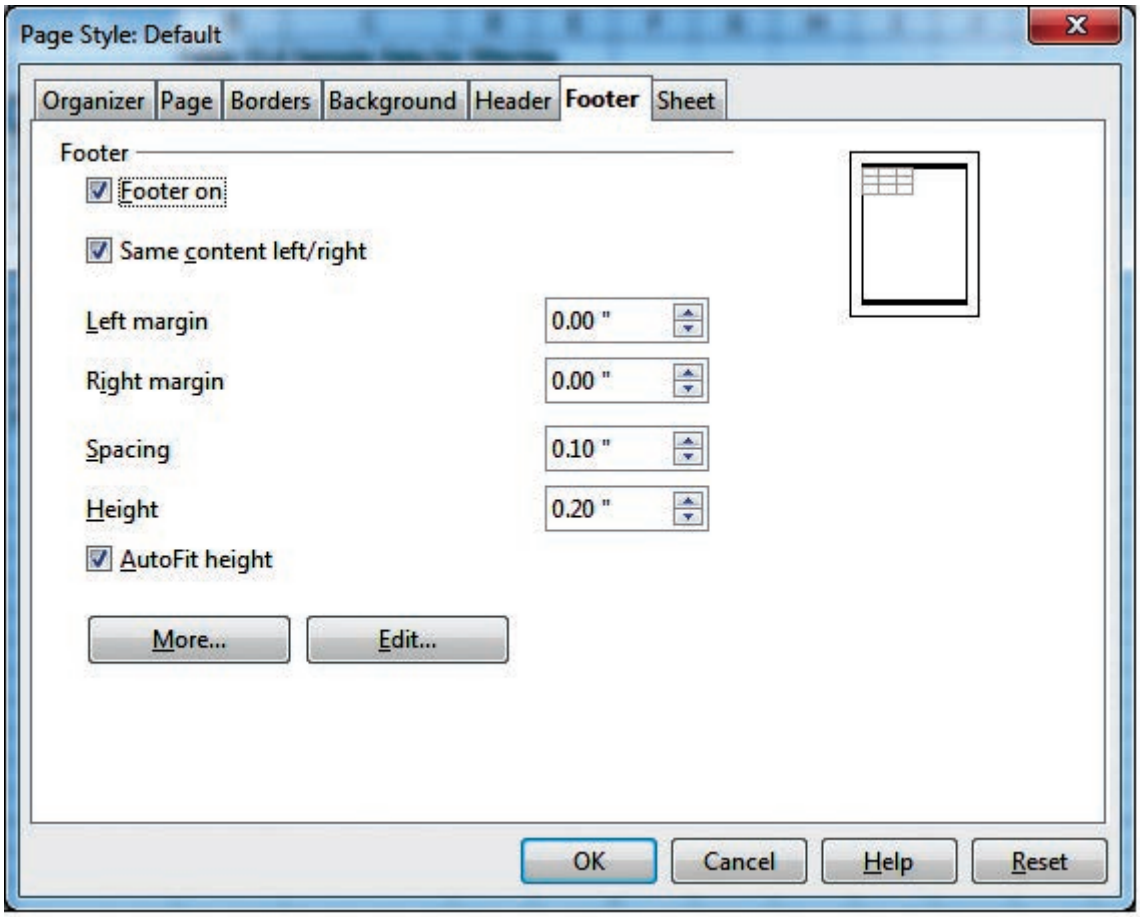


Figure 11.24 Footer Dialogue Box

11.8.3 Repeating Rows / Columns in all pages

If a sheet is printed on multiple pages, you can set up certain rows or columns to repeat on each printed page.

For example, if the top two rows of the sheet as well as column A need to be printed on all pages, do the following steps:

Step 1: Choose **Format → Print Ranges → Edit.**

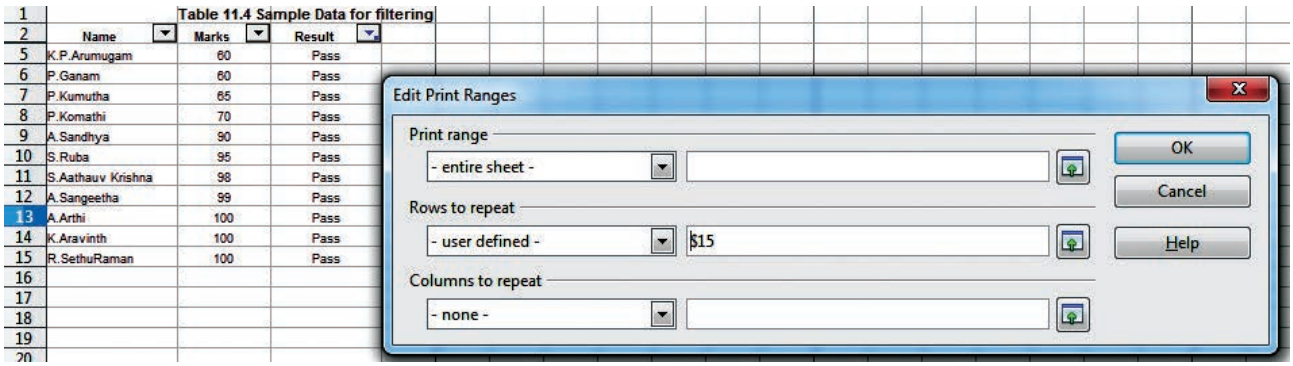


Figure 11.25 Printing Repeatative Rows/Columns

Step 2: On the Edit Print Ranges dialog box, type the rows in the text entry box under Rows to repeat. For example, to repeat rows 1 and 2, type $1:$2. This automatically changes Rows to repeat from "- none –" to "- user defined –".

Points to Remember:

- Data Tools are used to manipulate the information in the spread-sheet
- Conditional format gives different font size, font colour and background colour for different data based on the user requirements.
- Sorting is used to re-arrange the items in ascending or descending order based on alphabets or based on values.
- Filters are used to show only the selected portion of data from a large size database
- Input Help is used to provide various options like week, month etc
- Header and Footer are some titles (such as Document Title, Author Name) or references (such as page no, number of pages, date) or remarks to be printed in the top (called as Header) and bottom of the page (called as Footer).
- If a sheet is printed on multiple pages, we can set up certain rows or columns to repeat on each printed page.

Evaluation

QY1JIQ

Part I

Choose the correct answer

1. There are 10000 rows in a worksheet. The user needs to view only particular rows of the database. Which of the following tool is used?

   A. Sorting B. Merging C. Filtering D. Formatting

2. The customer is required to design the item number between 101 to 200. If the user types above 200 or below 100, the system should give an error message. Which of the following tool is used?

   A. Listing B. Filtering C. Formatting D. Validating

3. In a form, the teacher needs "True or False" as a drop down menu. Which of the following tool is used?

   A. Form B. Data C. List D. Format

4. The size of an A4 paper is 21 cm x 29 cm. If the user chooses Landscape orientation, then the size of the paper is…..?

   A. 21 x 29 B. 29 x 21 C. None of the above D. All of the above

Part II

Answer the following questions (2 Marks)

5. What is sorting?
6. What are the type of the filters?
7. What is header and footer?
8. Write the steps to format the margin of the paper as 1" in all sides.

Part III

Answer the following questions (3 Marks)

9. The user needs page number at the bottom of all pages. Which tool is used? Write the steps to design the needs.
10. Write the steps for sorting the database based on the customer name in ascending order
11. Write the steps to print the title row on every page of the spread-sheet

Part IV

Answer the following questions (5 Marks)

12. Create a student database with register number, student name, Mark1, Mark2, and Mark3. Calculate the total and average of the students. Show the marks which are below 50 in red colour and marks above 50 in green colour.
13. Explain the applications of Header and Footer with example

Practicals

Type the registration number and name of the student, mark 1 if the student is present and mark 0 if the student is absent on the date. Apply conditional formatting such as if the student is present that should represent in green colour and the absentees should represent in red colour. Then calculate number of present days, number of absent days and attendance percentage of the student. Also calculate number of student present per day and number of student absent per day.

Register No	Name	29-Nov	08-Dec	13-Dec	20-Dec
160172	SHIVA. M	0	0	0	0
170001	MONICA. A	1	1	1	1
170002	SUGANYA. D	1	1	1	1
170004	POOJA. P	1	1	0	1
170005	MANJU. M	1	1	1	1
170006	MOTHILAL. T	1	1	1	1
170007	DIYA N	1	1	1	0
170008	PRAJAKTA S	1	1	1	1
170009	SIRISHA S	1	1	1	1
170010	SUSMITA S	1	1	1	1
170011	DIVYA K	1	1	1	1
170012	THOMAS S	1	1	1	1
170013	SUPRAJA A	1	1	1	1
170014	RAVIRAJ R	1	1	1	1