
Want to Design a Web Page
WEB DESIGN
Hello !!!
I'm Jr. Accountant
Wanna edit
my video & add music?
Be Different
SKILL ORIENTED
PRACTICALS
(SOP)
Be Creative
Be Innovative
Type Fast

1 Daily Computing (LibreOffice)

The LibreOffice suite is a collection of application programs for word processing, preparing spreadsheets, creating presentations, drawing diagrams, working with databases & composing mathematical formulae. LibreOffice has been translated (localized) into 40 languages.

LibreOffice Suite consists of following application programs :

Logo	Application Name	Purpose
	**Writer**	Writer is a word-processing application. It is compatible with a wide range of document formats. It is used to export work in several formats including PDF. It has extensive WYSIWYG(What you see is what you get) word processing capabilities, it can also be used as a basic text editor. File extension for Writer application is '**.odt**'.
	**Calc**	Calc is another name for a spreadsheet, it is used for different kinds of calculations, creating graphs, using different mathematical formulae and many more. File extension for Calc application is '**.ods**'.
	**Impress**	Impress is used for creating a presentation. The presentation can be exported as SWF files, allowing them to be viewed on any computer with Adobe Flash Player installed. It is used to create slides with different elements and a wide range of graphic objects. File extension for Impress application is '**.odp**'.
	**Draw**	It is a vector graphics editor and diagramming tool which can be used for creating flowcharts. It includes features used for desktop publishing. It can also be used for editing a pdf file. File extension for Draw application is '**.odg**'.
	**Base**	Base is an open source database management system. Base is designed to allow users to easily create, access, modify, and view databases and their data like-tables, queries, forms, and reports. Base includes software wizards to assist users with various aspects of the program. File extension for Base application is '**.odb**'.

Note For Teacher : Refer Appendix for installation.

Table 1 : Applications and their purpose

LibreOffice Writer

LibreOffice Writer is free and an open-source word processor component of the LibreOffice software package. Writer is similar to other word processors with some identical features.

Double click on the icon of 'LibreOffice Writer' present on desktop. LibreOffice Writer Screen consists of the following parts :

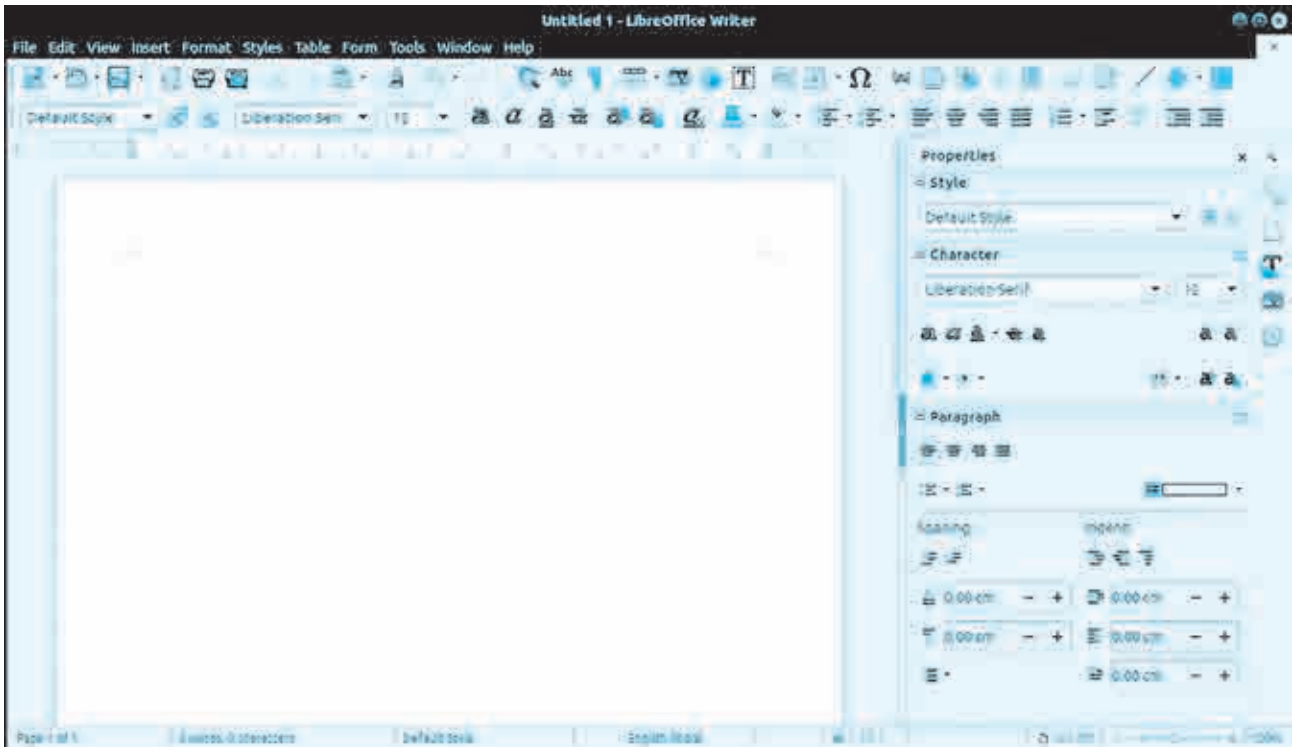


Fig. 1 : Libreoffice Writer Screen

A) Title Bar : It is the topmost bar present on the screen of Writer. It displays icon of the application, name of the file and name of the application for example 'Untitled 1–LibreOffice Writer'. It consists of three buttons on the right corner as minimize, maximize/ restore and close.

B) Menu Bar : It is present below the Title bar. It displays the name of different menus such as File, Edit, View, Insert, Format, Styles, Table, Form, Tools, Windows, Help etc. Each menu consists of a drop-down list (Pop-up) of various options related to that particular menu.

C) Standard Tool Bar : Standard tool bar consists of different icons which are used for standard operations (regularly repeating operations) like opening a new document, saving a document, printing a document, cut, copy, paste, delete and many more.

D) Formatting Tool Bar : Formatting tool bar consists of different icons which are used for formatting the selected text. It displays icons like font name, font size, font color, bold, italics, underline and many more.

E) Sidebar : The Sidebar is normally open by default on the right side of the Writer window. The Writer Sidebar contains five decks sidebar with different icons by default : Properties, Page, Styles (shown as Styles and Formatting in some installations), Gallery and Navigator. Each deck can be opened by clicking its corresponding icon on the Tab bar to the right of the sidebar. Each deck consists of a title bar and one or more content panels. A panel is like a combination of toolbar and dialog. Toolbars and Sidebar panels share many functions. If the Sidebar is not visible on screen, it can be made visible from View → Menu. Width of the Sidebar is adjustable.

F) Status bar : The Writer status bar is located at the bottom of the workspace. It provides information about the document. It can be hidden by deselecting it in the View menu.

Basic Operations for Writer, Calc, Impress :

A) Creating a New file : A new file can be created, by choosing.

File Menu → New → Select appropriate file type.

B) Saving a File : To save a File

- Choose File Menu → Save →Select the location →Type name of the file→Click on 'Save'.

C) Opening an Existing File : To open an existing File,

- Choose File Menu → Open→ Select the location→Select name of the file→Click on 'Open'.

D) Printing a File : For printing a File,

- Choose File Menu → Print → Select Printer name → Select number of copies → Click on 'Print'.

Commonly used options with Writer, Calc, Impress :

A) Cut, Copy and Paste : These options can be used with help of the Keyboard, Menu bar or Standard toolbar as follows respectively.

- Press the Ctrl+X(Cut) / Ctrl+C(Copy) / Ctrl+V(Paste) keys.
- Choose Edit Menu → Cut / Copy / Paste option.
- Click on the required  icon on the Standard Tool bar.

B) Find, Replace : These options can be used by choosing

- Choose Edit → Find & Replace on the Menu bar.
- Click on  icon on the Standard Tool bar.

'Find' option is used to find a particular text in the document and 'Replace' option is used to replace a particular text with some other text.

Various Formatting options in Writer :

A) Formatting the Text : For formatting the text, first select the text and use the required formatting options from 'Sidebar' or 'Formatting Tool Bar'. Character formatting options are as follows :

* Font 	* Increase Font Size 
* Font Size 	* Decrease Font Size 
* Bold 	* Font color 
* Italics 	* Highlight Color 
* Underline 	* Set Character Spacing 
* Strike through 	* Superscript 
* Toggle Shadow 	* Subscript 

Table 2 : Formatting icons and text

B) Formatting the Paragraph : Select the paragraph and then select the required formatting option from 'Sidebar' or 'Formatting Tool Bar'. Paragraph formatting options are as follows :

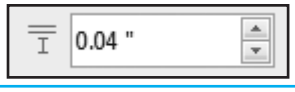
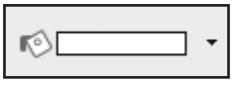
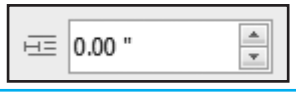
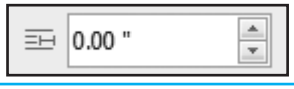
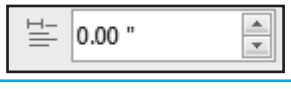
* Align Left 	* Above Paragraph Spacing 
* Align Center 	* Below Paragraph Spacing 
* Align Right 	* Line Spacing 
* Justified 	* Increase Indent 
* Toggle Bulleted List 	* Decrease Indent 
* Toggle Bulleted List 	* Switch to Hanging Indent 
* Background Color 	* Before Text Indent 
* Increase Paragraph Spacing 	* After Text Indent 
* Decrease Paragraph Spacing 	* First Line Indent 

Table 2 : Paragraph Formatting icons and text

Inserting a Table :

Table is used to display the text in proper and organized manner.

- Choose Table Menu → Insert Table → Select number of rows and columns→ Insert.

Mail Merge :

Mail Merge is a powerful tool for writing a personalized letter or E_Mail Message to many people at the same time. It imports data from another data source such as a database, spreadsheet, or table into document. This feature is usually employed in a word processing document which contains fixed text (which is the same in each output document) and variables (which act as placeholders that are replaced by text from the data source).

Steps to do this activity are :

1. Open a new blank Document → Click on 'Tools' Menu → Select 'Mail Merge Wizard' option → Click on 'Use the current document' option → Click on 'Next' Button.
2. Click on 'Letter' option → Click on Next.
3. In Next Window, in ' Insert Address Block' section under first point click on 'Select Different Address List'.
4. In Next window, 'Select Address List', Click on 'Create' Button.
5. In 'New Address List' window, click on 'Customize' button.
6. In 'Customize Address List' window select a field which is not required for database and click on 'Delete' button → If you want to add a new field then click on 'Add' button → Type a name in 'Element Name' box → Click on 'Ok' button → After selecting the required fields click on 'Ok' button.
7. Now in 'New Address List' window type the required information in the fields → Click on 'New' button to add a new record → After filling all records → Click on 'Ok' button → in next window type name for the database in 'File Name' box → Click on 'Save' button → Click on 'Ok' button → Click on 'Next' button → Click on 'Next' button.
8. In next window, select position for address block and salutation then click on 'Finish' button.

Now in the present document after salutation type invitation letter matter → Click on 'Format' Menu → Click on 'Page' → select any one page background like Color/ Gradient/ Bitmap/Pattern → Click on 'Apply' → Click on 'Ok' → Click on 'Insert' Menu → if desirable insert an Image/ Shape → Below Formatting Tool Bar a 'Mail Merge Tool Bar' will appear. →Click on 'Save Merged Documents' option → Type

name for that new document in 'File Name' box → Click on 'Save' button.

Now open that saved (merged) document. In the document the number of letters created are equal to the number of addresses present in the 'Address List'.

Example : Invitation to Parents for School Exhibition.

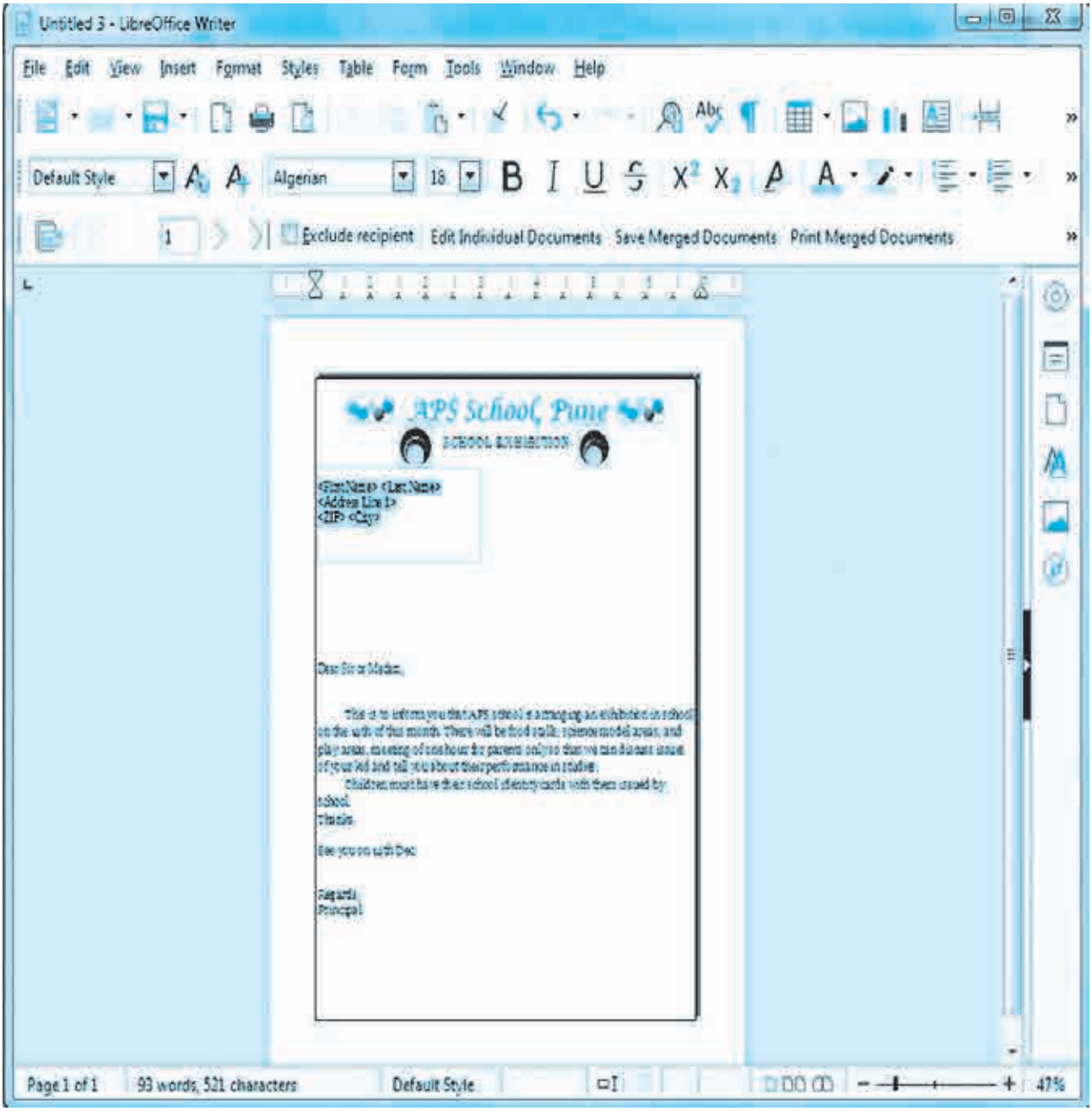


Fig. 2 : Screen before merging text and data source.

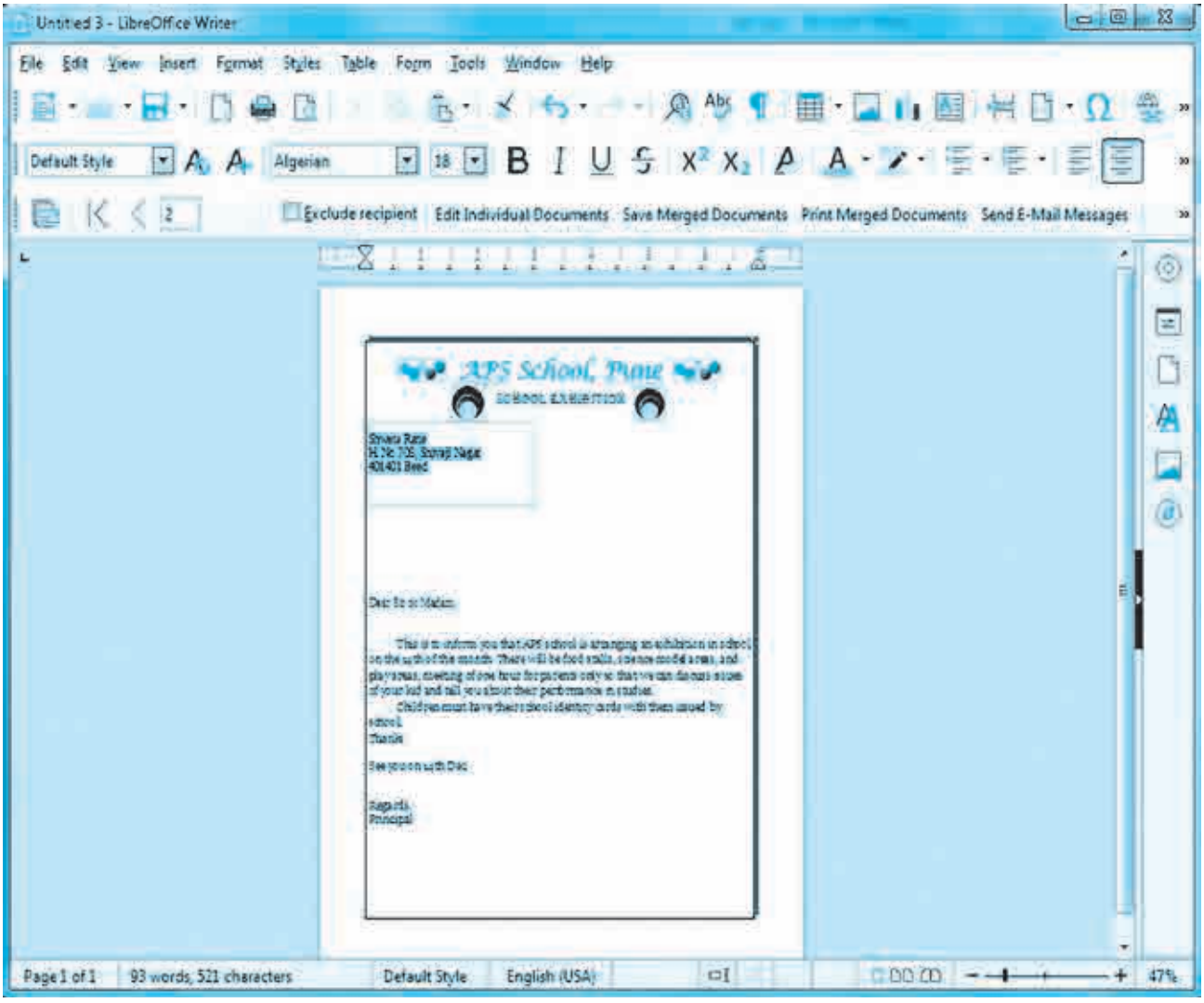


Fig. 3 : Screen after merging text and data source.

Check Spelling :

This option is used to correct mistakes identified by the Writer Application and displayed as green and red wavy lines for grammatical and spelling mistakes respectively.

- Choose Tools Menu →Spelling →with the help of various options correct the spelling as well as grammatical mistakes.

LibreOffice Calc

LibreOffice Calc is the spreadsheet component of the LibreOffice software package. It is used for doing calculation and analysis of data.

Double click on the icon of 'LibreOffice Calc' present on desktop. The screen of Calc will be displayed as follows.

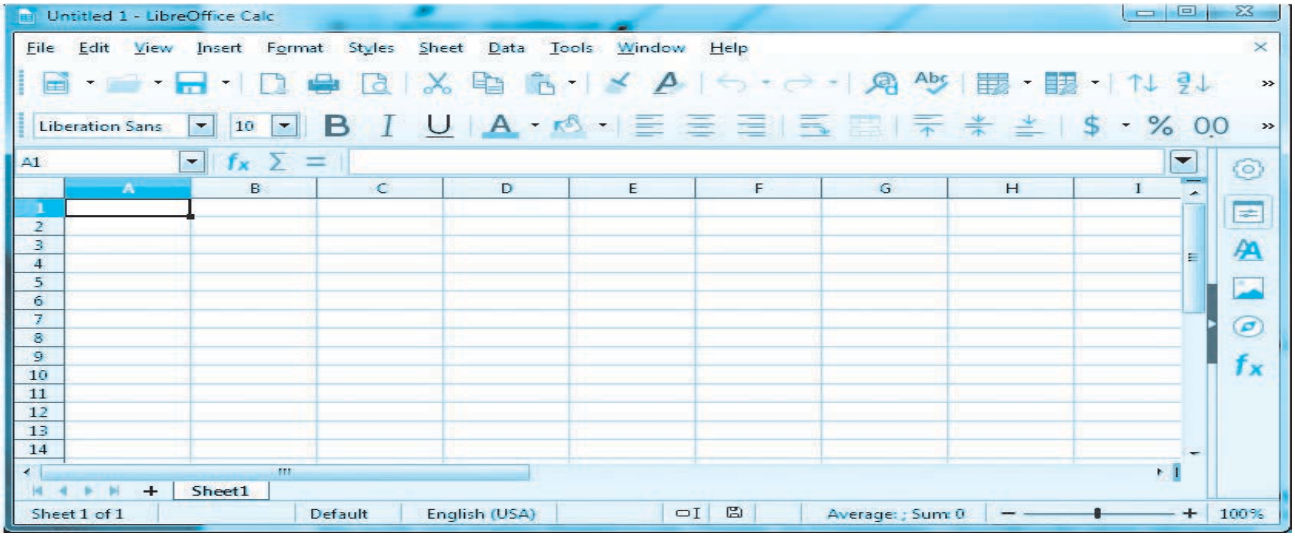


Fig. 4 : LibreOffice Calc Screen.

Various activities in Spreadsheet :

A) Simple calculations : In Calc, formula can be created for doing simple calculations.

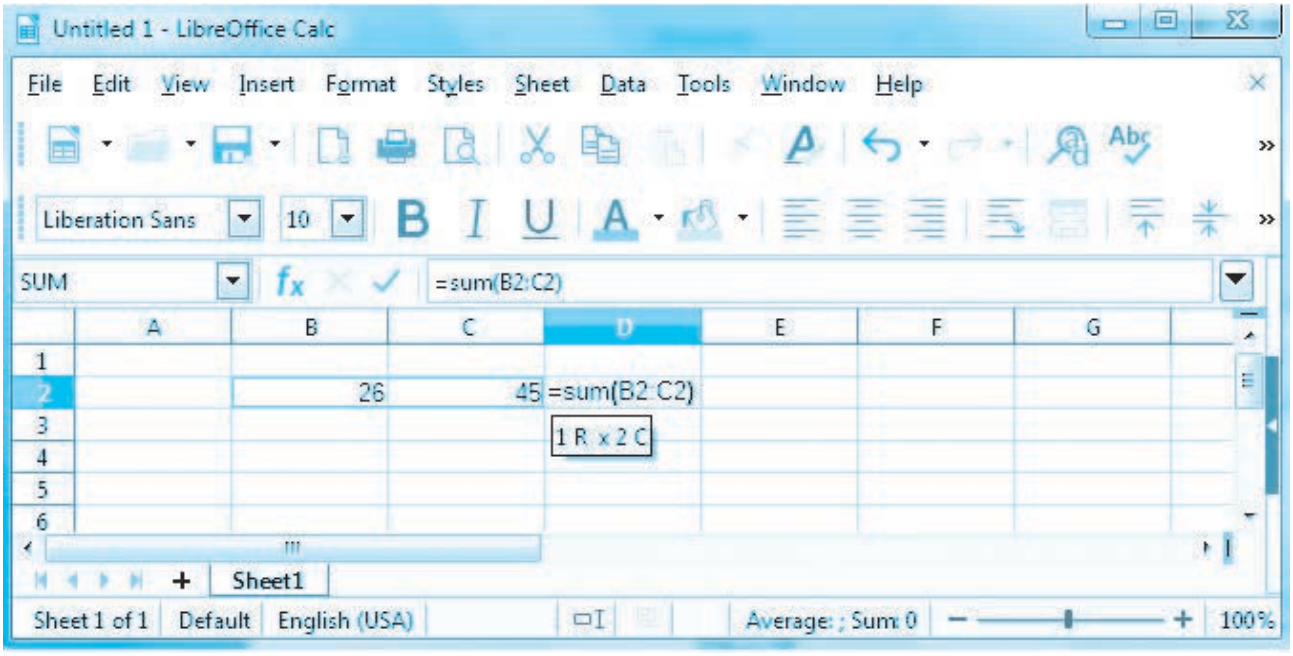


Fig. 5 : Simple calculation.

Steps :

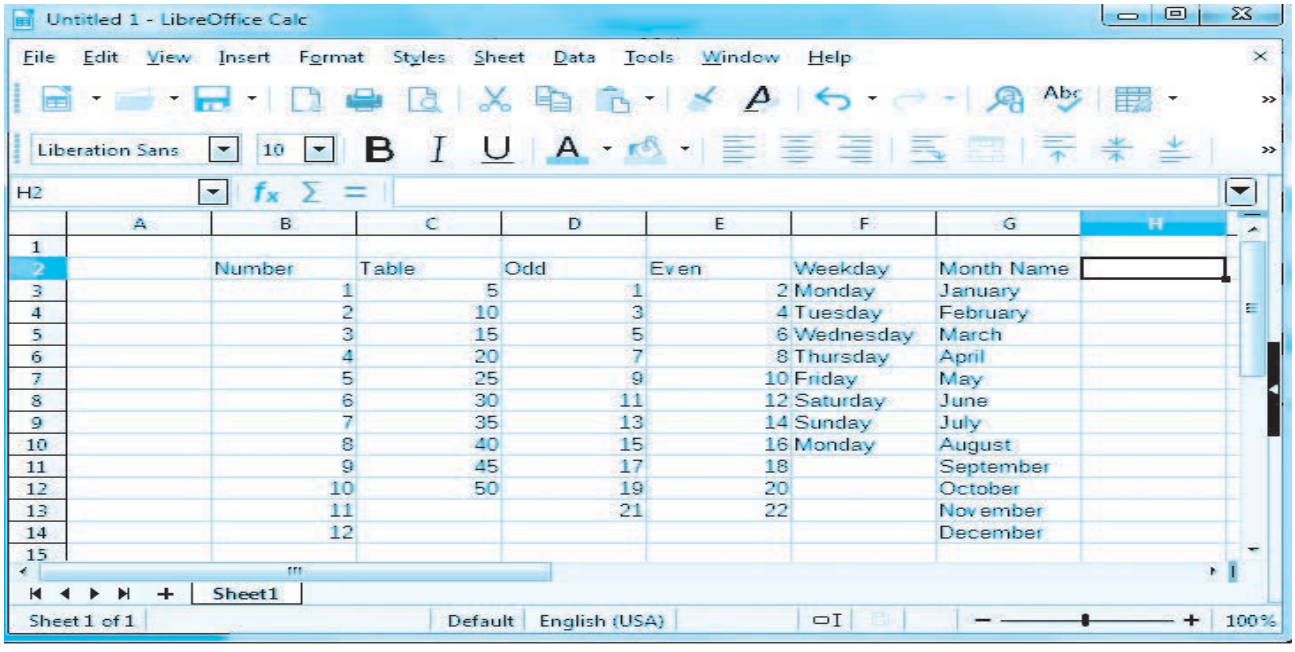
1. First fill up the numeric data in cells
2. Click inside the cell where the result has to be calculated.
3. Type '=' sign
4. To calculate sum, type the word 'sum'
5. Type '(' bracket.
6. Type the range of cells [while writing the range of cells, write the starting cell's address followed by the ':' sign and then the last cell's address]

7. Type ‘)’ bracket
8. Press ‘Enter’ key.

Another method to calculate the sum is, place the cursor in the cell where result should be calculated and type ‘= B2 + C2’ press ‘Enter’ key.

In Calc built-in functions as well as user defined functions are available for easy calculations. Built-in functions means functions provided by the application. User defined functions means user writes function according to the requirements. Some common built-in functions are count(), average(), min(), max(), mode().

B) AutoFill Series : Various series can be created by using 'AutoFill Series' option like Number (Number, Table, Odd, Even), Weekdays, Month Names.



	A	B	C	D	E	F	G	H
1								
2		Number	Table	Odd	Even	Weekday	Month Name	
3		1	5	1	2	Monday	January	
4		2	10	3	4	Tuesday	February	
5		3	15	5	6	Wednesday	March	
6		4	20	7	8	Thursday	April	
7		5	25	9	10	Friday	May	
8		6	30	11	12	Saturday	June	
9		7	35	13	14	Sunday	July	
10		8	40	15	16	Monday	August	
11		9	45	17	18		September	
12		10	50	19	20		October	
13		11		21	22		November	
14		12					December	
15								

Fig. 6 : AutoFill Series.

C) Sort : Sort option is used to arrange the records in the alphabetical order. The order may be ascending or descending. The same is possible for numeric fields.

D) Create a Chart : Chart is the graphical representation of numeric data. Various types of charts can be inserted such as pie chart, bar chart, line chart, column chart. Steps are as follows.

1. Create a table with some records → select the complete table → Click on ‘Insert’ menu → Click on ‘Chart’ option.
2. A window will appear, which starts a chart wizard → select the ‘Chart type’ → put check mark to ‘3D look’ if you want a 3D view → select ‘Shape’ → click on ‘Next’ button.
3. In next window ‘Data Range’ is displayed, click on ‘Next’ button.
4. In next window ‘Data ranges for each individual series’ is displayed. click on ‘Next’ button.

5. In next window, type the required information for the fields like Title, Sub title, X-Axis, Y-Axis, Z-Axis → Click on 'Finish' button.

E) AutoFilter (Standard Filter) : Filter option is used to filter the record according to some value or some criteria. To do this activity-

- Select the records → Click on 'AutoFilter' icon → Click on any one field's drop down list → Click on 'Standard Filter' [It can be selected from Data → More Filters] → Standard Filter → Select 'Field Name' → Select condition → Type a value → Click on 'Ok' button.

LibreOffice Impress

LibreOffice Impress is one of the application in LibreOffice Suite, used to create a presentation. Presentation is a powerful tool to express the knowledge.

Double Click on the icon of 'LibreOffice Impress' present on Desktop. The screen of Impress will be displayed as follows.

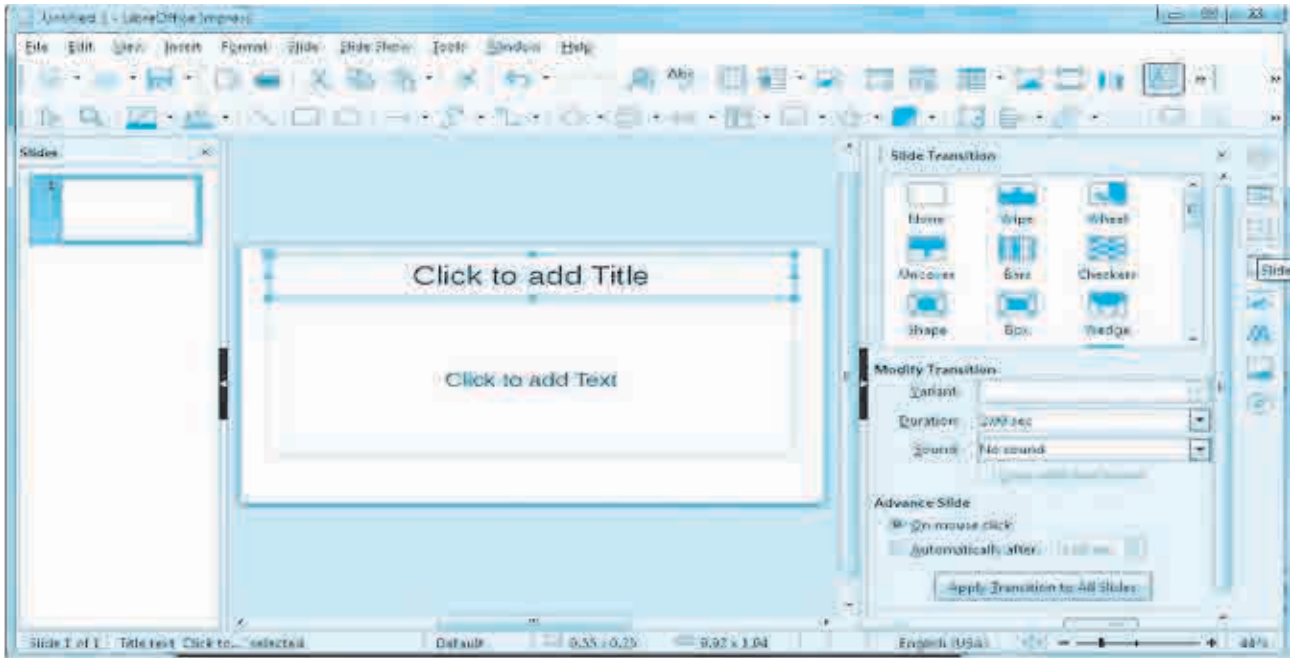


Fig. 7 : LibreOffice Impress Screen.

Creating a presentation :

A) Preparing a slide : When a new blank presentation is started, a blank slide is displayed on the screen. Some instructions are provided on the slide. Follow the instructions to complete the slide. While creating a presentation, type only the main points which are to be explained at the time of presentation.

A new slide can be inserted by using Keyboard, Menu bar or icon present on Standard Toolbar as follows respectively.

- Press the 'Ctrl + N' keys.

- Choose Slide → New Slide from the Menu bar.
- Click on the New Slide icon on the Standard Toolbar.

B) Setting Background : A slide can have a background of an image or a colour.

- Choose Slide Menu→ Set Background Image/Properties.

C) Slide Transition : Slide transition are the effects given to complete slide. Click on the slide for which effects to be given.

- Choose Slide Menu→ Select 'Slide Transition' option

D) Custom Animation : Custom animation are the effects for objects present on the slide.

- Click on any object present on Slide →From Side bar Select Custom Animation→ Choose Category, Effect, Direction, Duration etc.

E) Slide Show : Slide Show option is used to see the presentation on a full screen with all effects. A slide show can be started from the Keyboard, Menu Bar or icon present on the Standard Toolbar as follows respectively.

- Press the 'F5' Function key.
- Choose Slide → Start From First Slide from Menu bar.
- Click on the 'Start From First Slide' icon on the Standard Toolbar.

LibreOffice :

SOP 1 : Create a Resume

The resume should contain the following :

- Title at the center with applicable font and size.
- It should contain points such as Name, Address, Mobile Number, Date of Birth, Nationality, Caste, Category, Hobbies etc. Add some extra points.
- For educational qualifications a student should insert a table.
- At the end students should write a few lines about their aim.

SOP 2: By using Mail Merge send an invitation for your birthday party.

- Use mail merge feature.
- Send invitation to at least 5 friends.

SOP 3 : Create a mark list. The mark list should display :

- Fields as Name, Math, Physics, Chemistry, Biology, Total, Percentage.
- Below each subject find out the lowest marks and highest marks.
- Enter minimum 10 records.
- Declare the first three ranker students.
- Create a chart based on the above data.

SOP 4: Create an Informative presentation on your college.

- Presentation should contain minimum 8 slides.
- One slide should contain a chart.
- One slide with an image.
- Each slide should contain custom animation & slide transition effect.

2 Web Designing (HTML - 5)

Skill Set 2 - HTML 5

SOP 1 : Write a program using HTML with following specifications.

- The background colour should be green.
- The text colour should be red.
- The heading should be large in size as 'My First Web Page'.
- Display a horizontal line after the heading.
- Display your name in Bold, address in Italics and standard as 11th .

SOP 2 : Create a web page with, following specification.

- Image of any scientist with an alternate text as his name.
- Create a paragraph related to information of that scientist.
- Create a table of his/her inventions.

SOP 3 : Create a webpage with following specification.

- Display heading 'Application Form' in highest heading with center alignment.
- Accept name, standard 11th or 12 th with only one selection choice.
- Submit the form.

SOP 4 : Write a program using HTML with the following specification.

- A webpage with details about a class with total number of students-100, (Boys-50), Girls- 50 in tabular form.

  e.g.

Number of Students	Boys	Girls
100	50	50

- Link this page to another page as follows.

STD - XI
Stream - Science
Div - A

Demo.html

ooo

3 Client Side Scripting (JavaScript)

Skill Set 3 - JavaScript

SOP 1 : Create JavaScript program for the following using appropriate variables, JavaScript inbuilt functions and control structures.

- To accept integer and display the result by multiplying it with 3.
- To accept two integers and display larger number of them.
- To check whether, user entered number is positive or negative.

SOP 2 : Create JavaScript program for the following using appropriate variables, JavaScript inbuilt functions and control structures.

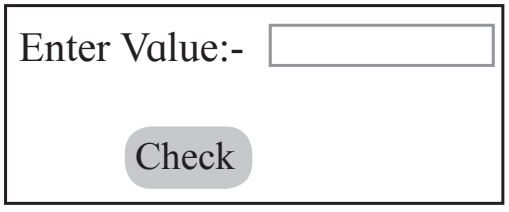
- To accept two positive or negative numbers and check whether they are equal or not.
- To accept number and display square of it.
- To check whether the accepted integer is multiple of 3 or multiple of 7.

SOP 3 : Create JavaScript program for the following using appropriate variables, JavaScript inbuilt string functions and control structures.

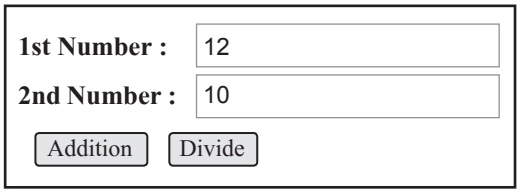
- To accept string and calculate its length.
- To accept string and display it into lowercase and uppercase.
- To check whether the length of string is 4 or greater.

SOP 4 : Create event driven JavaScript programs for the following using appropriate variables, JavaScript inbuilt functions and control structures.

- To accept number and validate if the given value is a number or not by clicking on the button.



- To calculate addition and division of two numbers.



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4 Accounting Packages (GNUKhata)

Introduction to accounting software :

In computerised accounting complete book keeping is done which enables user to record all types of transactions including receipts, payments, income and expenses, sales and purchases, debit notes, credit notes, adjustment journals, memorandum journals and reversing journals. Various open-source accounting software are available in market such as GNUKhata, GNUCash, Turbo Cash, Ledger SMB, Money Manager You can use any accoounting software. This book has introduced GNUkhata which is one of the open source software.

Golden rules of accounting :

There are three types of account

1. **Personal Account :** Personal account is related with Individual's, Organizations and Institutions accounts. Example Persons capital account, Bank account etc.

   Rules of Personal account

   Debit the Receiver

   Credit the Giver

2. **Real Account :** Accounts relating to assets of business are called Real account. Real accounts which are tangible or intangible in nature. Example Furniture, Goodwill, Trademark etc.

   - Rules of Real account

   - Debit what comes in

   - Credit what goes out

3. **Nominal Account :** Nominal Account is related with all the expenses, losses, and incomes and gains of the business. Example wages, salary, advertisement, interest received etc.

   Rules of Nominal Account

   Debit all Expenses and Losses

   Credit all Incomes and Gains

Open source accounting software package-GNUKhata

GNUKhata is a free and flexible software for accounting and inventory management. It provides solutions for basic book keeping. It has various version such as GNUKhata 4.0, GNUKhata 5.0 and GNUKhata 6.0. We will be using GNUKhata 6.0 in this textbook. This software freely available on https://www.gnukhata.in.

Features of Gnukhata :

1. Gnukhata is free and open source accounting software.
2. Gnukhata is based on double entry book keeping.
3. Gnukhata allows you to comprehensive financial reports-ledgers, trial balance, profit and loss account, balance sheet.
4. Gnukhata provides source document attachment facility in vouchers.
5. Gnukhata gives linking facility. To linking of sales and purchase transactions to invoices.
6. Gnukhata allows you to export and import spreadsheet
7. Gnukhata gives password security and data audit facility.
8. Unique dual ledger facility.
9. Inventory includes invoicing and cash memo.
10. It can be easily transformed into Indian languages.
11. It is GST complaint

Opening screen of GNUkhata

When we open GNUkhata for the first time it is called opening screen or welcome screen of GNUkhata.

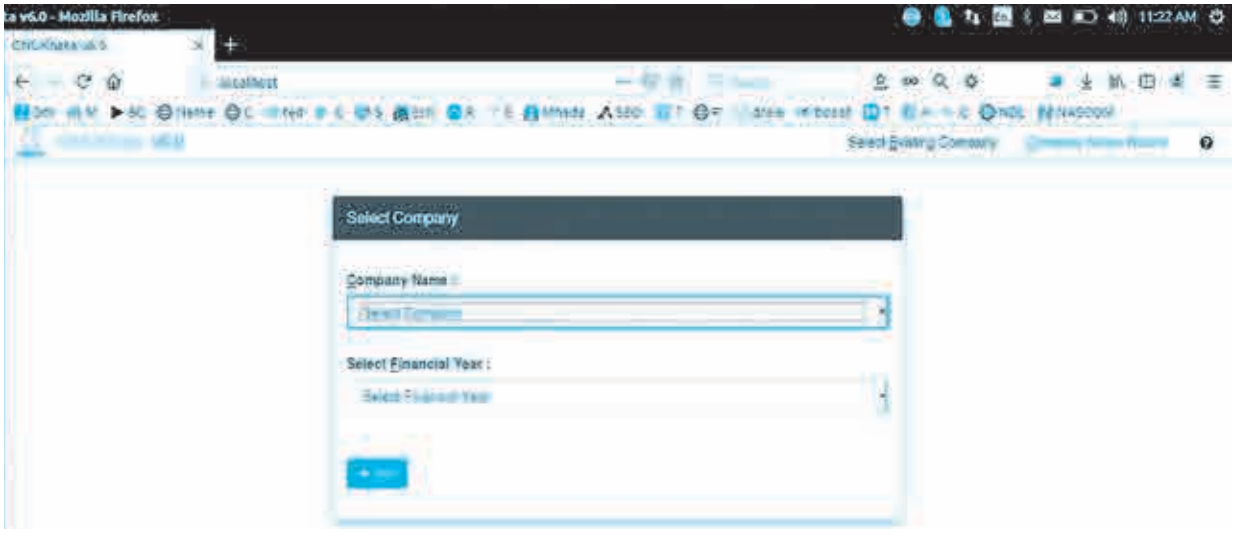


Fig. 1 Opening Screen Of GNUKhata

1) Company Setup wizard

1. **Create Company :** The first step in GNUKhata is to create an organization. Click on 'Company Setup Wizard' (or press Shift + Control + C).

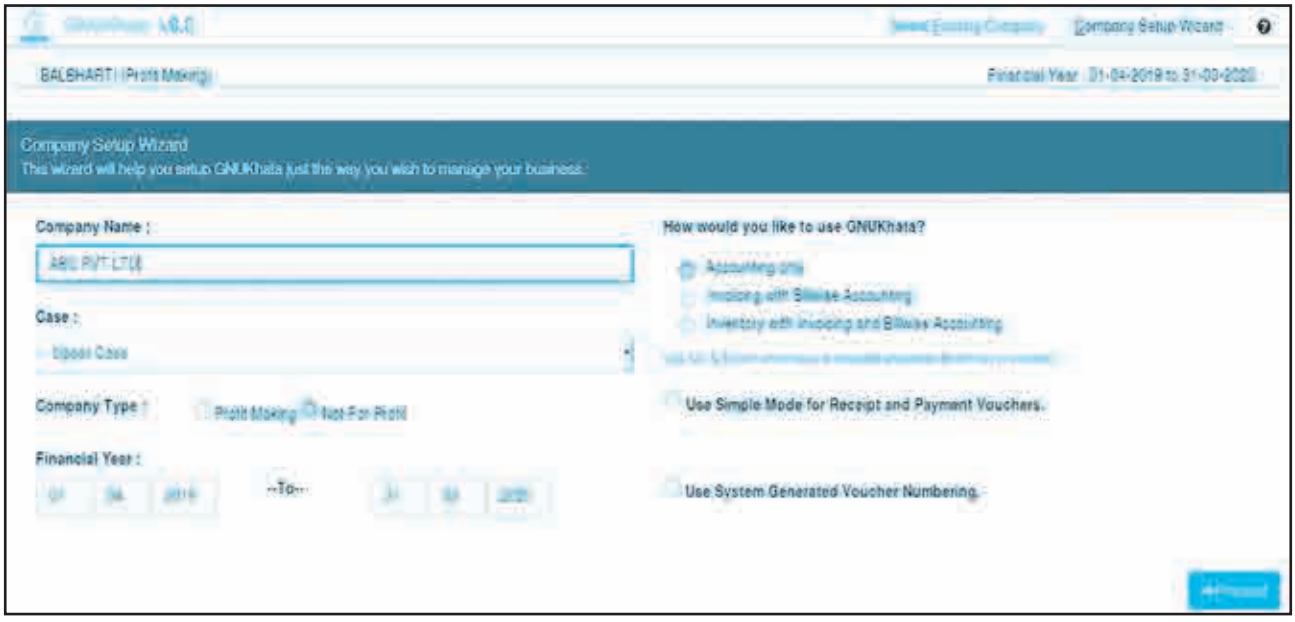


Fig 2: Company Setup Wizard

While creating a company the following details are to be given :

- **Company Name :** Enter the name of the company.
- **Company Case :** Select appropriate case for example as-is, upper case, lower case or title case.
- **Company type :** Select the company Type either 'Profit Making' or 'Not For Profit'.
- **Financial year :** Enter financial Year of the company.
- How Would you like to use GNUKhata? It displays following three options, select Accounting only.
  - Accounting only.
  - Invoicing with Billwise Accounting.
  - Inventory with Invoicing and Billwise Accounting.
- Uncheck 'Use Simple Mode for Receipt and Payment Vouchers' and 'Use System Generated Voucher Numbering'.
- Proceed Button:-It allows you to proceed to create company profile .

2. Company Profile :

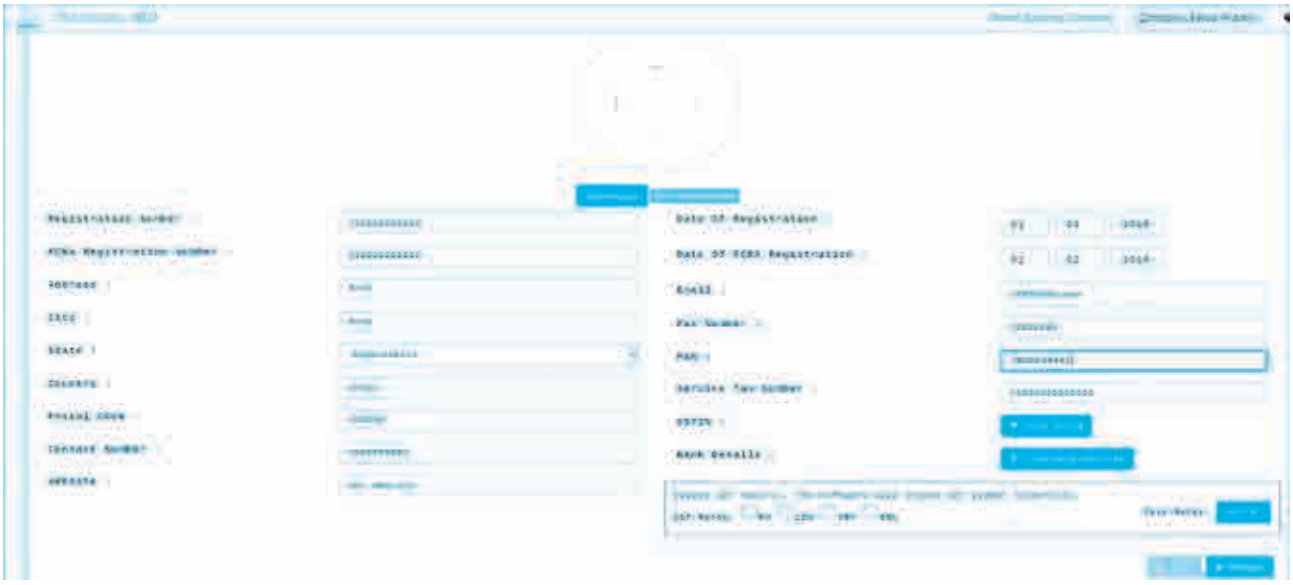


Fig 3: Company profile screen

Enter appropriate company information in the above fields.

3. **Create Admin :** The next step is the 'Create Admin' which is mandatory. Fill all the fields and click on 'Create & Login'.

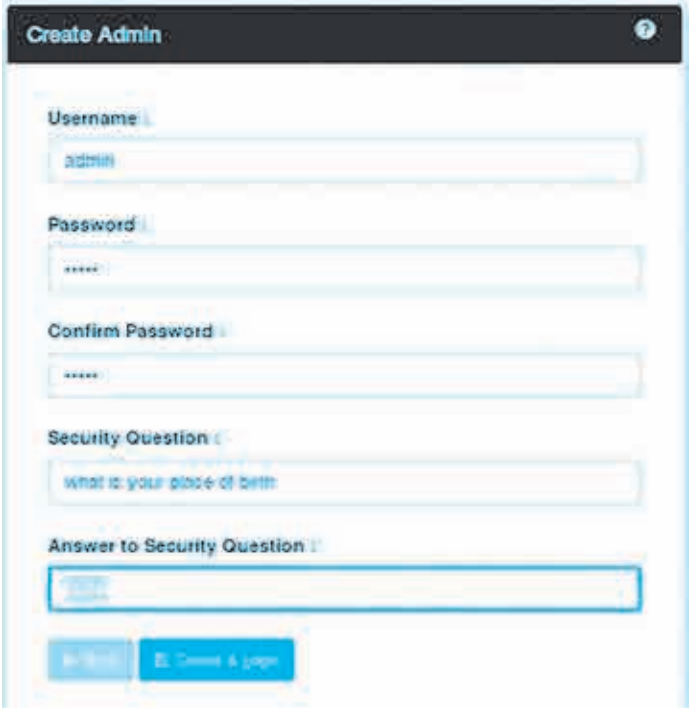


Fig. 4 Admin Creation Screen

4. **Admin Dashboard :** After login, following admin dashboard appears.

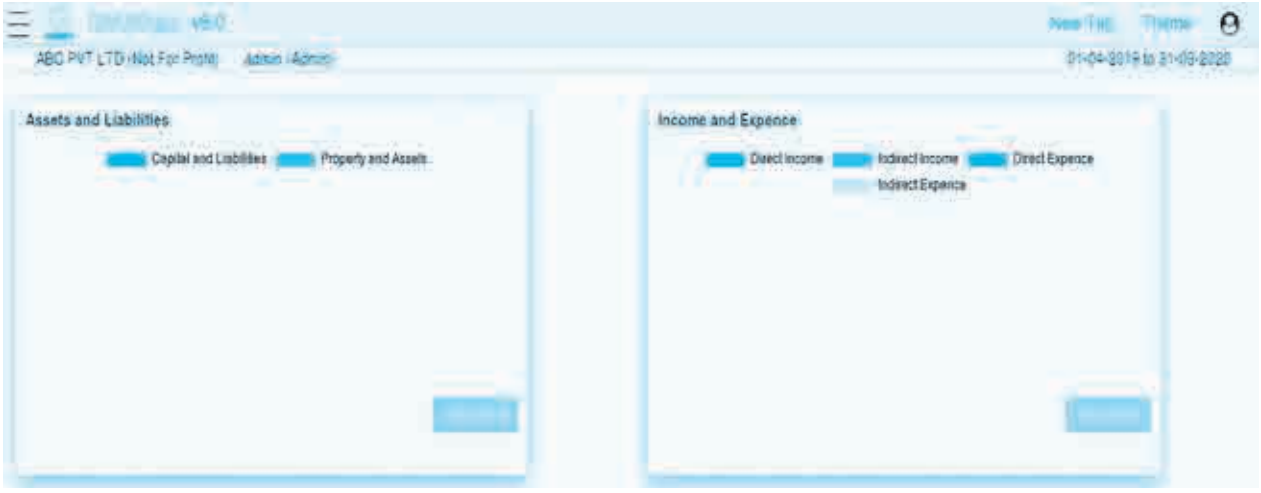


Fig. 5 : Admin Dashboard

2) Select Existing Company

You can select already created company using 'Select Existing Company' Option on Opening Screen as shown in **Fig. 1**

Fig. 6 : Select Existing Company

3) Delete Existing Company

Click on Hamburger Menu on left top corner of dashboard. Click on 'Administration → Delete Company'.

Groups and sub-groups in GNUKhata

Group is a type of account. Groups are helpful for classifying and identifying account head and also to get summarized information. Group of account is a method of organizing the large number of ledger accounts into sequential arrangement. GNUKhata has 13 groups.

BALANCE SHEET GROUPS, SUB-GROUPS AND LEDGER ACCOUNTS

The summary of balance sheet groups, sub-groups and ledger accounts are given below.

Group Name	Sub-Group Name	Ledger Account
(1) Capital / Corpus	None	• Capital Account • Partner's Capital Account • Share Capital Account • Capital Fund
(2) Current Assets	(1) Cash as Bank (2) Cash in hand (3) Inventory (4) Loans and Advance (5) Sundry Debtors	• Bank Account • Cash Account • Petty Cash Account • Closing Stock (System Generated) • Stock at the Beginning (System Generated Ledger Account) • Short Term Loans and Advances given to Employees. • Prepaid Expenses • All Debtors/Customers Account
(3) Current Liability	(6) Provisions (7) Sundry Creditors for Expenses (8) Sundry Creditors for Purchases	• Account of PF, ESI, TDS dues, etc. • Provision for Bad debts • Provision for Income Tax • Outstanding Expenses • All Suppliers / Creditors Account
(4) Fixed Assets	(9) Building	• Building Account • Office Building Account • Factory Building Account
	(10) Furniture (11) Land (12) Plant & Machinery	• Furniture Account • Shop Furniture Account • Land Account • Machinery Account • Plant Account • Plant & Machinery Account
(5) Investments	(13) Investment in Bank Deposits (14) Investment in Shares & Debentures	• Bank Fixed Deposit • Investment in Shares • Investment in Debentures
(6) Loans (Asset)	None	• Accounts of all Long Term Loans given by the organisation

Group Name	Sub-Group Name	Ledger Account
(7) Loans (Liability)	(15) Secured (16) Unsecured	• Bank Loan • Other secured loans • Loan from Partners • Loan from Manager(s), etc.
(8)Miscellaneous Expenses (Assets)	None	• Preliminary Expenses • Pre-operation Expenses, etc..
(9) Reserves	None	• Retained Earnings • General Reserves • Reserves and Surplus

Table 1 : Summary of Balance Sheet groups

PROFIT & LOSS OR INCOME & EXPENDITURE ACCOUNT GROUPS, SUB- GROUPS AND LEDGER ACCOUNTS

The summary of Profit and Loss account groups and sub groups are given in Table

Group Name	Sub-Group Name	Ledger Account
(1) Direct Income	None	• Sales • Professional Fees • Profit and Loss Account or Income & Expenditure Account (System Generated Ledger Account)
(2) Indirect Income	None	• Bad debt received • Commission Received • Discount Received • Income from Investment • Rent Received • Interest Received, etc..
(3) Direct Expense	None	• Wages Carriage Inward • Coal,Gas & Water of Factory • Factory Expenses (Lighting,Power,etc) • Freight • Import Duty • Octroi • Factory Expenses • Opening Stock Account (System Generated Ledger Account) • Purchases • Sales Return, etc..

Group Name	Sub-Group Name	Ledger Account
(4) Indirect Expense	None	• Office Expenses Salary • Rent • Insurance • Audit Fee • Electricity • Depreciation • Bad debt • Telephone Charge • Commission Allowed • Discount Allowed • Export Duty • Interest on Loan • Legal Expenses • Postage and Telegram • Printing and stationery, etc..

Table 2. Summary of Profit and Loss groups, Sub-groups and Ledgers

Ledger :

A Ledger account contains a record of all transactions relating to an asset, liability, capital, and an item of expenditure or revenue. It has to be created under any of this group.

How to create a account (Ledger account) using GNUKhata

1. **Create an account :** GNUKhata allows you to create single account at a time. Click on Hamburger Menu (☰) available at left top corner of the dashboard. It displays the options as shown in **fig. no. 7.**

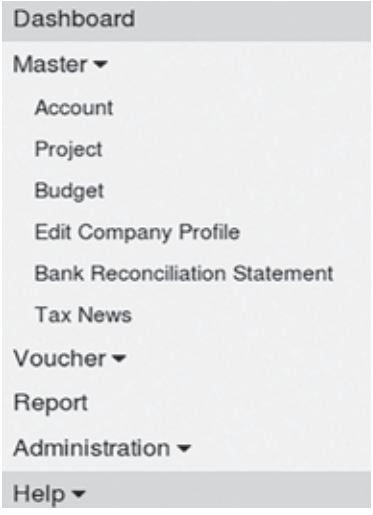


Fig. 7 Admin Dashboard Menu

Click on the Master → Account. It allows you to create account as shown in **fig. 8.**

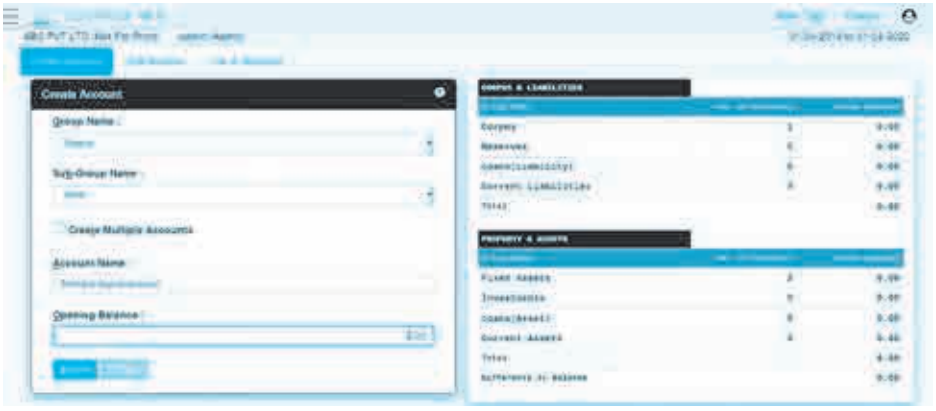


Fig. 8 Group Creation Screen

Select appropriate group name, sub-group name and enter account name and click on save. You can also create Multiple Accounts.

Note :

1. You can not create a new Group but you can create a new Sub-Group of any Group in addition to the existing ones or where there is none.
2. You can not delete a Group or Sub-Group. Having created a new Sub-Group you may not use it.
3. You can not create Sub-Group of Sub-Group.

2. **Edit Account :** To edit/delete account, click on 'Edit Account' and select appropriate account from 'List of Accounts' drop-down.
3. **List Accounts :** To view all the accounts, click on 'List Accounts'.

Skill Set 4 - Accounting Package

SOP 1 : Use of Accounting Package to create a company.

Create a company with the following particulars.

Company Name	:	B.B Enterprises
Case	:	Upper Case
Company Type	:	Profit Making
Financial Year	:	01-04-2019 to 31-03-2020
Use GNUKhata for	:	Accounting Only

Create profile with relevant data for any company. Create Admin account for the company.

SOP 2 : Create ledger accounts using accounting Package.

Create ledger accounts for the following and allocate proper groups.

1. Import duty
2. Insurance
3. Machinery
4. Audit Fee
5. Purchase
6. Sales
7. Telephone charges
8. Interest Recieved
9. Salary
10. Professional fees

5 Digital Content Creation (GIMP, Inkscape)

Introduction

Digital content can be in any form. We have different types of files, such as images, videos, audio, text files, software program files which can be compiled and made executable. Following is the list of contents along with its example

1. Images files
2. Blogs – HTML files with Images and Videos in it.
3. Audio Files – Mp3 and various other format files etc.
4. Videos files –

In this SOP we are going to learn GIMP, Inkscape

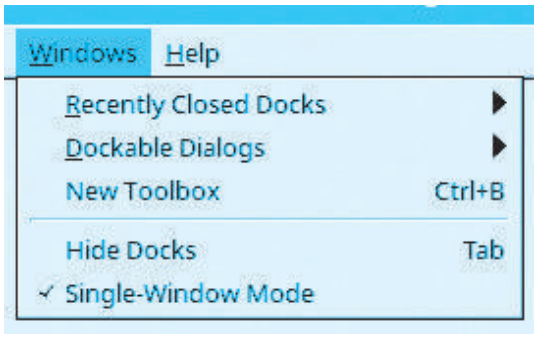
GIMP

GIMP (GNU Image Manipulation Program) was created in 1995 as a computer science project by students, Spencer Kimball and Peter Mattis. Today GIMP has become a very sophisticated software with plenty of documentation and support. GIMP is a Free and Open Source Software. You can freely distribute the program as well as its source code to any number of users. You can even study the source code and enhance it. GIMP runs on Linux and most of the other desktop Operating Systems.

Fig 1 : GIMP Opening Screen

Gimp Opening Screen (The appearance may vary depending upon your version)

GNU/Linux distribution already comes with a GIMP package. Installing through package manager is a preferred method of installing GIMP, as the distribution maintainers take care of all the dependencies and bug fix updates.



GIMP is very easy to learn. The opening screen of GIMP is shown above. Please ensure that you use the '**Single Window Mode**' which is suitable for beginners. To do this, tick Windows -> Single-Window Mode if it is not ticked already.

Fig 2 : Single Window Mode Option

GIMP toolbox contains set of tools. These tools can be used to do various operations on images. Tool icons visually describe the corresponding operations. We will cover a few of them.

Students are required to explore the other tools by using them and referring to the GIMP documentation, manual and web tutorials which are freely available.

The most frequently used tool is Foreground and Background colour tool. The upper rectangle represents foreground colour while the lower represents background.

Fig 3 : GIMP Toolbox

Clicking on each of the rectangles gives a colour selection dialog from which users can choose required forground or background color. Note that each colour selection is represented by set of numbers. You can note down these numbers and reproduce the colour at any time.

Let us do a small activity. We will create a colourful baloon with some text on it.

Step 1 : Create a blank image, also called as 'Canvas'. File->New (or Ctrl+N).

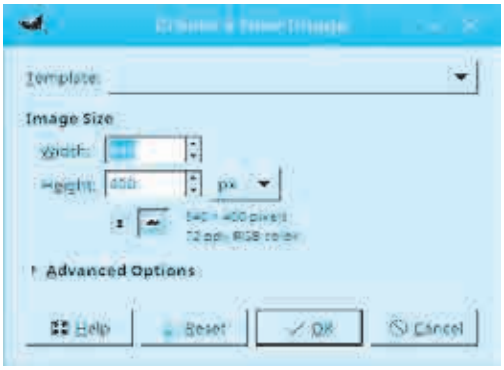


Fig 4 : Canvas Creation

We start with a new blank image of size 640 x 400 pixels. The new image will have white background and black foreground.

This 640 x 400 image will be the surface of our baloon.

We want our baloon to have very attractive colours. So let us fill the whole image area with some bright colour. We can use single flat colour or even mixture of few colours. Here we will use gradient colour. Gradient colour is a gradually fading mixture of two colours

Step 2 : Change Foreground and Background colour with colours of your choice. The tool will show you the colours you have chosen in the form of small icon.

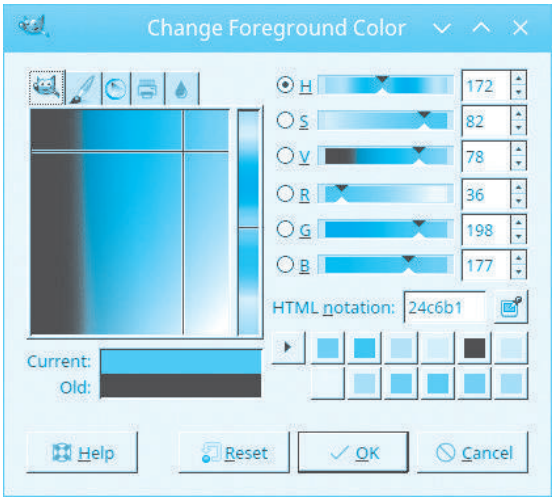
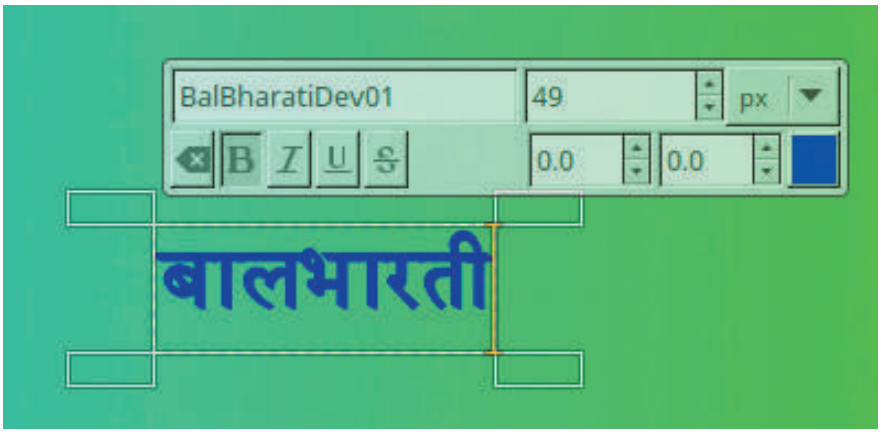


Fig 5 : Colour Toolbox

Step 3 : Now select the **Blend Tool (short cut L)** from the tool box and drag the mouse from left to right on your canvas. After you release the mouse, the canvas will be filled by the gradient of foreground and background colour. The baloon made up of this canvas will look nice. But we will decorate the canvas further by putting some text and coloured ovals on it.

Fig 6 : Gradient Color

Step 4 : Next click on Text tool (short cut T) The resulting dialog will give you various options to change font, font size, colour of the font etc. You can type text in the language of your choice provided that additional languages are added in Region and Language Settings of your Linux Distribution. You can refer QR Code to install Marathi Font.



BalBharatiDev01 font can be downloaded from ebalbharati site (if required)

Fig 7 : Text Tool

Step 5 : After you are satisfied with the font, size and other attribute, press escape. Note that a new layer is created with the text you entered. As you add various objects like text,graphics,drawings etc to your image, new layers are created. This enables you to selectively move the objects and change their colour, size etc. Later you can merge down these layers into your main image.

Step 6 : Using move tool, we can move the text roughly to the centre of the image but instead we prefer to put it precisely in the centre, using the Align Tool. Click on Align Tool (short cut Q) and then select the Text layer and text. In the Align dialog, Select relative to image and click on Vertical Centre and then Horizontal Centre buttons. The text layer should now occupy the exact centre of the image.

Step 7 : Drawing coloured oval (Ellipse) : Change the background and foreground colours again with two different colours. We have chosen Red and Yellow respectively.

Create a new layer in your image. Now click on the Ellipse select tool (short cut E) and select the oval shaped area on the image. It will not have any colour. Use the menu Edit->'Fill with FG colour' to give Red colour to your oval. Similarly draw another one and fill with BG color.

Step 8 : Using move tool place these ovals near the Text. Do not move them too far from the center or they will go to the rear side of the baloon. Select the layers one by one and merge them using the command Layer->Merge Down. We now have a colourful single layer. Let us create a baloon from this canvas.

Fig 8 : Output till step 8

Step 9 : Do Filters->Map->Map Object. Select Map to Sphere, Check 'Update preview live' and Uncheck the 'Transparent Background'. This will give you a dialog showing the preview of the resulting balloon (sphere)

Press Ok and the image will now turn into nice balloon with 3D effect.

The balloon is little elongated since our canvas was rectangular.

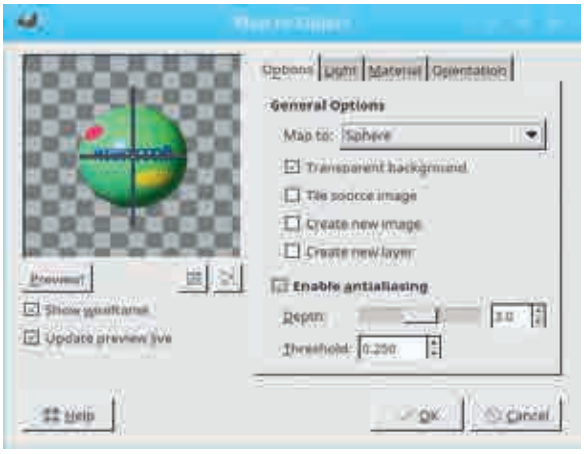


Fig 9 : Map to Object Tool

Fig 10 : Output for Step 9

Step 10 : We will tweak the balloon further and give it more realistic shape. Apply the Distort Filter with Curve Bend option. That is Filter->Distort-> Curve Bend. In the resulting dialog choose Automatic preview and Lower curve border. Then drag the Mid point of the Curve Indicator line using the mouse :

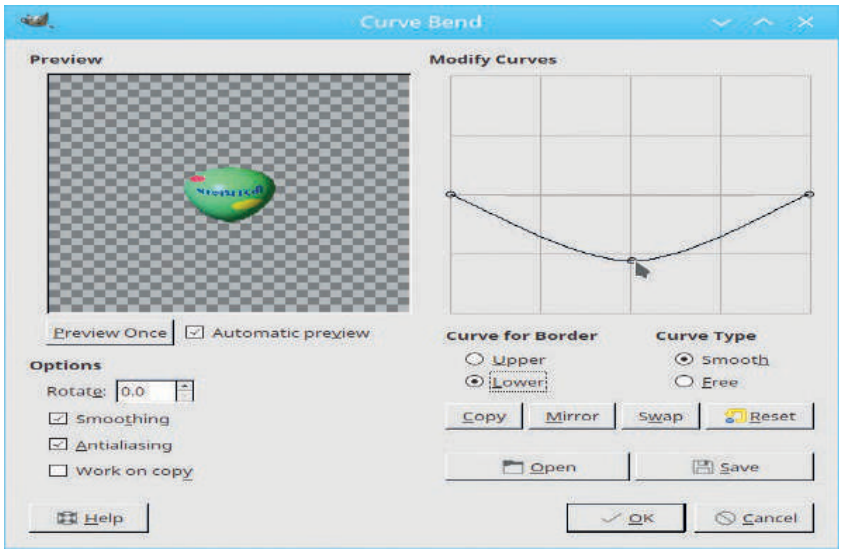


Fig 11 : Curve Bend filter Option

Press Ok and you will get a nice colourful balloon with 3D effect.

Fig 12 : Output for Step 10

Step 11 : Let us remove the unwanted portion around the balloon. To do this simply do Image-> Crop to content.

Fig 13 : Output after cropping

Step 12 : Finally export the image to PNG (jpg format does not support transparency) You can use this balloon as the object to other images. Open an image where you want to insert the balloon.

Fig 14 : Image for Step 12

File -> Open -> Image ->As Layer. Then move the balloon layer to the desired location and merge the balloon layer to the original image. Note that the transparent part is not visible. All images are rectangular in shape. Due to transparency our image appears to have balloon like shape.

Fig 15 : Output for Step 12

Inkscape

Inkscape is a free and open source software for creating vector images. Vector Images are stored as drawing rules and not as a set of pixels. Whenever we resize a vector image, the image is redrawn using the rules. Hence the resized images have the same quality as that of original images.

The image rules or descriptions are stored in xml format with the extension SVG (Scalable Vector Graphics). Inkscape is primarily used for diagrams, charts, graphs, illustrations, logos, icons, line arts, user interfaces of softwares etc.

Inkscape is availble on all major desktop operating systems. It is included in official repositories of all major Linux distributions. One can easily install it from package manager like Synaptic.

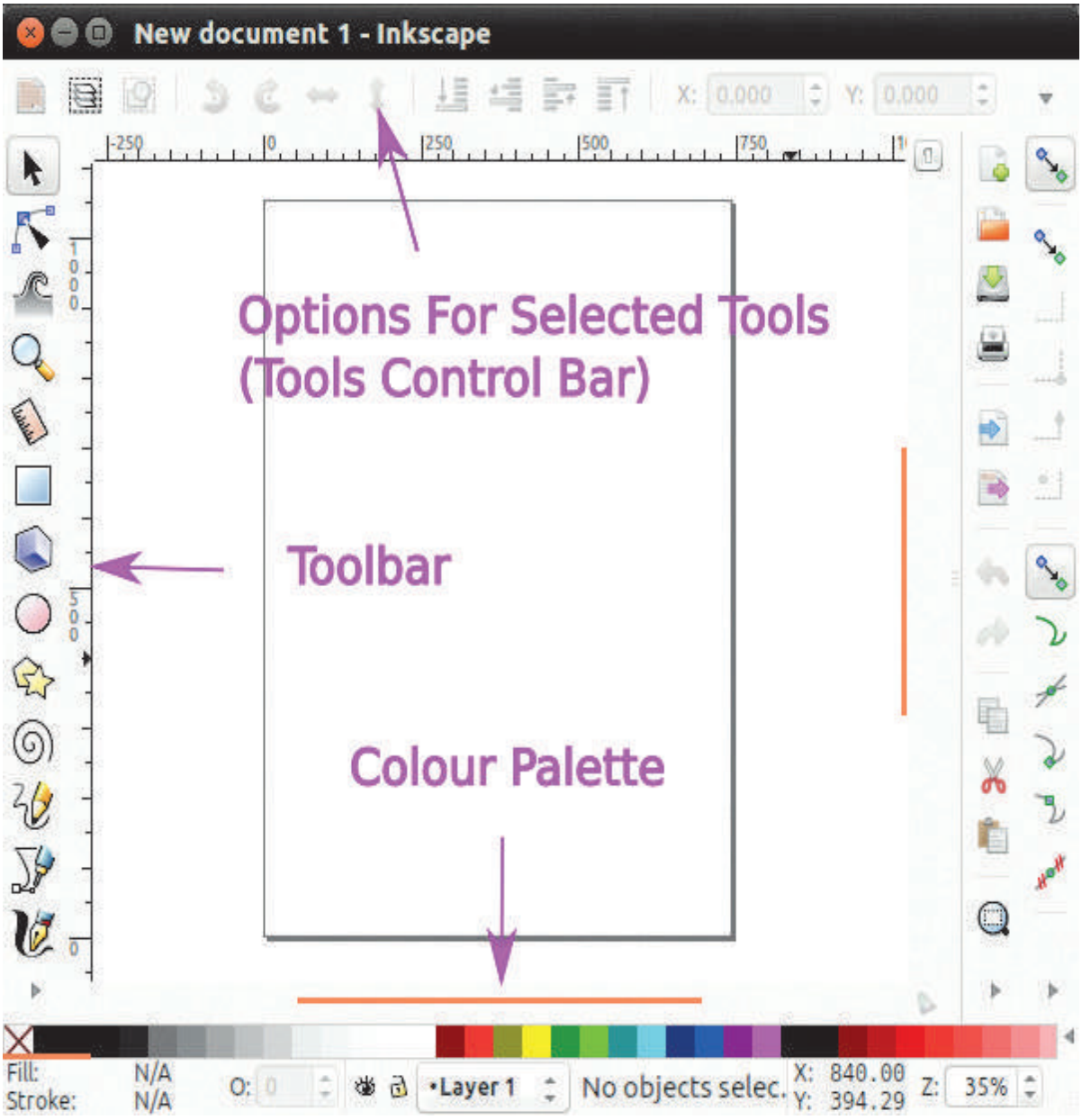


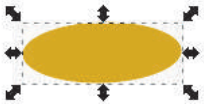
Fig 16 : Inkscape Opening Screen

The opening screen gives you a toolbar on the left. On the top you have a tool control bar. When a tool is selected, this bar shows various settings for the currently selected tool. The right side is reserved for additional dialogs such as fill and stroke align and distribute etc.

We will draw simple objects in order to learn basic skills using the given tools. We use only geometric shapes such as line, circle, ellipse, rectangle and square for these drawings. You might already have used similar tools in many other drawing and painting softwares. But Inkscape gives you far better control than most of the other softwares.

Circle/Ellipse Tool :

Let us start with Circle or Ellipse tool.



1) Select the tool button from left tool bar showing circle icon.

2) Drag it with the mouse to any place in the client area. You will get a circle or an ellipse from starting point to the end point where you release the mouse button. To get the exact circle, press the Ctrl key while dragging. This will guide you by snapping to the exact square.

3) After the ellipse is complete choose the selection tool (topmost from the left tool bar). Then click on the ellipse. The ellipse will then show 8 size handles. You can resize the ellipse by dragging these handles. Also clicking once again on it will turn the sizing handles to rotation handles. You can toggle between Size and Rotation handles.

Fill Colour in the object :

To fill the ellipse with colour, just click on any desired colour given in the bottom colour palette.

To choose more precise and accurate colours, use the menu Object -→ Fill and Stroke. This will give a dialog with a few tabs and also Red, Green and Blue (RGB) colour options. You can choose any combination of Red, Green and Blue to obtain very precise colour from it. Note that you have 0 to 255 that is total 256 choices for each of Red, Green and Blue so total 256 x 256 x 256 = 16777216 colours can be chosen.

Duplicate the object :

Using duplicate, you will get an exact copy of the object. Using Edit-→Duplicate (Shortcut Ctrl-d) you get exact copy of the same object. The duplicate will be at the same place so you need to move it in order to make the duplicate object visible.

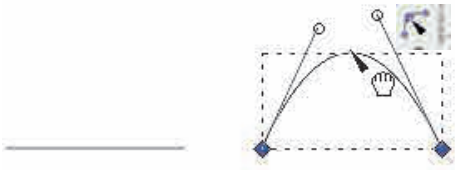
Activity :

Draw different sized ellipses, fill them with colour, rotate and then move and position them in order to draw a simple object as shown below . Our example object is an animal made up of ellipses. A squirrel is shown using only ellipse. We have applied duplication of objects, colouring, rotation and order of objects at appropriate places. You can draw any other animal using simple objects.

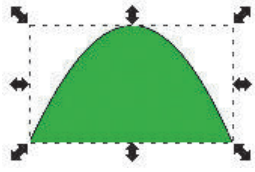
Objects may overlap each other. This order of Objects can be changed by using menu Object -> Raise to Top, Lower to Bottom.

To draw line segments, use Bezier tool. After selecting the tool, click at starting point and drag with mouse to draw line , double click to finish the segment at desired point. Now to increase the line width, click on menu Object -> 'Fill and Stroke', while the line segment is selected. In the 'Stroke Style' tab, adjust the width.

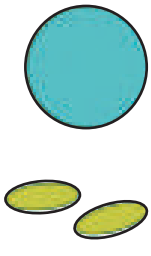
To change the stroke paint, go to stroke paint tab in the same dialog and choose the desired colour. You may have to press shift at the time you click on colour in order to apply it. To draw a vertical or horizontal segment with precision, keep Ctrl key pressed during the drawing. This will correct the angle in steps of 15 deg as you move closer to the angle.



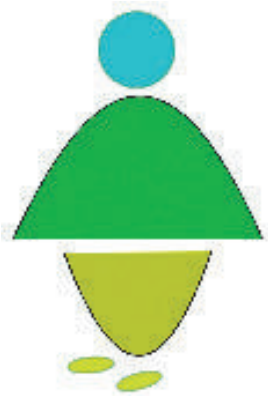
Using the node tool, transform the drawn segment into a curve. Select the tool and stretch (drag) the middle part of the segment. It will turn into a curve



Let us fill this curve with a colour. It is very simple. Just select the object (curve in our case). Ensure that 8 sizing handles are surrounded by the object. Then click on the required colour. We have chosen Green colour. This will fill the region under the curve.

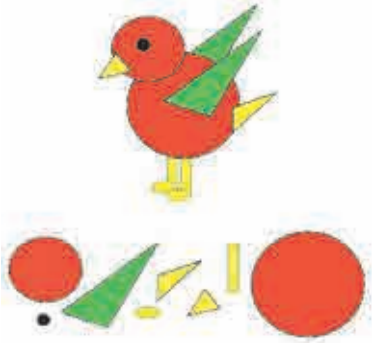


Now we draw a circle or ellipse. You are already familiar with this. Pick this tool from the left tool box and drag it on the canvas with left mouse button. Rlease the mouse button after you get the desired size of the ellipse. To produce exact circle, keep the ctrl button pressed. In the same way, rectangles or squares are drawn. We also draw two small ovals and fill them with a suitable colour.



We will draw another curve by stretching the line segment downwards. Fill it with some colour and join these two curves.

Bring together these shapes to form a simple basic human figure. You need to select and move them in order to put them at proper places. You can use Edit->Duplicate (Shortcut Ctrl+d) for pair of feet.. Also use rotate handles to rotate the object. Sizing handles are converted to rotate handles on click and vice versa.



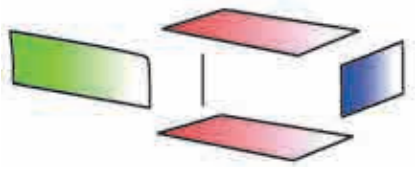
Here is another example. A small bird with colourful wings, tail, beak and legs. All the components are geometric shapes that are joined together. Legs and Wings can be drawn and duplicated.

The adjacent diagram shows the drawing components used to make bird.

Gradient in Inkscape :

Let us now learn another concept in colouring, the Gradient. Gradient is a gradual mixture of colours. Gradients are used to give special effects to paintings. Gradients look attractive. They often give a kind of depth to the shapes.

Activity to draw a staircase :



1) Draw a parallelogram using beziar tool. Ensure that the last node will coincide with the first. This will make the region closed.

2) Now choose a plane colour to fill this region. We have chosen red. Go to menu Object->Fill and Stroke. Ensure that the region is filled with proper colour and the Fill tab is selected.

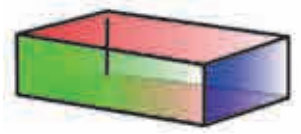
3) Finally click on Gradient tab. The region is now filled with red gradient slowly fading towards the other end with white colour. This is the upper surface of a staircase step.

4) Duplicate this object and move a little down words to get the bottom surface.

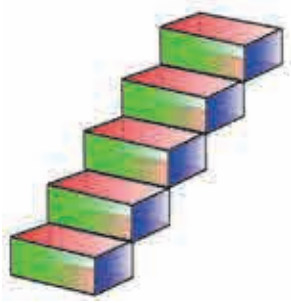
5) Next draw another paralelogram of appropriate size for the front surface. Fill this surface with Green Gradient.

6) We do not require the rear surface. A small edge may be drawn instead to indicate the rear surface of the step block.

7) Join all components. Completed single staircase block is shown in the adjacent figure.



8) Finally take multiple copies of this block and make a staircase object.

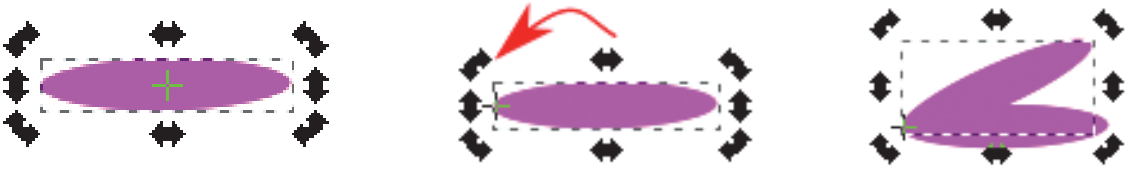


Always ensure that the desired color is filled in the region of the object before selecting gradient tab.

When duplicate is created it will be placed just above the original object. Select and move it immediately from its place to avoid multiple copies one below the other. This will unnecessarily increase the size of the image.

Palette gives only the standard set of colours. You can use Fill and Stroke dialog and RGB model tab to adjust the colour with more accuracy. There are CMYK and other models to select the colour. Study of colour models is beyond the scope of this text book. Students are encouraged to study this advance topic.

Activity to draw a simple flower :



1) Draw one elongated ellipse. This is a petal of our flower.

2) Fill with pink colour.

3) Click on it to get sizing handles. Again click it to get rotation handles. Look carefully at the center of the ellipse. There you will find the center of rotation. If you try to rotate this petal using the handle, it will rotate around this center. We will move this center to left corner. To do this just drag it with mouse.

4) Now duplicate the petal (Ctrl+D). This operation will also copy the new location

of the center. Now if you rotate the petal. It will move along its corner like needles of the clock.

5) Duplicate and move these petals successively to get complete round of petals resulting into a flower.

6) We can decorate the flower further by adding colourful center. Draw a circle. Fill it with a bright colour, say red. In the fill and stroke dialog, increase the stroke width in stroke style tab. Choose a different stroke paint, we have chosen yellow. Now move this circle to the center of the flower.

7) Finally, we attach a stem to our flower. There is a calligraphy tool. This tool a used to write stylish text. This is a kind of angled pen. As you change the direction of the stroke, the width of the stroke changes. Draw a smooth curved stroke as shown. Also draw two ellipses for leafs. Give green colour to these objects. Use duplicate the leaf and use flap command to avoid repetitive work.

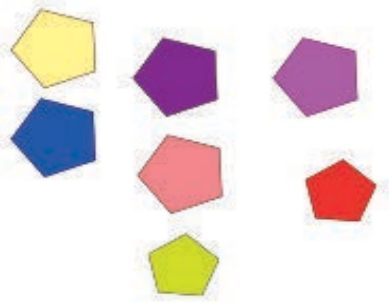
8) The completed flower is shown in the adjacent picture. Gradients can also be used to colour the petals. You can see in another example, the petals are coloured with yellow and orange color gradients. Try to draw different flowers and find out more tools that can be used for creating flowers.

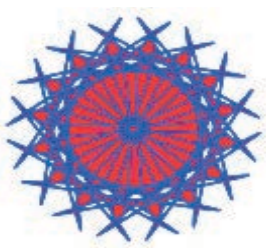
Activity to draw Star and Polygon :

The next tool that we are going to try is Star and Polygon tool.

1) Open this tool. You can switch between star and polygon by the buttons given in this tool's settings.

2) Drag Stars or Polygons of various sizes. One fascinating thing about star tool is that the underlined algorithm can produce different design patterns as you change basic parameters which create the star. Try experimenting on number of corners, spoke ratio and rounded setting.



Corners : 9	Corners : 16	Corners : 24	Corners : 24
Spoke Ratio : 0.608	Rounded : 0.050	Randomized : 0.128	Spoke Ratio : 0.560
Rounded : 5.010	Rounded : 4.600	Rounded : 5.010	Rounded : 6.990
			

Activity to draw a Snail :

Just below the star tool, there is spiral tool which can be used to draw the spirals of all sizes and styles. You can set number of turns and also the other parameters. Let us use spiral object to draw an interesting object, a snail. The shell of a snail has spiral pattern.

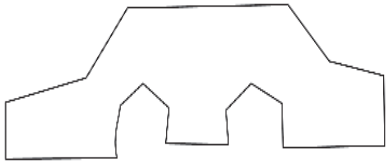
1) Draw a spiral and increase the stroke width.

2) Draw ellipse for body of the snail and use appropriate tools for other parts.

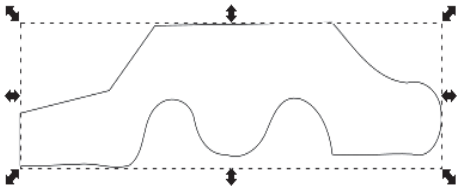
3) Draw traingle as a tail, small circles as eyes, rectangle & filled circel as antenna of the snail.

Activity to draw a Car :

We will now take a look at the Simplify path command. This command gives smootness to the curve. The edges or corners are removed and replaced by smooth curve. It is a recurring process, that is you can give the command Path -> Simplify (Shortcut Ctrl + L) repeatedly till you get the desired result.



As an activity, let us draw a simple car object using bezier segments.



1) Using Bezier tool, draw an outline of a car by using a series of segments. Close the outline by choosing the first node as last node.

2) Now select the car outline and press Ctl+L (Shortcut for Path -> Simplify. Corner nodes will slowly turn into curves. You can stop when desired seamless shape is obtained. In case you go ahead and smooth it more than required, you can always press Ctrl+Z (undo)

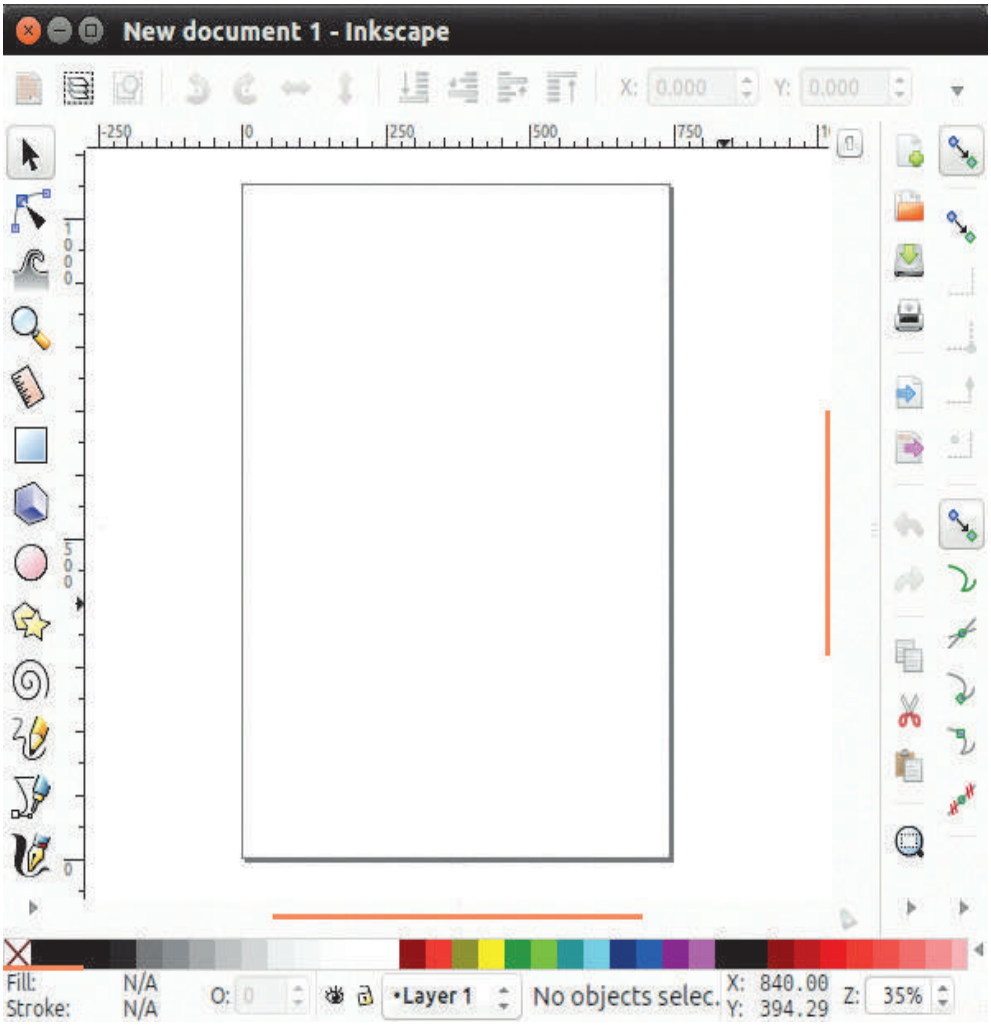
3) After you get the outline in good proportion,colour the car.

4) Create two wheels (circles) with thick stroke.

5) Give appropriate fill and stroke colour.

6) You may draw some strips to represent street. You may need to order the object using Object -> Raise to Top, Lower to Bottom.

Activity : Move the mouse pointer on the toolbar and identify the tools. Make a list.



Skill Set 5 - Digital Content Creation

SOP 1 : Use of Toolbox and editing an image using GIMP.

- Create an image by using Toolbox controls from GIMP.
- Insert the image in an already created image.

SOP 2 : Use GIMP for the following.

- Create a new image
- Put your name using the text tool.
- Use various filters to make a logo of your name.
- Autocrop image to text size.

SOP 3 : Use Inkscape for the following.

- Draw a simple landscape using basic geometric shapes.
- Use gradient tool for the same.

SOP 4 : Use Inkscape for the following.

- Load an Id size image,
- Make 12 copies of it.
- Arrange in 4 rows x 3 columns on an A4 size page.

SOP 5 : Use Inkscape for the following.

You are starting a new business.

- Create an advertisement to be published in local newspaper promoting your product or services.
- Size should be 210 x 210 mm.
- Create your own visiting card using inkscape.

SOP 6 : Using Inkscape make the following picture.

ooo

6 DBMS (PostgreSQL)

Create a database in PostgreSQL

To create a database in PostgreSQL **create database** statement is used

syntax :

postgresql=#create database databasename ;

e.g **Postgresql> create database college ;**

```
postgres=# CREATE DATABASE college;
CREATE DATABASE
postgres=#
```

To view databases :

To view database **\l** command is used.

Postgresql=#/l databases;

```
postgres=# \l
                                  List of databases
   Name    |  Owner   | Encoding | Collate | Ctype |   Access privileges
-----------+----------+----------+---------+-------+-----------------------
 balbharti | postgres | UTF8     | en_IN   | en_IN |
 college   | postgres | UTF8     | en_IN   | en_IN |
 postgres  | postgres | UTF8     | en_IN   | en_IN |
 template0 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
 template1 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
(5 rows)
```

To connect database :

To connect database **\c** command is used.

postgresql=# \c;

e.g \c college;

```
postgres=# \c college;
You are now connected to database "college" as user "postgres".
college=#
```

To create table :

To create table in database **Create table** command is used

databasename = # create table tablename (fieldname Datatype, fieldname Datatype);

```
college=# CREATE TABLE XI (Roll_no integer, Student_name text);
CREATE TABLE
college=#
```

To insert data in table :

To insert data in a table insert into command is used.

databsename=# insert into tablename (field name)values(data1,'data1')

```
college=# INSERT INTO XI (Roll_no,Student_name) VALUES(101,'Sachin');
INSERT 0 1
college=#
```

To view inserted data :

To view inserted data select * from command is used.

database name=#select * from table name.

```
college=# SELECT * FROM XI;
 roll_no | student_name
---------+--------------
     101 | Sachin
(1 row)
```

To update table:

To update table UPDATE command is used.

databasename=# update table_name SET column_name=Value WHERE Reference_Column_name=Value

```
college=# UPDATE XI SET Roll_no = '1001' WHERE Student_name = 'Sachin';
UPDATE 1
college=#
```

To add Primary Key:

To add primary key to already created table, we can use following command.

or we can create primary key during table creation.

```
ALTER TABLE tablename ADD PRIMARY KEY (column_name);
```

```
college=# ALTER TABLE XI ADD PRIMARY KEY (Roll_no);
ALTER TABLE
college=#
```

To add Foreign Key:

To add foreign key to while creating table, we can use the following command or we can create foreign key during table creation.

```
ALTER TABLE table_name ADD FOREIGN KEY (current_column_name)
REFERENCES refered_table_name (referedtable_primarycolumn_name);
```

One to One relationship

```
college=# CREATE TABLE Marks (record_no integer PRIMARY KEY, total_marks integer,result
 text,roll_no integer, FOREIGN KEY (roll_no)  REFERENCES XI(Roll_no));
CREATE TABLE
college=#
```

Lets see the result of both table 'XI' and 'Marks' with one-to-one relationship.

```
college=# SELECT XI.Roll_no,XI.student_name,Marks.total_marks,Marks.result FROM XI,Marks where
XI.Roll_no=Marks.roll_no;
 roll_no | student_name | total_marks | result
---------+--------------+-------------+--------
    1001 | Sachin       |         230 | PASS
(1 row)
```

Do you know ?

\c Connect to database

\l List all the databases

\dt List all the tables from database

\d To view structure of table.

To delete table :

To delete table, DROP command is used.

databasename=# DROP tablename;

```
postgres=# DROP TABLE Marks;
DROP TABLE
```

To delete database :

Drop command is used to delete database also.

postgresql=# drop database database name;

```
postgres=# DROP DATABASE college;
DROP DATABASE
```

Note : Before deleting the current database you have to come out from that database

Skill Set 6 - PostgreSQL

SOP 1 : Create a database, using postgreSQL named hospital.

- In this database, create a table of patients with the following fields Patient_ID, Patients_Name, Address, Room_number and Doctor's_name.
- Give appropriate data type for each field.

Patient_ID	Patient_name	Address	Room_number	Doctor's_name

SOP 2 : Create a database using postgreSQL named School-master.

- In this database create a table of students with the following fields student_ID, student_name, Address, Phone_number, Date_of_Birth.
- Give appropriate data type for each field. Enter at least 5 records.

SOP 3 : Given the list of fields : EmpId, EmpName, EmpDepartment, SalaryId, SalaryAmount, Bonus in the tables Employee and Salary respectively. Define primary key, foreign key and segregate for above fields into employee and salary table. Also create one-to-one relationship between Employee and Salary Table.

APPENDIX

Steps For Installing Linux OS

Steps For Installing Libre Office

Steps For Installing PostgreSQL

Steps For Installing GNUKhata

Step For Installing Linux OS

Installing GNU/Linux (Ubuntu) – An Important Skill for Digital Literacy

We will now install Ubuntu 18.04. Installation skill is often required in everyday life as your computer sometimes gets formatted or your hard disk may crash. We will learn three different methods of creating an installer. Students are required to learn all of them.

1. Creating Installation DVD of GNU/Linux

GNU/Linux distribution comes as an ISO image file. An ISO image file is an image of a CD or DVD which is stored as a usual binary file on disk. From the respective Linux distributions website, download the installation ISO file (Image). We will download Ubuntu 18.04 desktop 64 bit ISO image from Ubuntu official website www.ubuntu.com.

The easiest way to make an installation DVD is to Right Click on the iso file from your file manager. Most probably your current OS would have image burning feature built-in. If it shows burn image options menu then you can insert blank DVD in the DVD drive and burn the image straight away.

If you are using an old operating system, you might have to use separate image burning software. Few free and open source DVD burners are Infra Recorder, cdrtfe, DVD Flick, DVDStyler, Burn and also many more are available. Install one of these softwares and burn the Installation DVD.

You can also create a GNU/Linux Installation USB disk as given in the following paragraph which is the most preferred method.

Creating GNU/Linux Live USB Installer (Recommended Method)

Burning DVD from ISO is perhaps the simplest way to create GNU/Linux installer but there are certain disadvantages of this method. DVD has a short shelf life. If the disk has even a small read error it becomes useless. Active GNU/Linux distributions are updated regularly. Every few months, new improved versions keep coming with new features and security updates. Hence your installer DVD will become obsolete in a few months. Also, read/write speed of DVD is far less than USB. Hence it will take a long time to install. On the other hand, USB is much faster if you want to run GNU/Linux live session without installation. The Read Only DVD is wasted in case of any error during the writing process. But USB disk can be formatted and reused once the installation is finished. Thus USB can reduce e-waste to some extent.

Creating Live installation USB is also easy. Let us learn this skill now. We assume that you have Ubuntu 18.04 ISO file stored in your disk. The method is the same for all other distributions. You can very well install them with this method.

There are a many free and open source tools that can be used to create such USB installer disk. We will show here two such tools namely **Rufus** and **Etcher**. We will also show how to use one of the advance **disk duplicator** tool **dd**. Do try other tools, if you like, and compare them with the tools given here.

1. **Rufus :** Rufus (Pronounced as ROO-Fuss) has General Public License (GPL). It means that you are free to distribute and even modify Rufus software to suit your needs. The source code is available in public repositories.

The advantage of Rufus is that it is very small in size (about 1 mb). Also Rufus is a portable software. It means that you can Rufus from the executable file without installing it. So go and download Rufus from its website. Plug the usb disk (at least 4 GB). Start Rufus by double-clicking on the downloaded file. In the device menu, you can see your USB name. In boot selection menu select the downloaded ISO file. Most of the other entries will be filled automatically once you load the iso file. Accept these defaults and click on the start button. You may be asked permission to download system file syslinux. Click okay. In a newer version, this dialog may not appear.

Next, you will be shown hybrid image dialog. Leave defaults and click on okay. In rare cases, if the hybrid image method does not work, you have the option of dd image method. We will also learn this method separately in the last section.

Finally, you will be warned that all the data on the disk will be destroyed. If you have not already taken the backup of the data on the disk, you can cancel the process and copy the data from the disk to a safe place. Otherwise, the press continues to start the process. It will take about 3 to 8 minutes depending upon the read/write speed of your USB disk. The indicator will tell you the progress status. Once the process is over the ready message will appear. You can now close the application and eject your USB disk. Using this Live USB, you can install Ubuntu 18.04 LTS on any desktop or laptop.

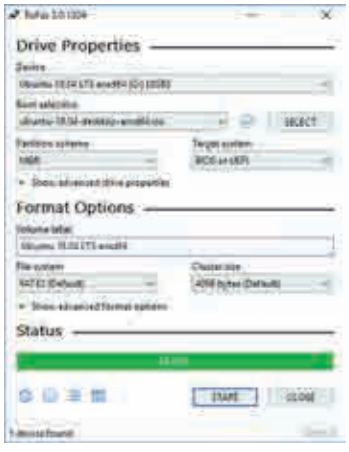


Fig. 1 : Refus USB creator

2. **Etcher :** Etcher is a cross-platform free and open source utility distributed under Apache license. Etcher is very easy to use. To download etcher. first, plug in your USB drive. Then start Etcher.

Now there are only three natural steps needed to make boot-able pen drive :

1) Select Image **2)** Select Drive **3)** Flash

In the first step select downloaded iso image from the disk. In the next step, select this as your target USB drive (if it is not selected by default).

In the last step, select flash to start the process. Once the process is over your USB disk is ready as Linux Installer.

Fig. 2 : Etcher USB creator

3. **dd Command (Quick Advanced Method) :** Our last utility "dd command" is an advanced method which is applicable only for GNU/Linux distributions. This method is useful if you have already installed Linux on one of the machines and you would like to create USB installer. The advantage of dd command is that it is a one-line command. With just one line, the USB installer is created. Moreover, the command is always available in all GNU/Linux distribution. dd Stands for Data Duplicator. It is an internal command for all GNU/Linux distributions.

Please use dd command with care, preferably under the guidance of your teacher or you may accidentally format the hard disk of your computer.

Step 1 : First, go to the terminal by using terminal menu or press **Ctrl + Alt +T**. (The shortcut may be different). Plug in your USB disk.

Step 2 : Find out the drive letter by giving the **$lsblk** command.

Most probably sda will be the letter for hard disk and sdb will be your USB drive letter. Confirm again by carefully examining the output. Ignore the partition letters, if any, like sda1, sda2, sdb1 etc. The volume label will confirm your drive letter and also the size. It will be little less than 4 GB for a 4 GB disk. (3.7 G in the adjacent picture).

Step 3 : Once you confirm the drive letter you can go and give the dd command. It is assumed that you have kept the ISO image in the default home folder where the terminal is opened by default.

Step 4 : Make USB boot-able using dd command

$sudo dd bs=4M if= "Ubuntu 18.04.iso" of=/dev/sdb status=progress

Enter the Admin password when asked. The terminal will show process indicator in percentage (as shown in fig 3).

```
student@school:~$ lsblk
NAME   MAJ:MIN RM   SIZE RO TYPE M
sda      8:0    0 298.1G  0 disk
|-sda1   8:1    0   487M  0 part /
|-sda2   8:2    0 277.9G  0 part /
|-sda3   8:3    0   744M  0 part [
`-sda4   8:4    0  19.1G  0 part /
sdb      8:16   1   3.7G  0 disk
|-sdb1   8:17   1     2G  0 part /
`-sdb2   8:18   1   704K  0 part
sr0     11:0    1  1024M  0 rom
student@school:~$
```

Fig. 3 : Output of 'ISblk' command

Step 5 : Once this process is over, do not be in a hurry to take out USB. You must flush the output buffer by the command

$sync :

That's it. Wait for sync to finish. Your USB GNU/Linux installer is ready.

Installing GNU/Linux (Ubuntu)

The first step before installing Ubuntu is taking a backup. Copy all the important file to an external hard drive. Make sure to not miss any files. Installing GNU/Linux involves formatting your hard drive. This means all the data on the hard drive will be deleted. You can copy the files back once you have installed GNU/Linux.

Once the backup is done, remove your backup drive, and insert your Installation USB/DVD that you created in the previous section. Now restart your computer. In order to start the installation, you need to access the boot menu/BIOS/UEFI. This is different on every computer. Steps for various vendors are given below.

Generally, you can press the [DEL] key, [F2] key, [F10] key, or the [F12] key while the computer is turning on. This has to be done right after you press the power button. Look up for the correct method to do this for your computer.

You should now be on a blue background menu. Use the keyboard to navigate. You need to make sure of the following things :

- Secure Boot is disabled
- Boot Mode is Legacy/BIOS and not UEFI
- Your installation DVD/USB has the highest boot priority.

Once that is done, choose the save and reboot option. You should now be in the Ubuntu Installer (as shown in fig. 4). Choose "Try before installing" using the keyboard and press Enter.

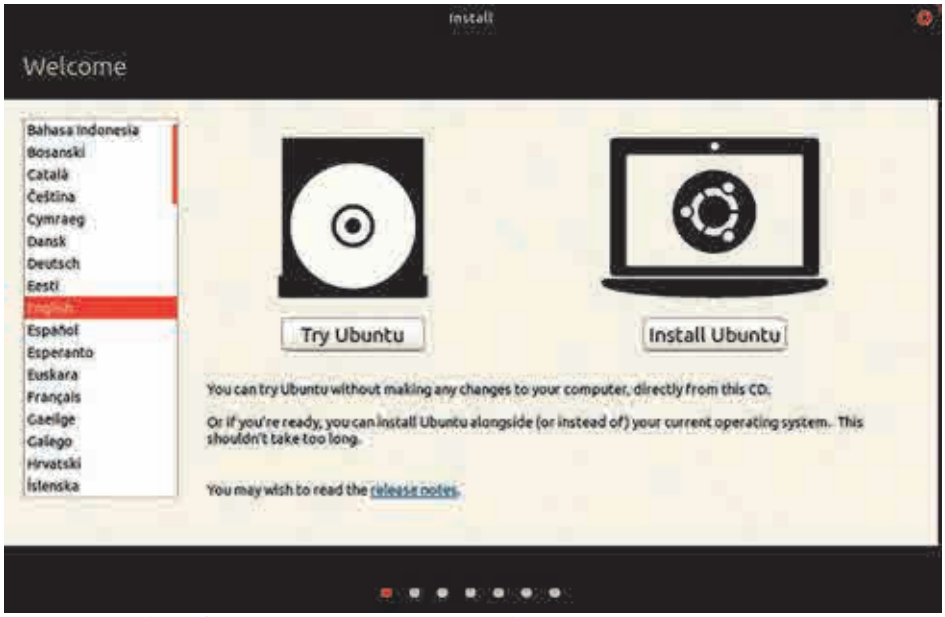


Fig. 4 : Ubuntu Installation welcome screen

Once your desktop loads, you can explore the system. To start the installation, double-click on the "Install Ubuntu 18.04" icon on the desktop.

It will ask what language and keyboard layout you have (as shown in Fig. 5). Keep those as default. You can choose "English – India" if you want the (Rupee) symbol, among other things.

Next, it will ask if you want to connect to WiFi. Click on "I don't want to connect to WiFi right now." If you connect to WiFi you can choose to download updates from the internet while installing, but that significantly increases the installation time. Click on next.

The next menu is "Updates and other software" (as shown in Fig. 5). Check the "Install third party software" box. This will allow you to view movie DVDs, etc. Uncheck the "Download updates while installing Ubuntu". You can install updates after you have installed Ubuntu.

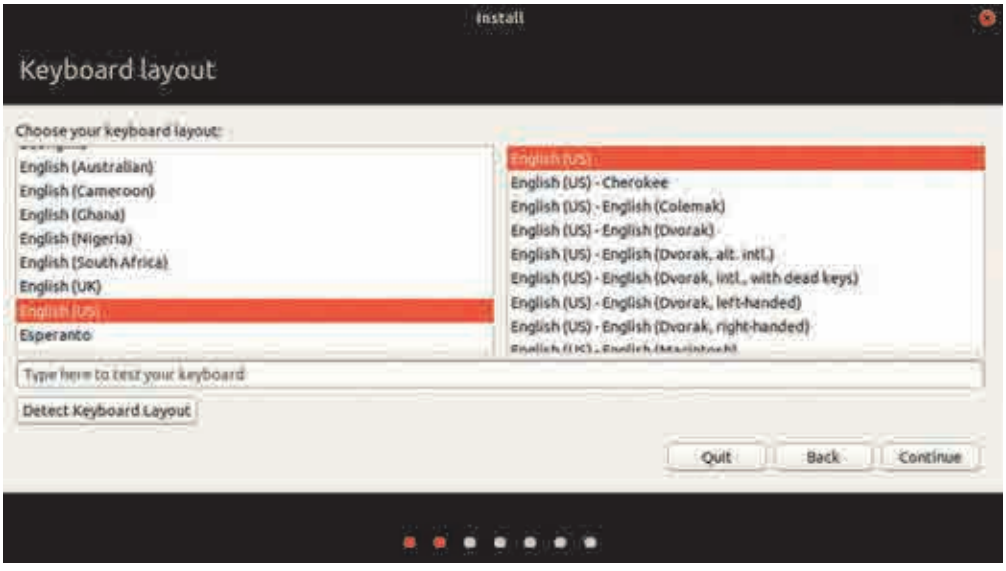


Fig. 5 : Ubuntu Installation Keyboard layout selection

Also, choose “Normal installation”. This will take more space, but includes a large amount of software. Again, click on next.

Now, click “Erase disk and install Ubuntu” and click on “Install now” (as shown in fig. 7).

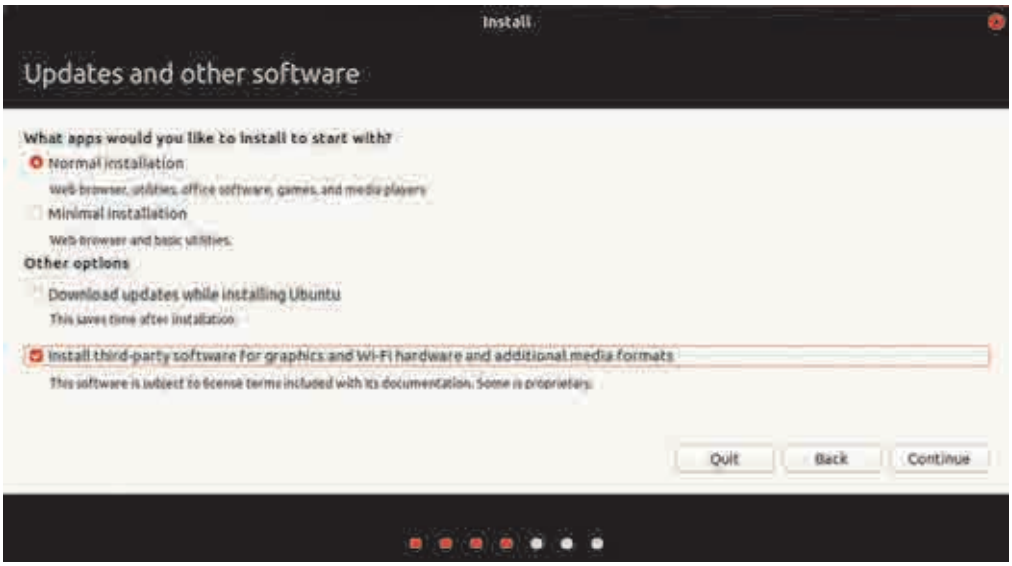


Fig. 6 : Ubuntu Installation Updates

Ubuntu will give you a Summary of the changes it is going to make. Click on “Write change the disk” to confirm (as shown in fig. 8).

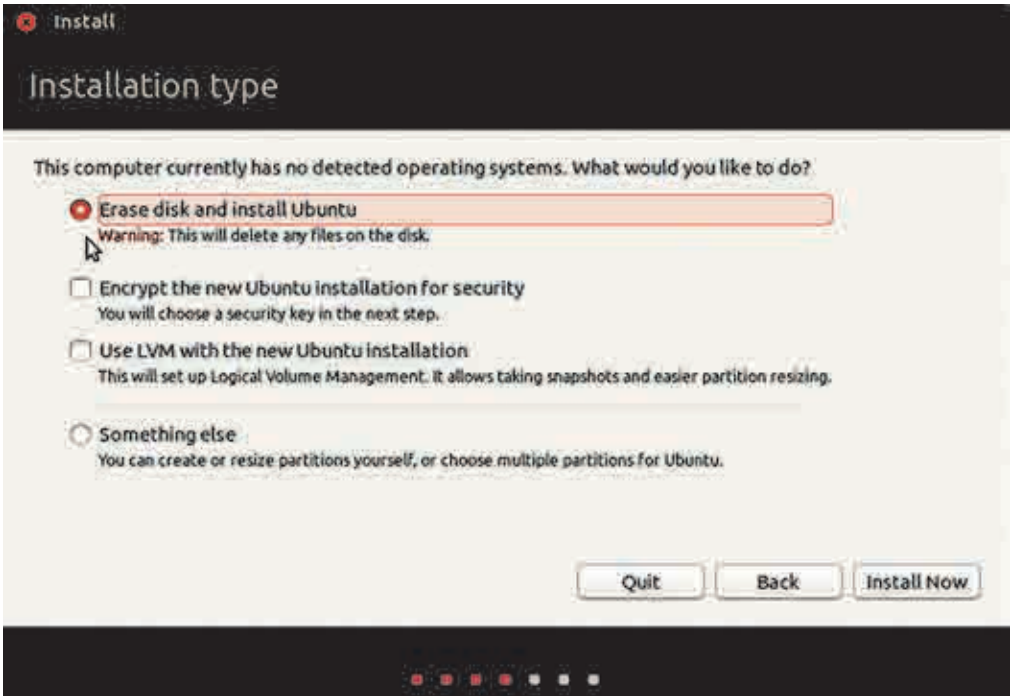


Fig. 7 : Ubuntu Installation Types

Before installing, Ubuntu will ask for your user information. First is your time-zone. In India, the IST (Indian Standard Time) is used. The (as shown in fig. 9) city for IST is Kolkata.

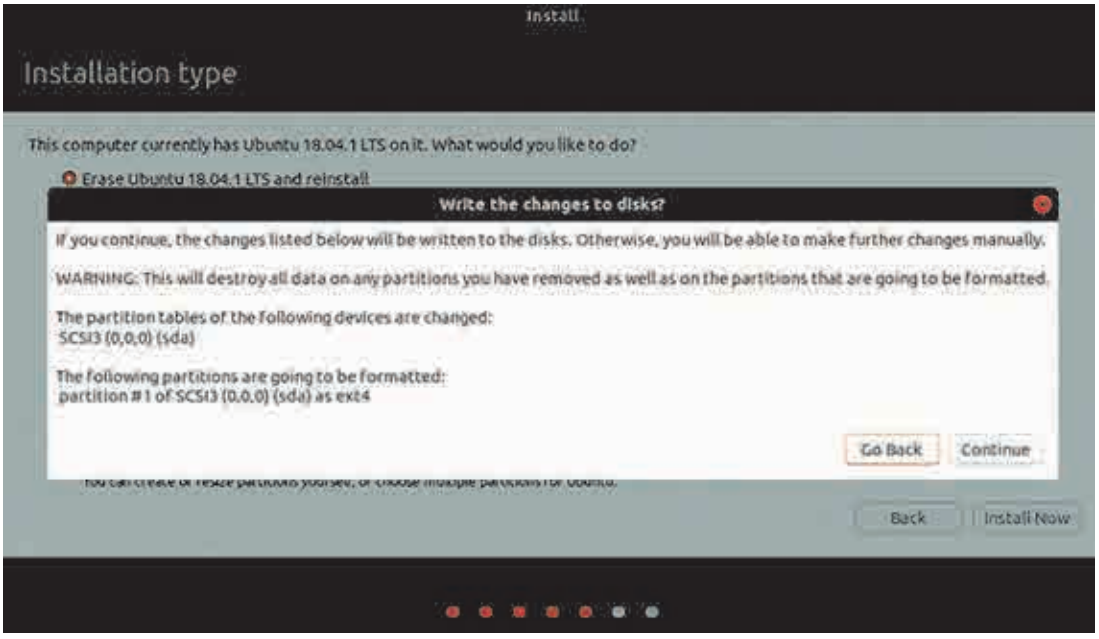


Fig. 8 : Ubuntu Disk Partition confirmation screen

Choose that and click on next, then input your Name, Computer name, Username, and Password. And finally, click on “Install now.” (as shown in fig. 10)

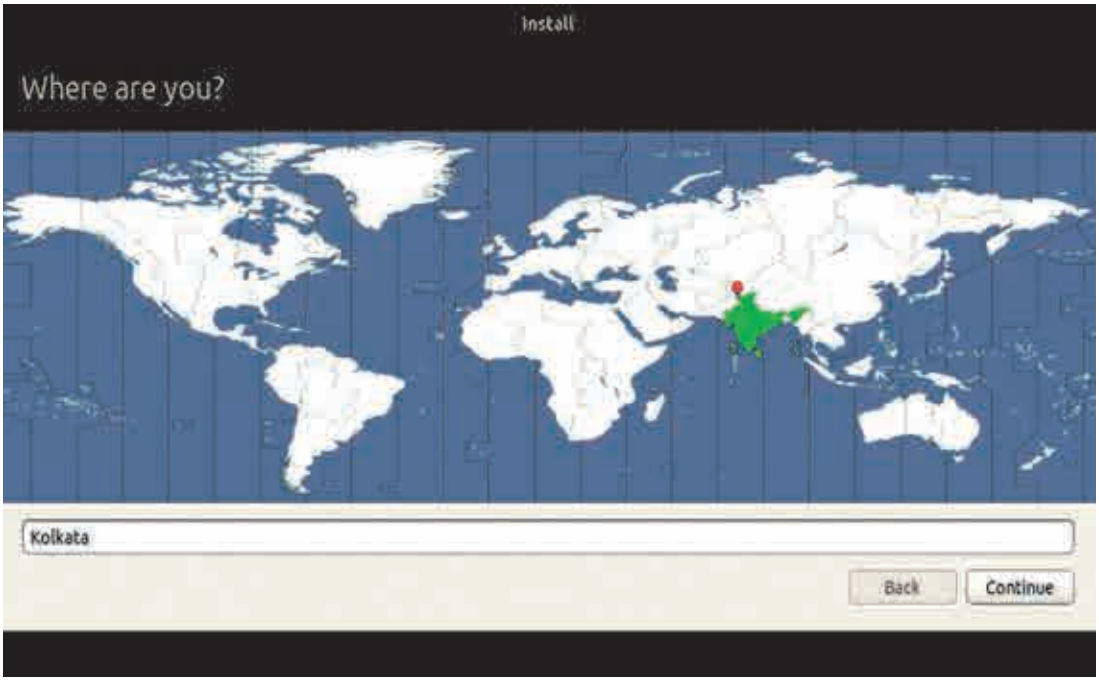


Fig. 9 : Ubuntu Timezone setting screen

The installation will take 30 min to 1hour.

(as shown in fig. 11)

Fig. 10 : Ubuntu user profile creation

After its done, Ubuntu will ask you if you want to restart your computer. Click on "Restart now", and remove the DVD/USB when it will you to do so. You should now have Ubuntu installed on your computer.

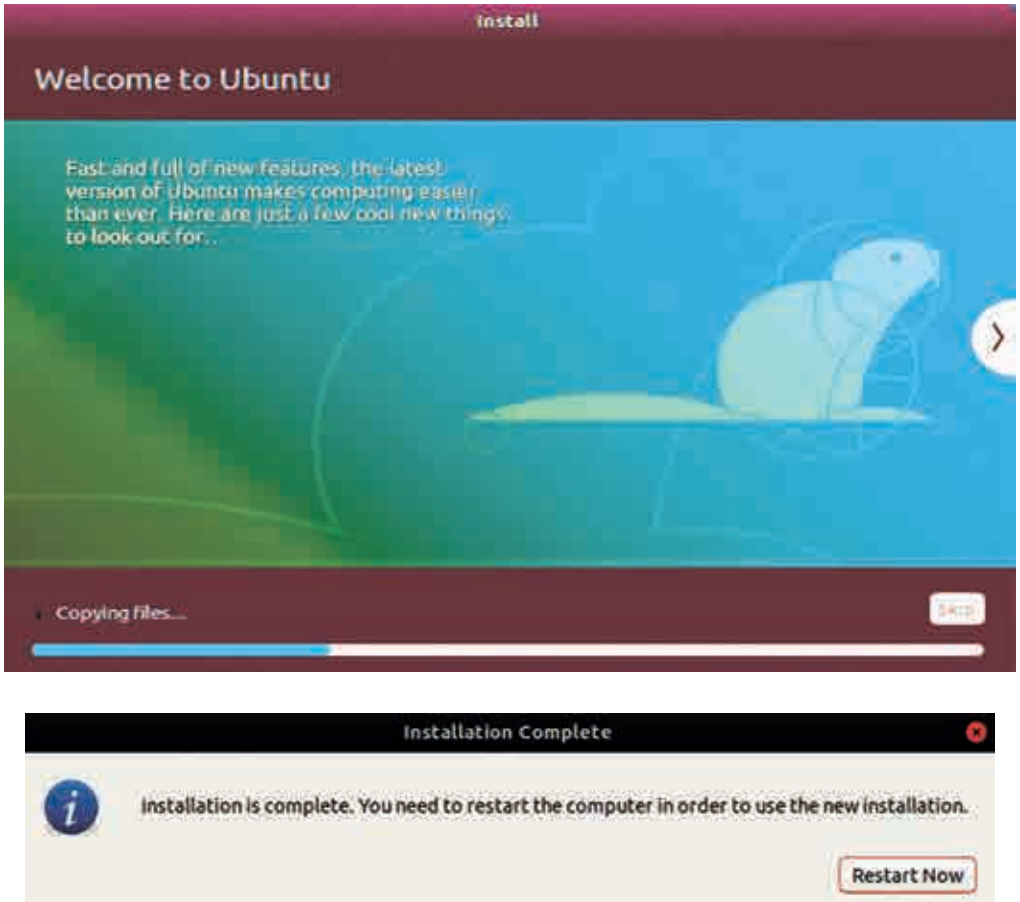


Fig. 11 : Ubuntu installation complete screen

◆◆◆

Step For Installing Libre Office

You can install Libre Office suite from its official website for free of cost :
http://www.libreoffice.org

It is available for various operating systems.

For GNU/Linux Operating System :

As a general rule, you are advised to install LibreOffice via the installation methods recommended by your particular Linux distribution (such as the Ubuntu Software Center, in the case of Ubuntu Linux). This is because it is usually the simplest way to obtain an installation that is optimally integrated into your system. Indeed, LibreOffice may already be installed by default with your Linux operating system.

In short, you will be able to download LibreOffice packages tailored to your system's packaging standard (RPM or deb), or even get a .tar.gz archive for Libre Office. You will then need to install these packages, first the main LibreOffice binaries, then the additional components such as language packs and built-in help.

Just follow the instructions provided by the wizard and install Libreoffice.

For Windows Operating System :

Download

If you are unsure which Windows version you have, press Win+Pause to open your system properties window. The LibreOffice Main Installer download page can be selected with a built-in help file for your language :

- Click here for the 32-bit version.
- Click here for the 64-bit version.

Click the green button with white writing which says “DOWNLOAD VERSION”. If the download does not automatically begin, click ‘Save File’. You are invited to give an optional donation.

Install

Open the folder where the Main Installer has been downloaded and double-click on the Installer.

Welcome

The Installation Wizard Welcome dialog box opens it and advises that the installation process is about to be started. Click on “Next >”

Setup Type

Another dialog box opens, giving you a choice whether you want a default installation, or whether you want to choose special locations and components. If you want a default installation, just press "Next >". If you want to make special choices, click on "Custom" and then press "Next >".

Custom Setup

The Custom Setup enables changes to the features that will be installed.

If you would like to install the spelling dictionaries, hyphenation rules, thesauri and grammar checkers :

- Click Optional Components
- Click Dictionaries

Once all required changes to the features have been completed, click on "Next >"

File Type

Another dialog box opens, inviting you to choose whether to open Microsoft Office documents with LibreOffice. By default, this feature is not enabled. If you want LibreOffice to open Microsoft Office files (documents, spreadsheets and presentations), put a checkmark in all four checkboxes. Click on "Next >"

Shortcut and Load during system startup

Another dialog box opens, asking you whether :

- A shortcut to open Libre Office should be placed on your desktop. The default option is to create a shortcut.
- To load LibreOffice during system start-up.

After your selection press "Install".

Libre Office is Installing

If the User Account Control dialog shows, click on "Yes" to continue the installation.

LibreOffice Installation Completed

Click "Finish".

Step For Installing PostgreSQL

1) **Open terminal using keys Ctrl+Alt+T**

2) **Type following command to update your system**

```
sudo apt-get update
```

(Here you will be prompted for password, Enter the password which you used to login this system) You will get output similar to Fig 1 below.

```
Ign:1 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:2 http://linux.teamviewer.com/deb stable InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu xenial InRelease
Hit:4 http://ppa.launchpad.net/no1wantdthisname/ppa/ubuntu xenial InRelease
Get:5 http://in.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Hit:6 http://dl.google.com/linux/chrome/deb stable Release
Get:7 http://security.ubuntu.com/ubuntu xenial-security InRelease [107 kB]
Hit:8 http://ppa.launchpad.net/stebbins/handbrake-releases/ubuntu xenial InRelea
se
Get:9 http://in.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Hit:10 http://ppa.launchpad.net/webupd8team/java/ubuntu xenial InRelease
Ign:11 http://download.opensuse.org/repositories/isv:/ownCloud:/desktop/Ubuntu_1
6.04  InRelease
Hit:12 http://download.opensuse.org/repositories/isv:/ownCloud:/desktop/Ubuntu_1
6.04  Release
Hit:13 http://ppa.launchpad.net/webupd8team/sublime-text-3/ubuntu xenial InRelea
se
Hit:14 http://ppa.launchpad.net/wine/wine-builds/ubuntu xenial InRelease
Fetched 323 kB in 3s (85.1 kB/s)
Reading package lists... Done
```

Fig 1 : Update your Source list on Ubuntu

3) **Type following command to PosgreSQL**

```
sudo apt-get install postgresql postgresql-contrib
```

You can see the output similar to Fig 2 as shown below and it will prompt you to continue or not. Type ‘y’ and hit Enter.

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  pgadmin3-data pgagent postgresql-client
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  postgresql-9.5 postgresql-common postgresql-contrib-9.5 sysstat
Suggested packages:
  postgresql-doc locales-all libdbd-pg-perl isag
The following NEW packages will be installed:
  postgresql postgresql-9.5 postgresql-common postgresql-contrib
  postgresql-contrib-9.5 sysstat
0 upgraded, 6 newly installed, 0 to remove and 0 not upgraded.
Need to get 3,861 kB of archives.
After this operation, 16.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] 
```

Fig 2 : Process to install PostgreSQL

Once successfully installed, you can use default postgresql user account called 'postgres'. So to switch over to the postgres account, on your server terminal type :

```
sudo -i -u postgres
```

Now to use PostgreSQL type on terminal :

```
psql
```

You can see output similar to Fig 3.

Fig 3: PostgreSQL shell

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Step For Installing GNUKhata

1) Go to https://gnukhata.in/ and click on download software. Register and download Offline installer for Ubuntu. (Eg. GNUKhataOfflineInstaller_For_GNULinux_v6.0.tar.gz or latest verion)

2) Extract the GNUKhata Offline version and double click on 'Installer'.

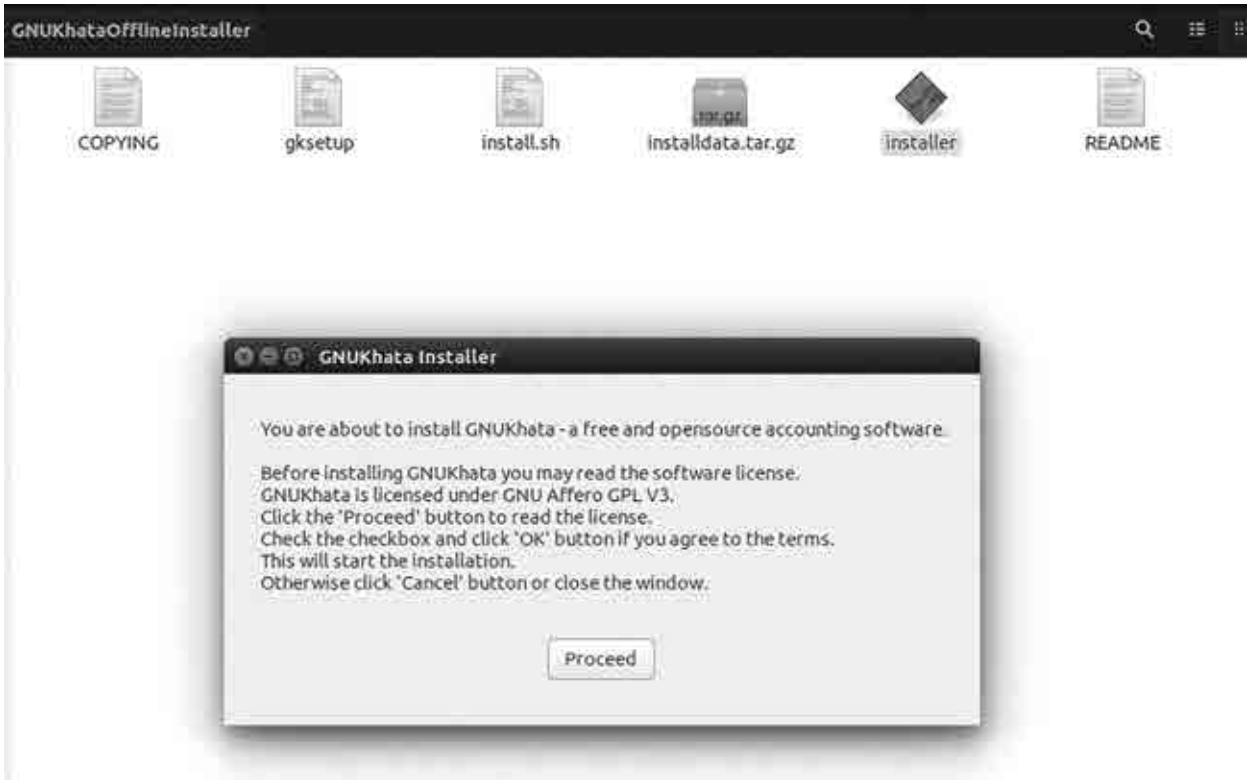

Fig. 1 : GNUKhata Installer

3) Read and accept terms and condition

Fig. 2 : GNUKhata Term & condition

4) Enter password.

5) Installation process will continue. Once installed is completed, Open browser and type http://localhost, following screen will appear which indicates successful installation of GNUKhata.

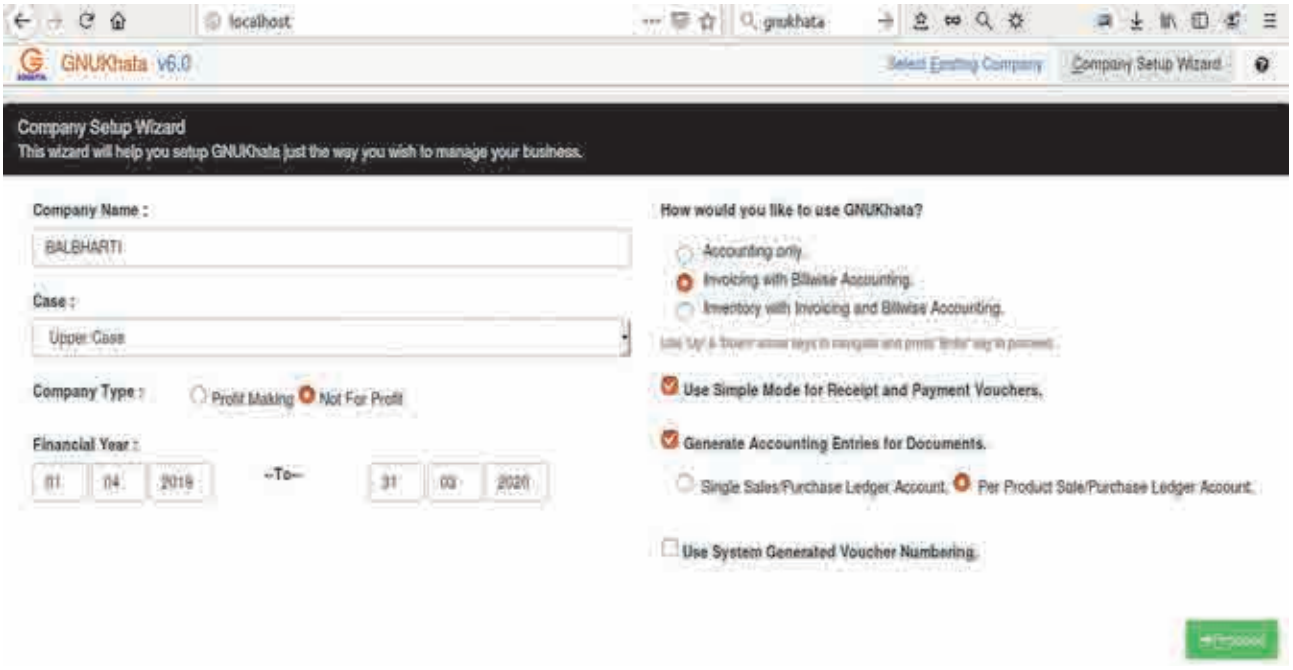

Fig. 3 : GNUKhata Company setup wizard

Abbreviations

IT – Information Technology

ICT – Information and Communication Technology

CPU – Central Processing Unit

MICR – Magnetic Ink Character Recognition

OCR – Optical Character Recognition

RAM – Random Access Memory

ROM – Read Only Memory

DOS – Disk Operationg System

GUI – Graphical User Interface

CLI – Command Line Interface

LAN – Local Area Network

MAN – Metropolitan Area Network

WAN – Wide Area Network

GNU – GNU's Not UNIX

ARPANET – Advance Research Projects Agency Network

ATM – Automated Teller Machine

GIMP – GNU Image Manipulation Program

FHS – FileSystem Hierarchy Standard

DVD – Digital Versatile Disc

CD – Compact Disc

ALU – Arithmetic Logic Unit

MMU – Memory Management Unit

CU – Control Unit

SSD – Solid State Drive

HDD – Hard Disc Drive

TCP/IP – Transmission Control Protocol / Internet Protocol

DNS – Domain Name System

DHCP – Dynamic Host Configuration Protocol

FTP – File Transfer Protocol

HTTP – Hypertext Transfer Protocol

IMAP – Internet Message Access Protocol

IS – Information System

iOS – iPhone Operating System

IRC – Internet Relay Chat

ITES – Information Technology Enabled Services

POP3 – Post Office Protocol Version 3

SMTP – Simple Mail Transfer Protocol

DSL – Digital Subscriber Line

USB – Universal Serial Bus

WEP - Wired Equivalent Privacy

Wi-Fi – Wireless Fidelity

OTP – One Time Password

CVV – Card Verification Value

WWW – World Wide Web

IIS – Internet Information Services

URL – Uniform Resource Locator

PNG – Portable Network Graphics

DBMS – Database Management System

RDBMS – Relational Database Management System.

SQL – Structured Query Language

ANSI – American National Standard Institute.

ISO – International Organization For Standardization

DDL – Data Definition Language

DML – Data Manipulation Language