



## Unit-6

### Introduction to Business Communication Tools

## Libre office calc:-

### Introduction

Earlier accountants used large pieces of paper to record business finances, to enter information like costs, payments, taxes, income etc. so that they got a complete financial overview. These large paper pieces were called “spreadsheets”. The digital spreadsheet is similar, with columns and rows. A cell is a combination or intersection of a row and a column, in which information can be input. A sheet can be simply understood as an array of cells.

#### 1.1 Basic information

ICT Competency	LibreOffice Calc is a free and open source application for creating generic resources. Spreadsheet is used for handling numeric data, analysing and publishing through tables and graphs.
Educational application and relevance	Data analysis is an important mathematical competency. Spreadsheets can be very effective for introducing data analysis and statistics for students. It can also be used to explore patterns as an introduction to algebraic thinking. The power of the digital spreadsheet is that many types of data processing can be done on the information entered.
Version	Version: 5.1.6.2 (LibreOffice Calc is also available on the Windows and Macintosh operating systems)
Configuration	No specific configuration requirements
Other similar applications	Other spreadsheet software applications include Microsoft Excel, OpenOffice Calc (not being developed any more), Google spreadsheet etc.
The application on mobiles and tablets	You can view and edit spreadsheets using the LibreOffice app on Android for mobiles and tablets
Development and community help	Developer(s) -The Document Foundation Community help

#### Overview of features

Spreadsheet application is used for recording data, processing data, analysing data, creating text and graphical outputs. The application has many statistical, arithmetical, text processing functions which makes it a very powerful desktop tool. Data can be sorted, filtered and processed into outputs, including multi-variate tables.

#### Installation

1. The application is part of the Ubuntu custom distribution.
2. In case you do not find it on your computer, you can install by typing LibreOffice on top search bar in Software Centre.
3. If you would like to install through the terminal follow these steps below:
  1. Open terminal by clicking Applications->System Tools->Terminal or through Keyboard shortcut Ctrl+Alt+T
  2. In the terminal window, type below command and press enter to start the installation by providing your machine password:
  3. `sudo apt-get install LibreOffice`



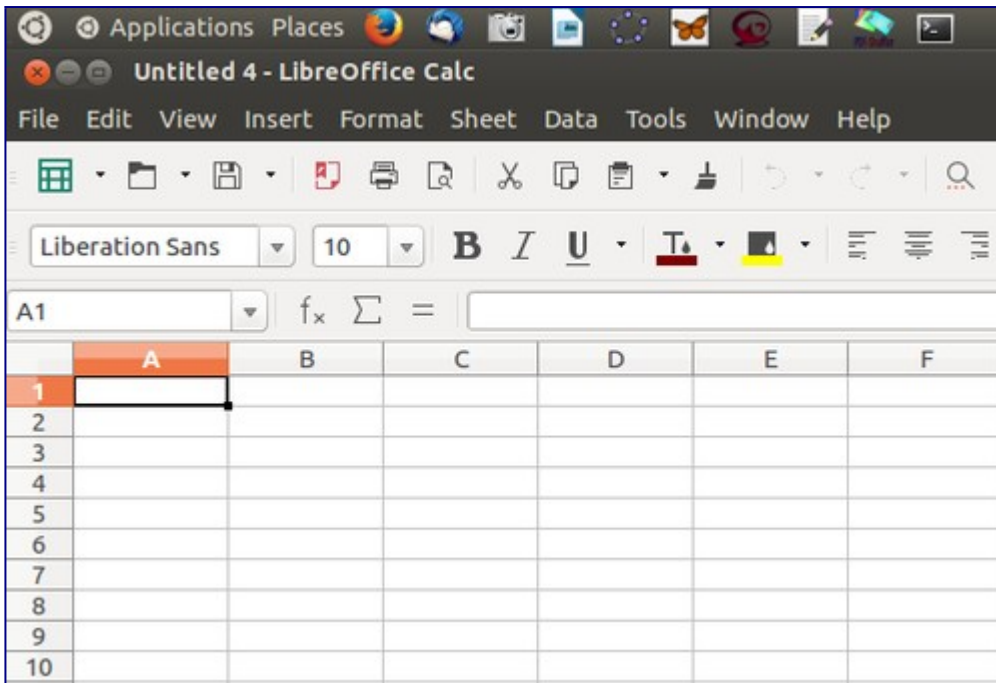
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#### Working with the application

1. Download this file to practise on a simple sample data sheet.
2. Download this second file of additional sheets with analyses, reports etc.

#### Opening a spreadsheet



LibreOffice Calc can be opened from Applications → Office → LibreOffice Calc. This opens a ‘work book’. A work book can have many ‘sheets’. When you open the LO Calc application, it will show a window like this. The spreadsheet consists of rows and columns. Each column-row intersection is a cell; this is the place you will enter data in a spreadsheet. You can click the cursor on any cell and type in the information you want to enter. Select Cell A1 and type “Name of city”, Hit enter. Next select cell B1 and type “Average annual rainfall (cms). Hit enter, and select cells of Column A to enter names of cities and Cells of Column B to enter annual average rainfall.

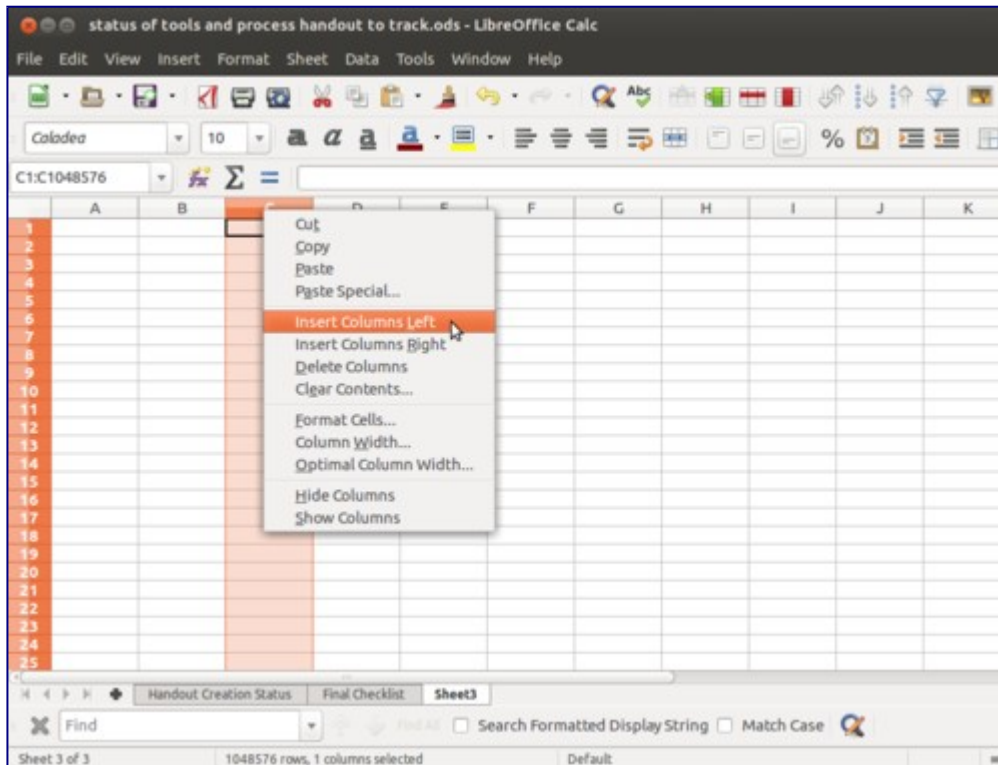
You can click on the A1 and B1 cells and click on the BOLD function icon (or simply type CTRL+B) to make the headings **bold**.

Like in the case of text document, you can use the File menu to save your spreadsheet. The file will be saved with a .ods extension. ODS is the short form of Open Document Spreadsheet.

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#### Navigating a spreadsheet



You can move across cells using the arrow keys. You can also quickly go to the ends of the sheet using CTRL Keys, such as CTRL-Home (go to Cell A1), CTRL-End (bottom rightmost part of filled cells / entered data), CTRL – Up Arrow (next cell in same column, before an empty cell) etc.

It is useful to become comfortable using keyboard to move across the spreadsheet.

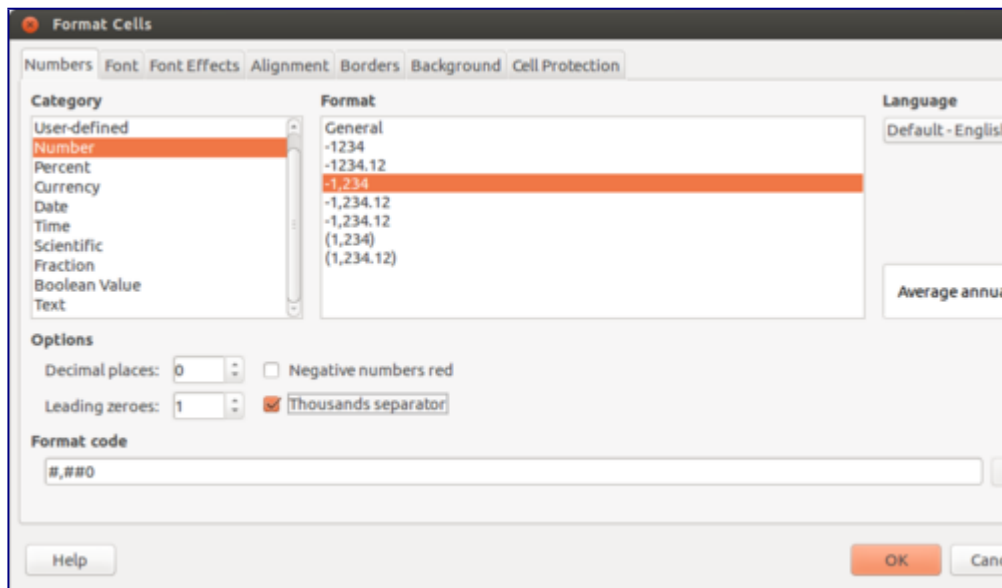
Columns and rows can be inserted or deleted or hidden in a spreadsheet. You can right click anywhere on the spreadsheet and insert/ delete rows and columns. You can also go to Sheet menu and insert rows/ columns.

Sheets can be added or deleted from a work book using the "+" symbol seen next to the sheet name. Sheets can be named and renamed by right clicking on the name of the sheet visible in the bottom panel.

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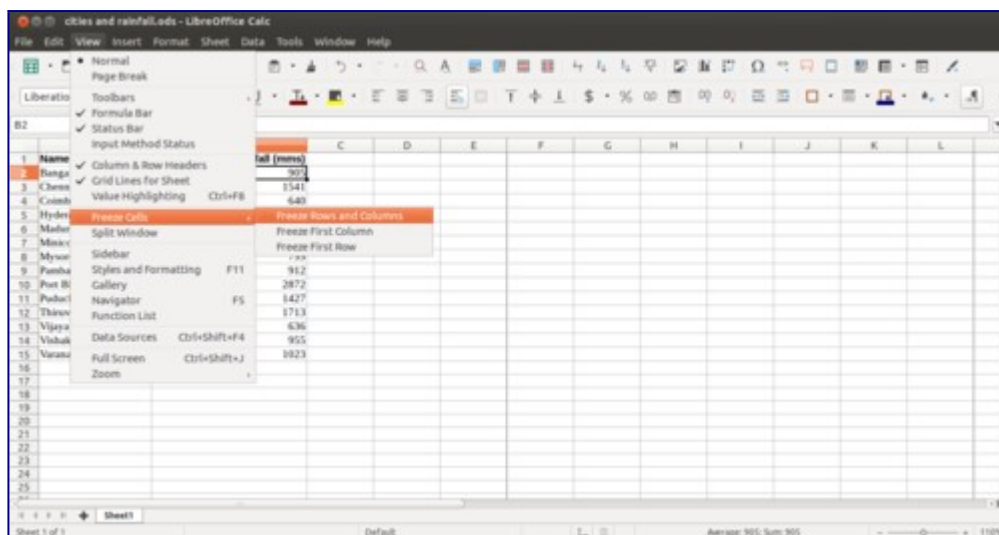
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#### Formatting a spreadsheet



Most of the formatting options available in LibreOffice Writer are available in Calc also. Making the text bold, italicised, increasing/reducing font size, font color etc are all available. Data can also be formatted based on what it represents - date, time, currency, etc. The numeric information display format in terms of "000" separators or number of decimal places can be configured.

#### Providing headings to the data



We saw earlier how to enter headings for columns. However, if you enter data for more than 50 cities, you will not be able to read the column headings. To be able to see the column (and row) headings, you should move your cursor to the cell above which (and to the left of which) you want to be able to see your headings and click on View → Freeze Cells → Freeze Rows and Columns.



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#### Inserting formulae for computations

Name of city	Average annual rainfall (mm)
Bangalore	955
Chennai	1541
Coimbatore	640
Hyderabad	803
Madurai	857
Mexico	1613
Mysore	799
Panthal Island	912
Pan Blue	2872
Puducherry	1427
Thiruvananthapuram	1713
Vijayawada	636
Vishakhapatnam	955
Varanasi	1022

You can do almost any kind of computation or processing with a spreadsheet. Here we will calculate the total rainfall for the cities. You can go to the cell below last row with data in Column B, which has the rainfall information and simply type in “=Sum(B2:B15)” assuming the data is in rows 2 through 15 of column B. Any computation or formula must begin with the “=” sign. Or you can simply use the shorthand icon on the menu bar “Σ” and hit enter and the application will insert the same formula.

When the cursor is on this cell, the formula will be seen in the ‘formula’ bar on top of the sheet, below the menu. All arithmetic operations, statistical operations are possible with spreadsheet.

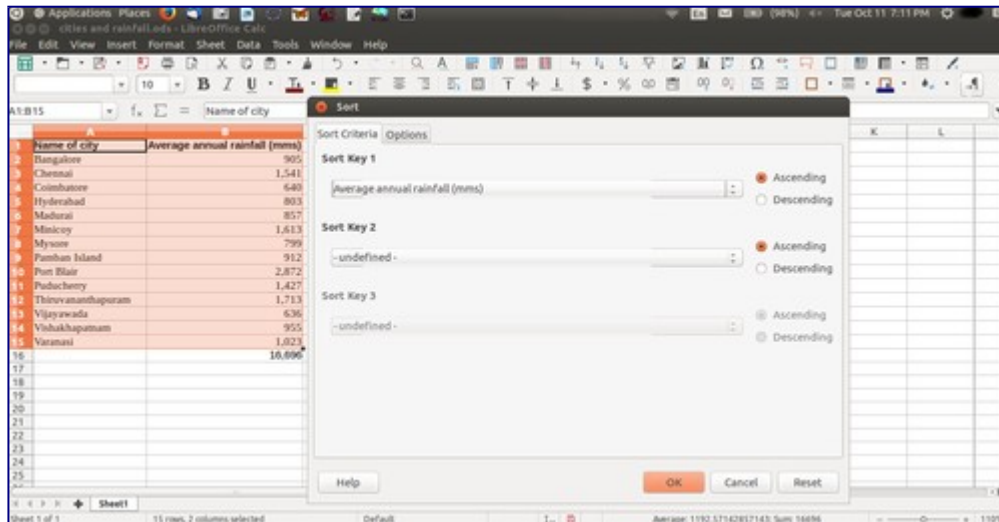
You can ‘copy paste’ a formula from one cell to other cells in the same column, here ‘copy paste’ by default will copy paste the formula and not the content. This 'copy' and 'paste' of formula is not useful, when we want to 'fix' one value in our formula. For instance, if we are computing 'Percentage of total' in the example of Average annual rainfall (cms), then we will input in column C2 “=B2\*100/B16”. If we copy this cell C2 to C3, Calc will change the formula to “=B3\*100/B17”, since it will increment both numerator and denominator cells. However we want to fix the denominator to 'B16'. To 'fix' the reference, you should insert '\$' before the cell reference. So you should give formula C2 “=B2\*100/B\$16” since we want to fix the value in the 16th row. When you copy paste the formula to C3, it will copy as “=B3\*100/B\$16”, which is what you want.



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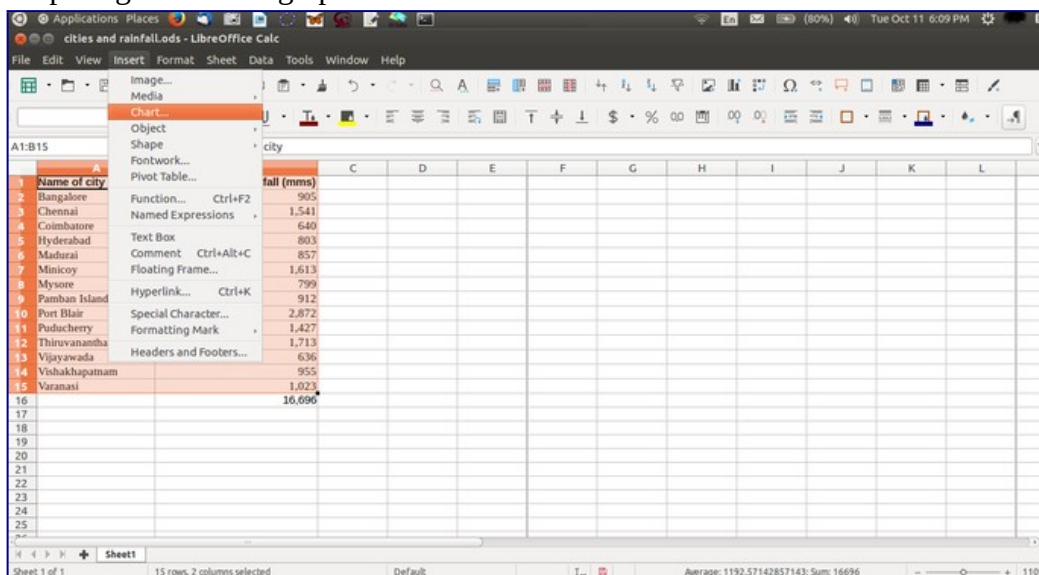
#### Sorting the data



You can sort the data in anyway you want. You could sort it on the descending order of the rainfall (Column B) to see the data by the cities with the heaviest rainfall at the top. You can sort the data by cities (Column B). remember that you should select the entire sheet (Edit – Select All, or simply CTRL-A) or keep the cursor on a single cell, else you may sort only the data selected which will be incorrect.

#### Preparing charts and graphs

- Preparing charts and graphs

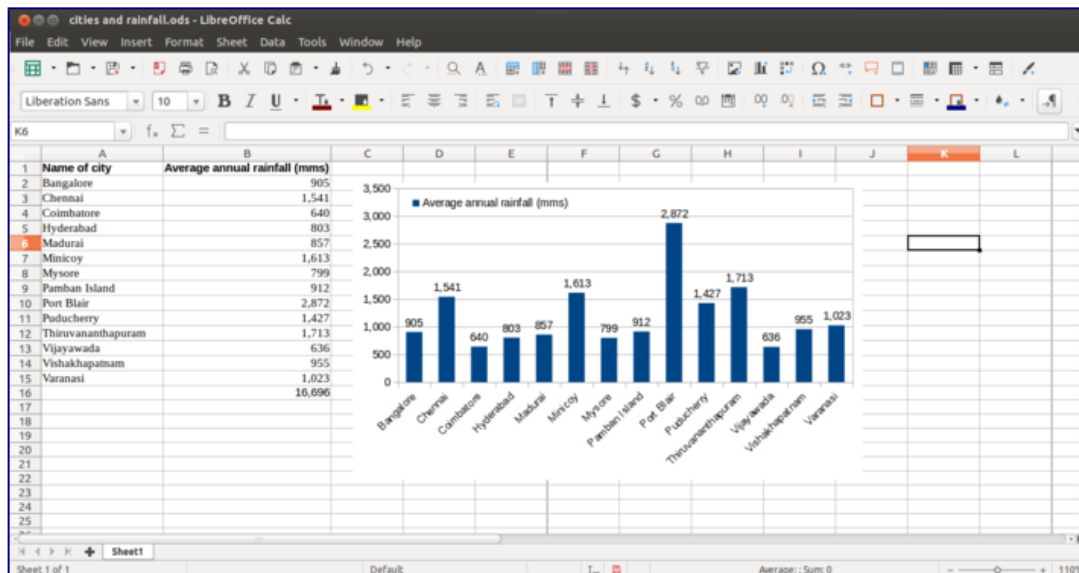


Selecting data for inserting charts



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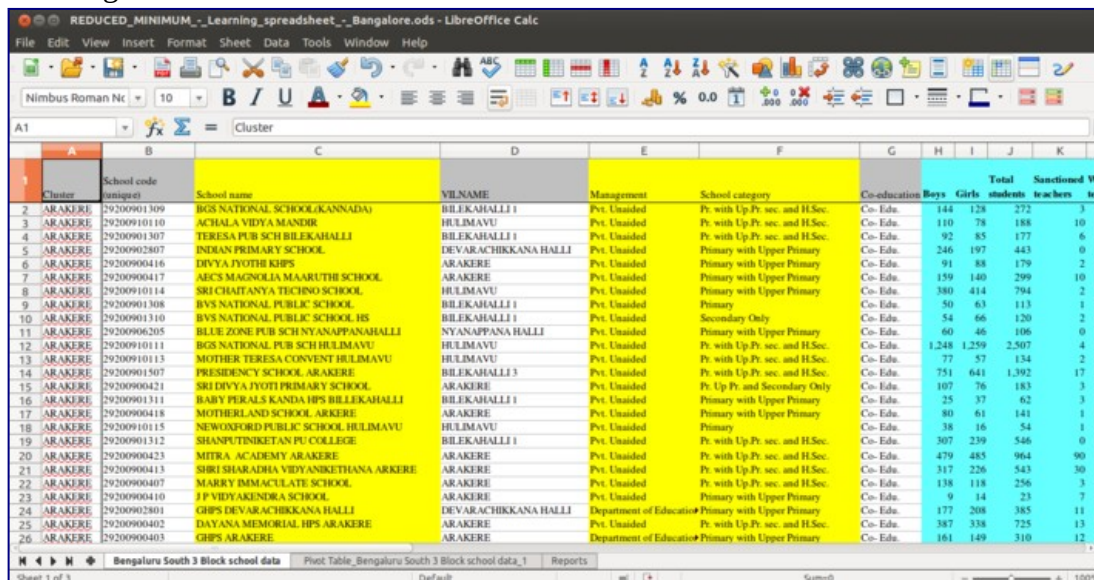
#### Inserting charts

1. Selecting data - Select the data (columns A and B) and select Insert → chart option. You will get the chart wizard. You can select Bar chart to get a Bar chart of the rainfall. You should experiment with different graphical formats to learn
2. Inserting charts - You can prepare charts and show it alongside the data

#### Working with Pivot tables

The pivot table (formerly known as DataPilot) allows you to combine, compare, and analyze large amounts of data. You can view different summaries of the source data, you can display the details of areas of interest, and you can create reports. A table that has been created as a pivot table is an interactive table. Data can be arranged, rearranged or summarized according to different points of view.

- Working with Pivot tables



Cluster	School code	School name	Management	School category	Co-Edu.	Boys	Girls	Students	Sanctioned W
2	29200901109	BGS NATIONAL SCHOOL(KANNADA)	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	144	128	272	3
3	29200910110	ACHALA VIDYA MANDIR	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	110	78	188	10
4	29200901307	TERESA PUB SCH BILEKAHALLI	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	92	85	177	6
5	29200902307	INDIAN PRIMARY SCHOOL	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	246	197	443	0
6	29200900416	DIVYA JYOTHI KIPS	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	91	88	179	2
7	29200900417	AJES MANGOLA MAJURTHE SCHOOL	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	159	140	299	10
8	29200910114	SRI CHAITANYA TECHINO SCHOOL	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	380	414	794	2
9	29200901308	BVS NATIONAL PUBLIC SCHOOL	Pvt. Unaided	Primary	Co-Edu.	50	63	113	1
10	29200901310	BVS NATIONAL PUBLIC SCHOOL HS	Pvt. Unaided	Secondary Only	Co-Edu.	54	66	120	2
11	29200906205	BLUE ZONE PUB SCH NYANAPPANAHALI	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	60	46	106	0
12	29200910111	BGS NATIONAL PUB SCH HULIMAVU	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	1,248	1,259	2,507	4
13	29200910113	MOTHER TERESA CONVENT HULIMAVU	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	77	57	134	2
14	29200901507	PRESIDENCY SCHOOL ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	751	641	1,392	17
15	29200900421	SRI DIVYA JYOTHI PRIMARY SCHOOL	Pvt. Unaided	Pr. with Up.Pr. and Secondary Only	Co-Edu.	107	76	183	3
16	29200901311	BABY PERALS KANDA IPS BILEKAHALLI	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	25	37	62	3
17	29200900418	MOTHERLAND SCHOOL ARAKERE	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	80	61	141	1
18	29200910115	NEWOXFORD PUBLIC SCHOOL HULIMAVU	Pvt. Unaided	Primary	Co-Edu.	38	16	54	1
19	29200901312	SHANPUTINDKATAN PU COLLEGE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	307	239	546	0
20	29200900423	MITRA ACADEMY ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	479	485	964	90
21	29200900413	SRI SHARADHA VIDYANIKETHANA ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	317	226	543	30
22	29200900407	MARY IMMACULATE SCHOOL	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	138	118	256	3
23	29200900410	J P VIDYAKINDRA SCHOOL	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	9	14	23	7
24	29200902801	GHS DEVARACHIKKANA HALLI	Department of Education	Primary with Upper Primary	Co-Edu.	177	208	385	11
25	29200900402	DAYANA MEMORIAL IPS ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	387	338	725	13
26	29200900403	GHS ARAKERE	Department of Education	Primary with Upper Primary	Co-Edu.	161	149	310	12



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#### Data sheet

Cluster	School code	School name	VILNAME	Management	School category	Co-education	Boys	Girls	Total students	Sanctioned teachers
ARAKERE	29200901309	BGS NATIONAL SCHOOL(KANNADA)	BILEKAHALLI 1	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	144	128	272	3
ARAKERE	29200901310	ACTUALA VIDYA MANDIR	BILEKAHALLI 1	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	110	78	188	10
ARAKERE	29200901307	TERESA PUB SCH BILEKAHALLI	BILEKAHALLI 1	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	92	85	177	6
ARAKERE	29200902807	INDIAN PRIMARY SCHOOL	DEVARACHIKKANAHALLI	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	246	197	443	0
ARAKERE	29200900416	DIVYA JYOTHI KIPS	ARAKERE	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	91	88	179	2
ARAKERE	29200900417	ADYS MAGNOLIA MARUTHI SCHOOL	ARAKERE	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	159	140	299	10
ARAKERE	29200901014	SRI CHAITANYA TECHNIO SCHOOL	BILEKAHALLI 1	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	380	414	794	2
ARAKERE	29200901308	BVS NATIONAL PUBLIC SCHOOL HS	BILEKAHALLI 1	Pvt. Unaided	Primary	Co-Edu.	50	63	113	1
ARAKERE	29200901310	MOTHER TERESA CONVENT HULIMAVU	NYANAPPANAHALLI	Pvt. Unaided	Secondary Only	Co-Edu.	54	66	120	2
ARAKERE	29200906205	BLUE ZONE PUB SCH NYANAPPANAHALLI	HULIMAVU	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	60	46	106	0
ARAKERE	29200901011	BGS NATIONAL PUB SCH HULIMAVU	BILEKAHALLI 3	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	1,248	1,259	2,507	4
ARAKERE	29200901507	PRESIDENCY SCHOOL ARAKERE	BILEKAHALLI 1	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	77	57	134	2
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ARAKERE	29200900418	MOTHERLAND SCHOOL ARAKERE	ARAKERE	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	25	37	62	3
ARAKERE	29200901015	NEWFORD PUBLIC SCHOOL HULIMAVU	BILEKAHALLI 1	Pvt. Unaided	Primary with Upper Primary	Co-Edu.	80	61	141	1
ARAKERE	29200901312	SHANPUTINIKETAN PU COLLEGE	BILEKAHALLI 1	Pvt. Unaided	Primary	Co-Edu.	38	16	54	1
ARAKERE	29200900423	MITRA ACADEMY ARAKERE	ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	307	239	546	0
ARAKERE	29200900413	SHRI SHARADHA VIDYANIKETHANA ARAKERE	ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	479	485	964	90
ARAKERE	29200900407	MARRY IMMACULATE SCHOOL	ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	317	226	543	30
ARAKERE	29200900410	J P VIDYAKENDRA SCHOOL	ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	138	118	256	3
ARAKERE	29200902801	GHPS DEVARACHIKKANAHALLI	DEVARACHIKKANAHALLI	Department of Education	Primary with Upper Primary	Co-Edu.	9	14	23	7
ARAKERE	29200900402	DAYANA MEMORIAL HPS ARAKERE	ARAKERE	Pvt. Unaided	Pr. with Up.Pr. sec. and H.Sec.	Co-Edu.	177	208	385	11
ARAKERE	29200900403	GHPS ARAKERE	ARAKERE	Department of Education	Primary with Upper Primary	Co-Edu.	387	338	725	13
ARAKERE	29200900403	GHPS ARAKERE	ARAKERE	Department of Education	Primary with Upper Primary	Co-Edu.	161	149	310	12

#### Inserting Pivot

1. Position the cursor within a range of cells containing values, row and column headings.
2. Choose Insert - Pivot Table - Create. The Select Source dialog appears. Choose Current selection and confirm with OK. The table headings are shown as

Select Source

☒ Current selection

☐ Named range: [ ]

☐ Data source registered in LibreOffice

Help OK Cancel

#### Pivot Table wizard

The table headings are shown as buttons in the Pivot Table dialog. Drag these buttons as required and drop them into the layout areas "Page Fields", "Column Fields", "Row Fields" and "Data Fields".

3. Drag the desired buttons into one of the four areas.

Drag a button to the **Page Fields** area to create a button and a listbox on top of the generated pivot table. The



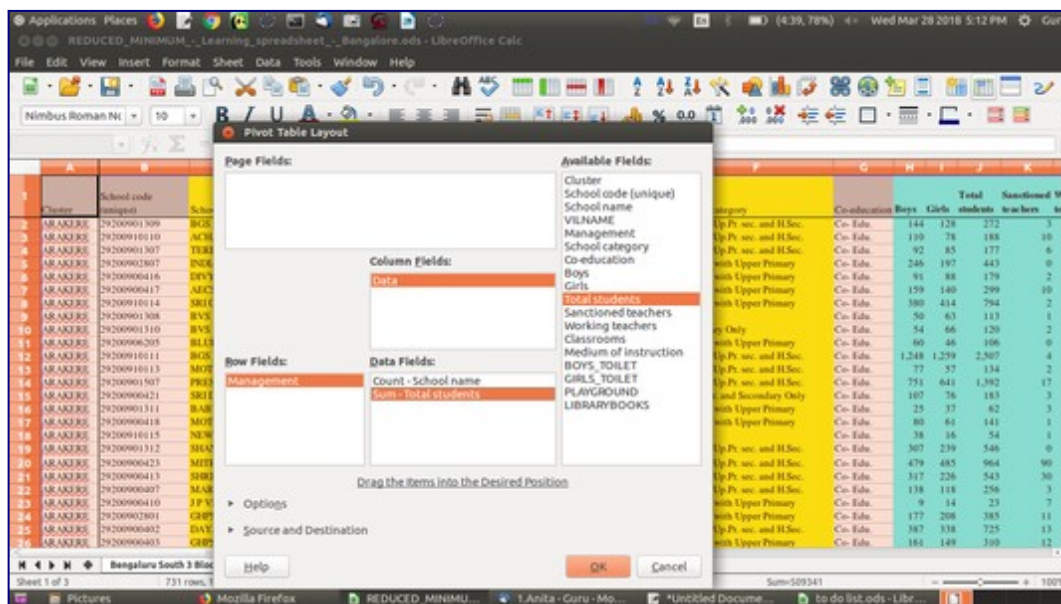
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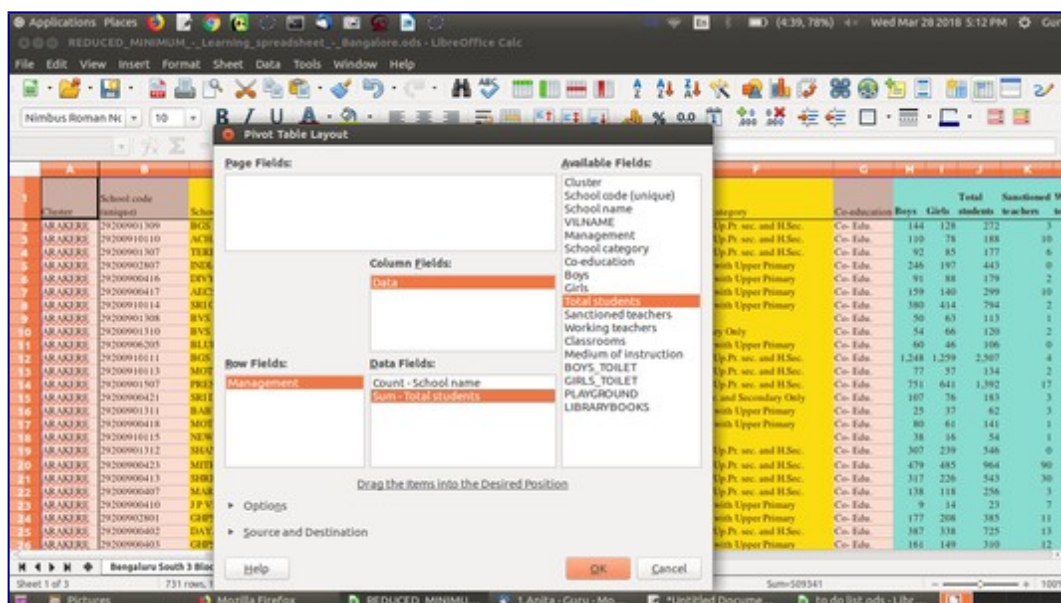
listbox can be used to filter the pivot table by the contents of the selected item. You can use drag-and-drop within the generated pivot table to use another page field as a filter.

If the button is dropped in the **Data Fields** area it will be given a caption that also shows the formula that will be used to calculate the data.

- By double-clicking on one of the fields in the **Data Fields** area you can call up the **Data Field** dialog.
- Use the **Data Field** dialog to select the calculations to be used for the data. To make a multiple selection, press the Ctrl key while clicking the desired calculation.



Insert data,row and column fields



Getting the pivot table report



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The screenshot shows a LibreOffice Calc spreadsheet with a pivot table. A context menu is open over the pivot table, showing options: Cut, Copy, Paste, Edit Layout, Refresh, Filter, and Delete. The pivot table data is as follows:

Category	Count	School name	Sum - Total students
Management	3		3,222
Central Govt.	138		24,893
Department of Education	11		1,304
Local body	3		2,236
Others	83		21,804
Pvt. Aided	488		188,088
Pvt. Unaided	4		2,024
Un-Recognized	730		243,932

Revising pivot data for new table

### Printing a spreadsheet

The screenshot shows the 'Page Style: Default' dialog box in LibreOffice Calc. The 'Header' tab is selected, and the 'Header on' checkbox is checked. The 'Header' section shows 'Same content left/right' selected. The 'Left margin' is 0.00", 'Right margin' is 0.00", and 'Spacing' is 0.10". The 'Height' is 0.20". The 'Autofit height' checkbox is checked. The 'Header (Page Style: Default)' section shows the 'Left area' containing 'Sheet1', 'Center area' empty, and 'Right area' empty.

Formatting a sheet for printing is not an easy task. To make it simpler, some tips are:

1. Use the 'text wrap' feature to wrap all the text input in a cell so that it won't overflow to the next cell.
2. Increase or reduce the column width so that all columns you want to print are included.
3. Delete (or hide) columns if you don't want them in the printout.
4. Use Format → Page option to insert header / footer information, such as file name, page number etc. Use print preview feature to keep checking if the formatting is satisfactory

### Saving the files and formats

1. Like in most applications, a file can be saved using the FILE – SAVE command, or by the shortcut key CTRL+S. Always give a meaningful file name, reading which you should get an idea of the file contents. We can name this file "Rainfall information for cities in South India, October 2016.ods". Often adding the month-year information when the file was created can be useful later.
2. The files will be saved as ".ods". You can save a spreadsheet as a Microsoft Excel format also (FILE -> SAVE AS)



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3. The files can be exported to a PDF format. This is useful when you only need to print the file and do not want any changes to it.

#### Advanced features

Calc is a very sophisticated software application and can even be used as a database, by cross referring data across sheets and books. You can also generate multi-variate tables using the 'Pivot' feature. The 'functions' in Calc are many and can meet statistical, mathematical functions which can be useful for exploring topics in Mathematics and Statistics. You can use Calc to store contact information, which can be used along with the Thunderbird email client, to generate customised mass email messages (this functionality is called 'mail merge'). You can repeat the column or row headings automatically across printed pages (hint – define print area). You can refer to the Calc user manual for learning these advanced features