# CONTENTS

1 Let Us Explore-Our Computer Operating System, Application Software

Learning Objectives :

After the completion of this chapter learners will be able to:

❑ understand the concept of hardware and software,

❑ differentiate between different types of software - Application and System Software,

❑ appreciate the role of Operating System to manage the computer resources,

❑ learn the concept of Proprietary, License, Freeware and Open Source Software.

LET US EXPLORE-OUR COMPUTER OPERATING SYSTEM AND APPLICATION SOFTWARE
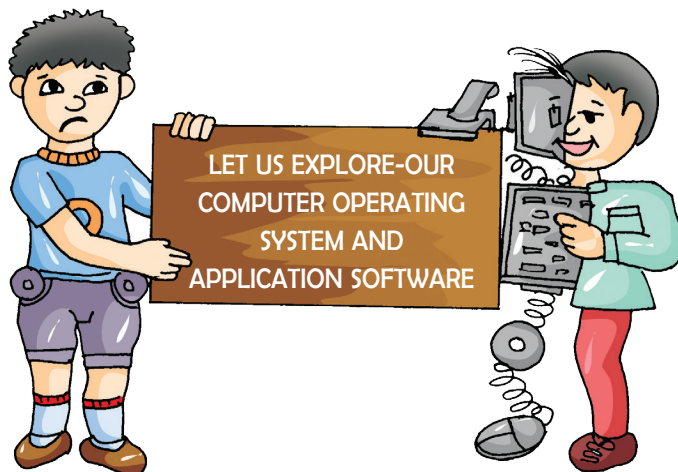
Tobo: Hi Dobo!

Dobo: Hey! Tobo, you are so tech savvy but I know so little about computer.

Tobo: You look thoughtful. What are you thinking about?

Dobo: I was just wondering what our teacher said.

Tobo: What did she say?

Dobo: Well, she said that **a computer is an electronic device that takes an input, processes it and gives an output.**

She also said that computer takes input in the form of **raw data** and converts it into **information**. But, I am really confused.

Tobo: Whatever is the confusion, I think I can explain you in detail.
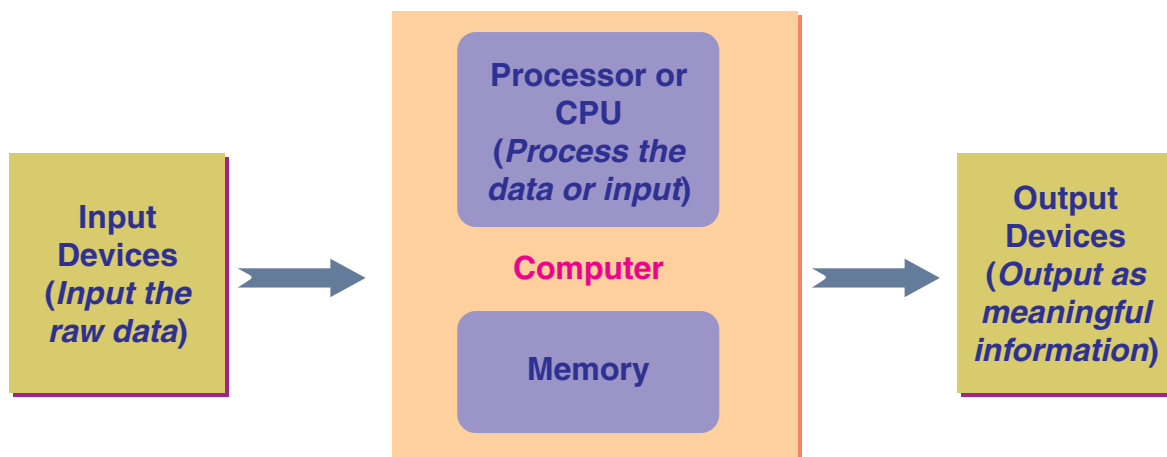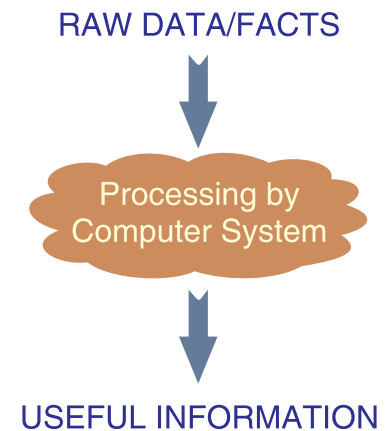
Processing by Computer System

INTRODUCTION:

A **computer** is an **electronic device** that–

◆ **takes the input as raw data (facts),**

◆ **processes it into information (meaningful facts), and**

◆ **gives an output.**

It has the ability to **store**, **retrieve** and **process** data.

Dobo: Oh! sounds simple. Can you further explain the components of Computer System? Do you know them?

Tobo: Yes sure.

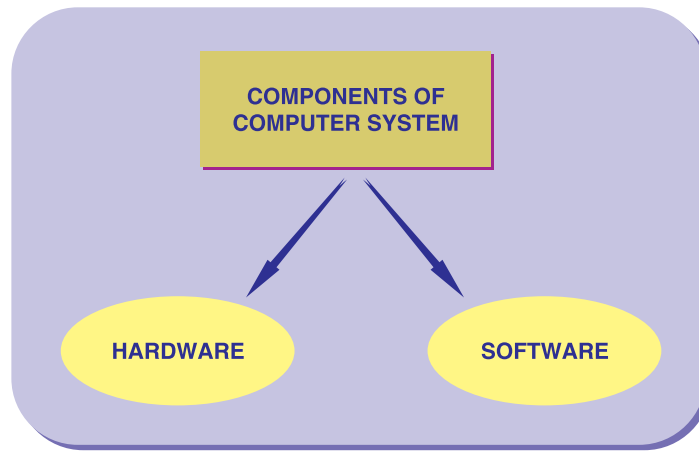| Input Devices (*Input the raw data*) | → | Computer — **Processor or CPU** (*Process the data or input*) / **Memory** | → | Output Devices (*Output as meaningful information*) |

COMPUTER SYSTEM

COMPONENTS OF COMPUTER SYSTEM

A Computer System is made up of **two components**:

1. **Hardware**
2. **Software**

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COMPONENTS OF COMPUTER SYSTEM

HARDWARE

SOFTWARE

HARDWARE: *The physical components of computer system which we can touch and feel are called Hardware.*

Or

The collection of physical parts of a computer system is called Hardware.

| Analogy: Hardware is all the parts that make up human body like bones, muscles, skin, blood etc. | Analogy: Hardware is all the pages in the text book. |

SOFTWARE: *Software is a set of programs which governs smooth operation of the computer system*. A software consists of instructions that tells the hardware how to perform a task.

| Analogy: Software is all the thoughts and mental processes that tell our body parts what to do. | Analogy: Software is all the letters, words, sentences in the text book. |

DO YOU KNOW

Instructions: These are the commands given to the computer in a language it can understand.

DO YOU KNOW

Program: A set of instructions that tells the computer what to do.

Both hardware and software are essential parts of a computer system. In absence of hardware, software is unusable and without software, hardware is unusable. **Hardware and Software together form a usable computing system.**

REMEMBER:
Both Hardware and Software are interdependent.

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Hands On

Go to the computer lab and find out some of the Hardware devices being used and try to classify these hardware devices as Input and Output Devices. Write your observation under the correct column provided below.

Name of Hardware devices in the Computer Lab	Type of Device (Input or Output Device)

ACTIVITY :

Survey the school and find out **different types of software(s)** being used in **computer lab, library, accounts department, fee counter** etc. Write the names of the software (s) being used by various departments in the space provided.

Dobo: Tobo! You have bones and you also look like a machine so who are you? A human or a machine?

Tobo: Umm… I am similar to a computer hardware as I can take the input, process it, give the result and also store the information. Do you know that computer hardware can be further classified?

Dobo: Oh really!

TYPES OF HARDWARE:

Computer Hardware is broadly classified into following types:

1. **Input** Device
2. **Processing** Device
3. **Storage** Device
4. **Output** Device
5. **Communication** Devices

TYPES OF SOFTWARE:

```
                    TYPES OF SOFTWARE

    SYSTEM SOFTWARE              APPLICATION SOFTWARE
```

Dobo and his father went to the market to purchase a bicycle. For this, they first went to an ATM to withdraw cash for purchasing the bicycle for Dobo.

While Dobo's father was withdrawing money from ATM machine, Dobo was watching with curiosity.

Dobo: How does it work father?

Father: It has a special type of software called _**System Software**_.

**System software controls all the hardware of this machine.**

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For example: It has a **Card reader machine, Cash dispensing machine, Receipts Printer, Touch screen monitor**. All these hardware devices are controlled by the **System Software of the ATM Machine.**

Also, there is an _**Application Software**_ which interacts with us and performs various operations for us. For Example: Cash withdrawal, Balance enquiry, Mini Account Statement etc.
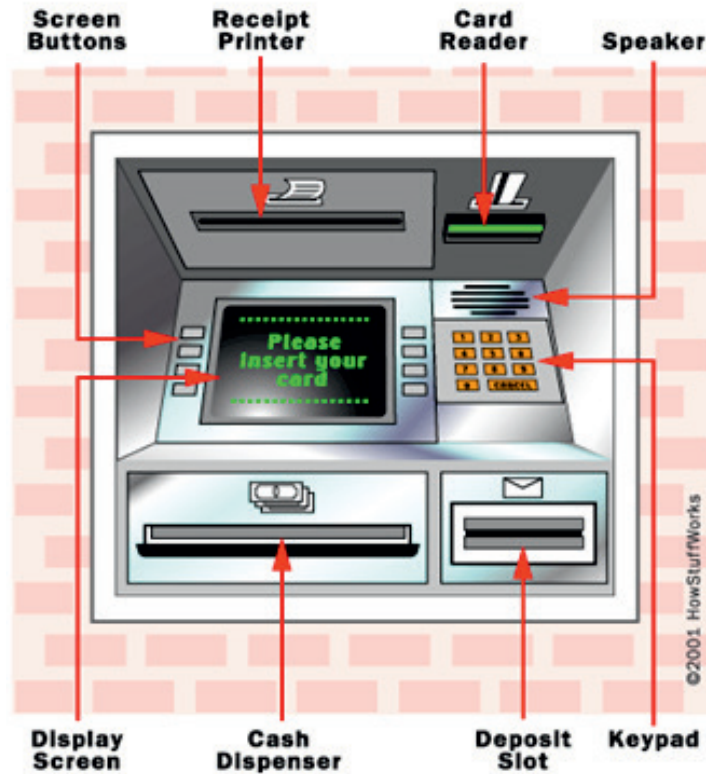
(I) SYSTEM SOFTWARE

**Software that manages and controls computer hardware is called system software**. It allows different parts of computer to work together to perform a specific task.
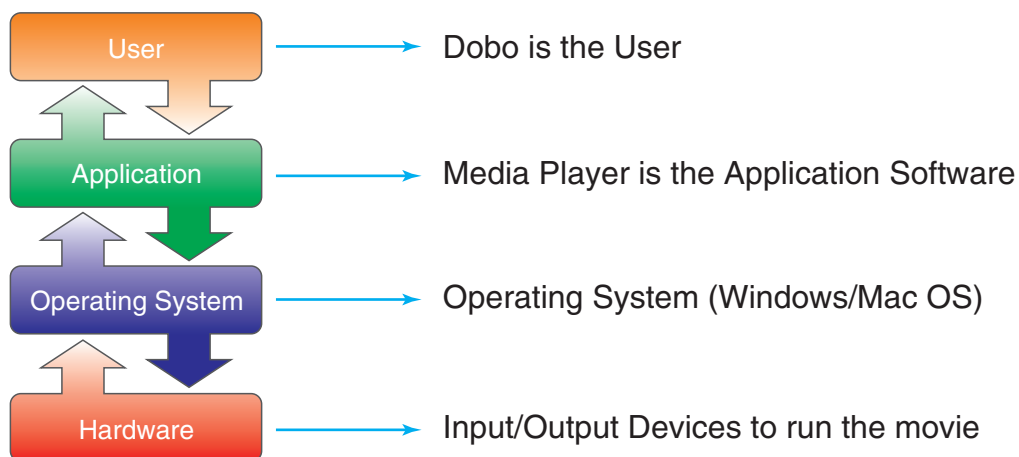
TYPES OF SYSTEM SOFTWARE
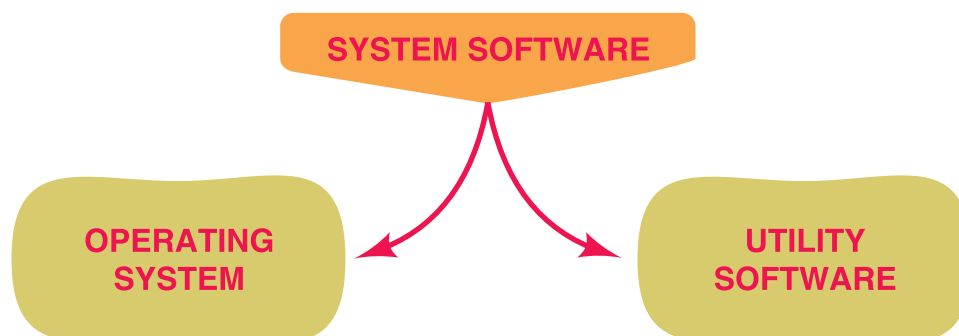
(A) OPERATING SYSTEM:

Dobo wants to watch a movie on his computer with his father. He turns on the computer system. His father, who is a **Software Engineer,** explains that presently they are the **users** as they are using the computer.

Dobo's father further explains that after the **loading of Operating System** gets over they will double click on Media Player (i.e. Application Software).

He further adds that an **Operating System enables us to run necessary hardware to execute the movie.**

User	→ Dobo is the User
Application	→ Media Player is the Application Software
Operating System	→ Operating System (Windows/Mac OS)
Hardware	→ Input/Output Devices to run the movie

DO YOU KNOW

Software Engineer: A person who is responsible for developing the software for our computers according to our needs.

Computers cannot work on their own. **They require instructions to work and manage the system. This work is done by the Operating System**.

DO YOU KNOW

Hard Disk is a magnetic disk on which we can store computer data.

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Operating System:

◆ It is a **system software.**

◆ **It acts as an interface between the user and the hardware.**

◆ It ensures that computer system is **convenient to use.**

◆ And all **hardware resources** (Input and Output Devices) are used efficiently.

ACTIVITY :

a) Make a list of various Mobile Phones available in the market along with their Operating System.
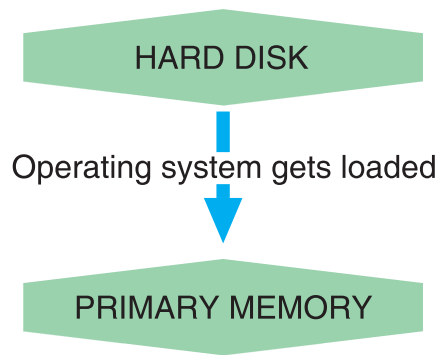
MOBILE PHONES	OPERATING SYSTEM

b) Find out which Operating System is installed on your parents' Laptop and Mobile Phone. Check both the devices in their presence.

OPERATING SYSTEM IN LAPTOP	OPERATING SYSTEM IN MOBILE PHONE

Dobo's father further explains that **when we switch on the computer system, the Operating System is loaded from the HARD DISK (Secondary Memory) to the PRIMARY MEMORY (RAM).**

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```
┌─────────────────────┐
│      HARD DISK      │
└─────────────────────┘
          │
          ▼
Operating system gets loaded
          │
          ▼
┌─────────────────────┐
│   PRIMARY MEMORY    │
└─────────────────────┘
```

The Operating System remains in the **Primary Memory (RAM)** and runs our various applications till we turn (switch) off our computer system.

> **INTERFACE:** A device or software that allows the user to communicate with the computer.
>
> **Example:** The touch screen interface of the mobile allows us to interact with mobile apps.

Watch the video on 'What is an OS?' to understand Operating Systems and answer the following questionnaire:

Link: https://www.youtube.com/watch?v=pTdSs8kQqSA

1. Which program lets you to interact with the computer?

   _____

2. Write the name of the OS discussed in the video.

   _____

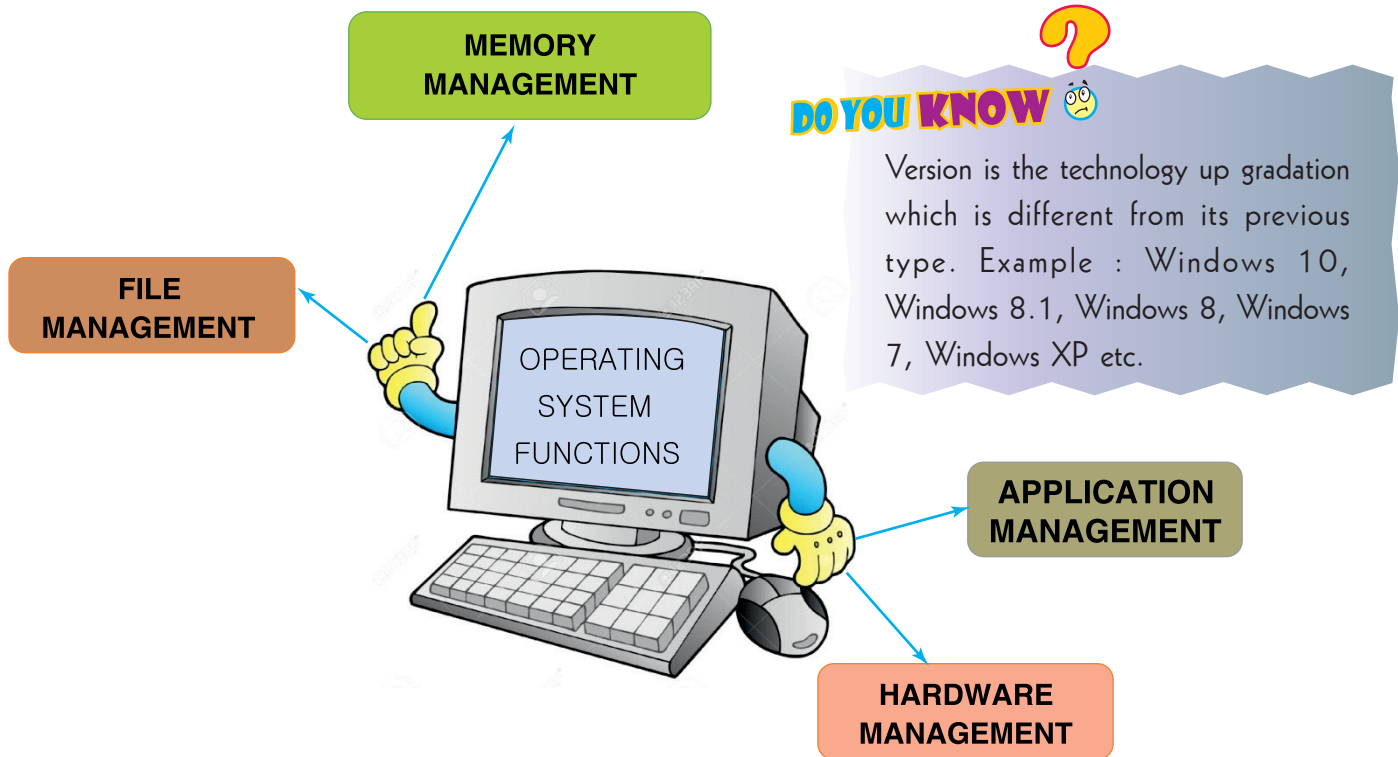3. Can all applications work on all Operating Systems? Yes/No_____

RESEARCH ACTIVITY :

(a) Divide the class in groups. Each group is to collect information (latest version, developer i.e. company, year of launch and 2 unique features) on Windows, Android and Mac OS and present the information collected to other groups.

(b) Find out on which Operating System ATM Machines work.

   _____

FUNCTIONS OF OPERATING SYSTEM:

Let us discuss some of the **main functions** of Operating System:

MEMORY MANAGEMENT

FILE MANAGEMENT

OPERATING SYSTEM FUNCTIONS

APPLICATION MANAGEMENT

HARDWARE MANAGEMENT

1. **Memory Management**:- It manages different types of memories of computer. Example: Primary memory e.g (RAM/ROM), Secondary Memory e.g (Hard Disk)

2. **File Management**:-It manages all types of data present in files and folders. Example: It allows creation, modification, storage and management of files on computer system.

3. **Application Management**:- It allows you to run and manage applications, software on your computer system.

4. **Hardware Management**:-It coordinates and controls the input and output devices attached to the system. When the system takes the input, it is processed and the result is shown to the user through an Output device.
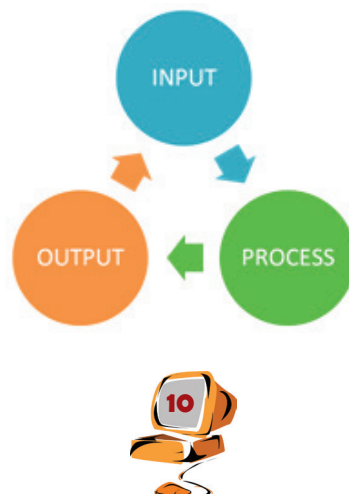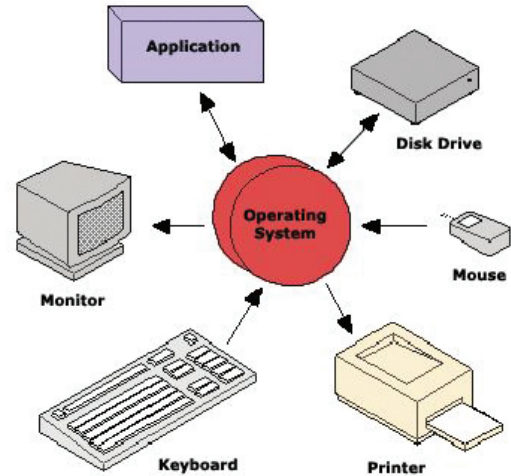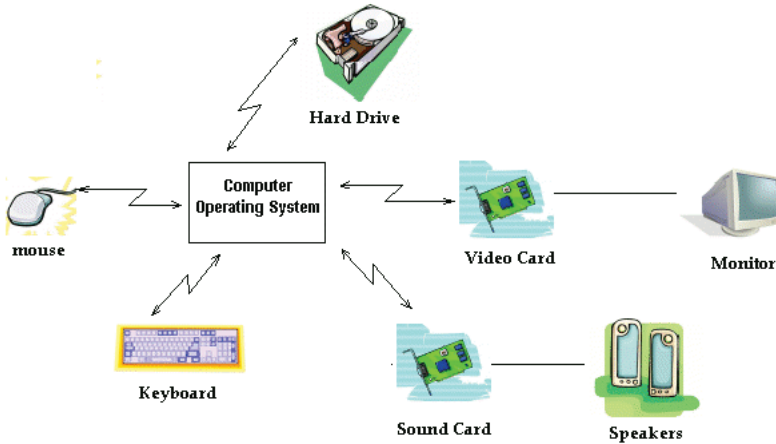
INPUT

OUTPUT

PROCESS

10

Operating System Interfaces

Hands On

Boot the machine in the lab and answer the following questions:

1. Approximately how much time was taken by the booting process _____

2. Which OS is installed on your computer _____

3. Which Version of OS is installed on your computer system. _____

TYPES OF OPERATING SYSTEM:

Dobo and his father were not able to watch the movie online as they were unable to download it.

Father: Dobo, let us try to book the movie tickets online.

Dobo: (excitingly): Yes father!!

Father: Oh! There are no seats available in online booking. Let us go to the movie hall and book the tickets there.

Dobo and his father went to the movie hall to get the movie tickets. He saw three queues at three different counters, which were booking movie tickets at the same time.

Dobo: How is it possible, father, that at three different counters tickets are being booked for the same movie?

Father: Dobo, it is a **Multi User Operating System** which allows more than one user to book the tickets at the same time. Let me explain this in detail till our turn comes.

Some common **types of Operating System** are:

1. *Single User Operating System:*

   As the name implies, **it allows only a single user to work on a computer system effectively**.

   Example: This kind of operating system can be found on a mobile phone. There can only be one user using the mobile and that person is only using one of its applications at a time.

   Example: **Windows OS, Mac OS, MS DOS.**

2. *Multi User Operating System :*

   It allows two or more users to work on a single computer at same time/different time.

   Example: **Unix, A video game in which several players play simultaneously.**

ACTIVITY :

Play the game on the types of Operating System by clicking on the links given below:

1. http://www.teach-ict.com/gcse_new/computer%20systems/operating_system_types/quiz/ontarget_operating_system_types.htm

2. http://www.teach-ict.com/gcse_new/computer%20systems/operating_system_functions/quiz/ontarget_operating_system_functions.htm

(B) UTILITY SOFTWARE:

After coming back to home Dobo's mother asked him to complete the home assignment. Dobo started working on his computer system to prepare a presentation. He had some pictures saved in his pen drive. He tried to open the pen drive but was unable to do so. He asked his father to help him.

His father said, Dobo this pen drive has Virus!

Dobo: Virus!! What should we do now, father? It may get fever soon. Let us call a doctor for help and give it medicine.

Father: No...No…No need! I have a solution.

Dobo: What is it father? Are you a computer doctor?

Father: Yes sort of! I am a software engineer. We can use one of the utility software called Anti-virus software.

Dobo: What is Anti-virus software?

Father: **Anti-virus software is a type of Utility Software. It helps us to detect, remove virus from our computer system and also prevent our system from being getting infected or attacked by Virus.**
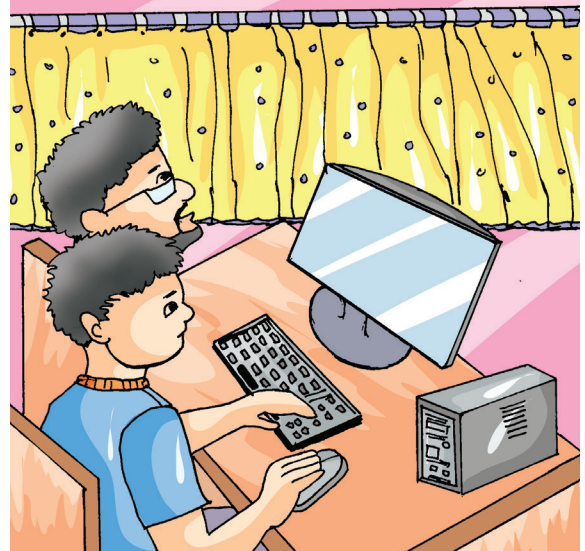
1. Utility software are the programs that ensure the smooth functioning of the computer system.

2. It keeps our computer system efficient and trouble free.

3. It manages the computer hardware, operating systems etc.

Example: Backup utility, Compression Utility, Anti-virus software, etc.

ACTIVITY :

A. View the video by typing (using) the link given below on Utility Software and answer the questionnaire:

Link: http://study.com/academy/lesson/systems-software-utility-software-device-drivers-firmware-gui.html

1. If we are using computer for searching images on internet, do we use Utility Software? Yes/No

2. Name the examples of Utility Software mentioned in this video. _____

3. What does a Backup Software do? _____

_____

(II) APPLICATION SOFTWARE:

Dobo visited the electricity office with his father to pay electricity bill. He observed his father using a huge machine to pay the bill (Kiosk).

Dobo: Father it is such a huge machine! What is it? What does it show?

Father: It is a Kiosk. It helps us to complete our task. It helps us to pay the bills.

Dobo: How?

Father: It has an **application software which solves our problem or help us to do a specific task.**

Application software are a set of programs designed to solve a specific problem or do a specific task. For example, **OpenOffice Writer, OpenOffice Impress, Electricity billing System, Library Management System, Railway booking system** etc.

ACTIVITY :

Dobo's Maths teacher asked him to make a Line chart, Pie Chart, Column Chart and a Bar Chart on Computer for a particular problem.

Can you suggest Dobo, the type of Application Software which he can use to solve his problem? _____

TYPES OF APPLICATION SOFTWARE:

After withdrawing money from ATM, Dobo and his father went to a bicycle shop.

Father: Sir, we want to purchase a Bicycle.

Shopkeeper: We have 3 types of bicycles:

(i) General Bicycles: The ones that are used in the city.

(ii) Specific Purpose Bicycles: These bicycles are mountaineering cycle, adventure cycle etc.

(iii) Customized Bicycle: This bicycle is made or customized according to the needs of the user. Example: user asks us to add extra features like lights, Special gears etc. Which one you wish to buy?

Father smiled and told Dobo that just like bicycles, Software are also of three types.

1. **General Purpose Software**: Anyone can purchase the software, use it but cannot make modifications to it.

   Example: Word-Processing software, Spreadsheet Software, Multimedia Software.
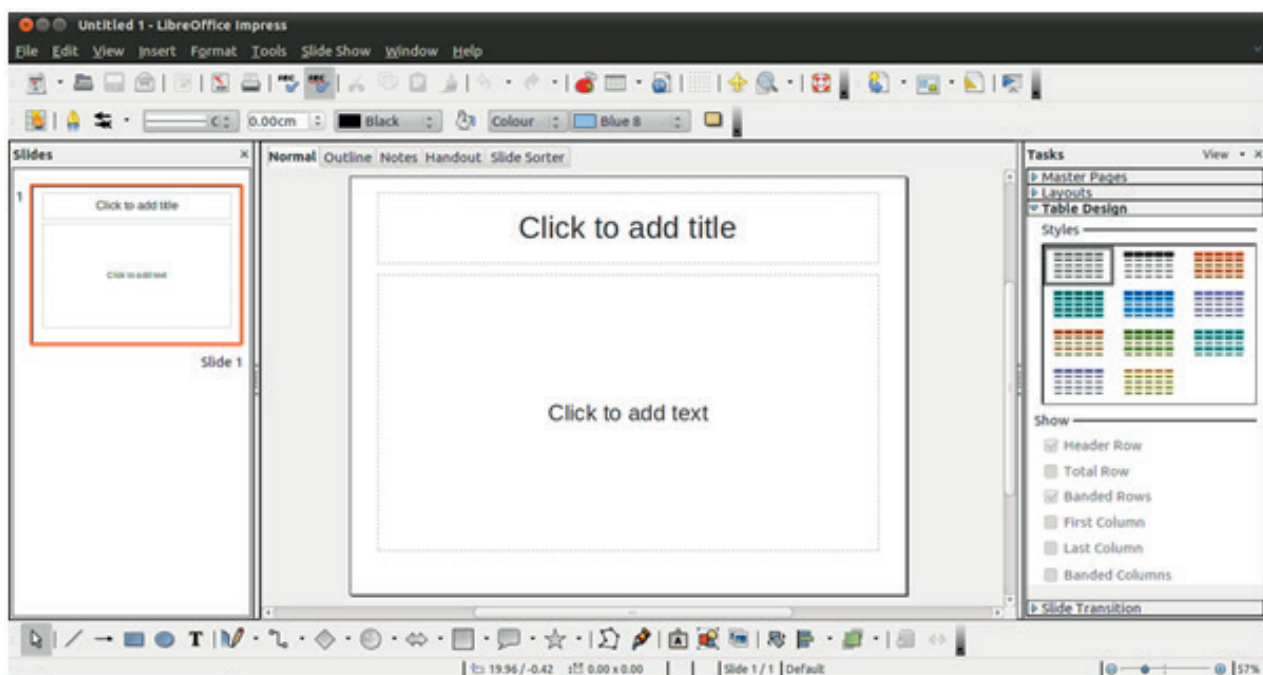
2. **Specific Purpose Software**: Sometimes organizations need some specific features in the software. So *software has to be customized as per their needs or require-ments. This type of software is called Specific Purpose Software.*

   Example: A chess game, it will allow us to play chess.

   Web Browser, Calendar, Calculator are some examples of Specific Purpose Software.

3. **Custom Software**: This software is *tailor made software*. *This software is devel-oped to meet all the requirements specified by the user.*

   Example: a company wants to computerize Accounts department and gets a software developed according to its need.

Example: Software made for **Hotel Management, Hospital Management** etc.

ACTIVITY :

WHO AM I ACTIVITY?'

Divide the class into groups. Let each group be assigned one type of software. Each group will tell two or more characteristics of the software and the other groups will identify the type of software.

RESEARCH ACTIVITY :

SURVEY YOUR SCHOOL: Find out all the different types of software being used in School Library and the Accounts department. Write you findings in space provided.

_____

_____

_____

SOFTWARE LICENSE:

Tobo and Dobo were playing a car racing game on computer.

Tobo: Dobo this game is very interesting. Can you give me this game?

Dobo: Yes! Let me ask my father for it.

Dobo: Father, Tobo wants to take the car racing game. Can we give it to him?

Father: Tobo, if you want to install this game on your computer then you need to purchase it from the market. As this game requires a **software license**.

Dobo: What is Software License? Is it similar to driving license?

Dobo's Father: No, not really. **Software License is a license agreement on the use and distribution of the software**. This game can be used on only one computer. If we want to use it on different computers, then we need to purchase separate copies for each computer.

This is also called as "*Software Licensing that defines conditions on the use of software*".

Dobo: I am still not sure on this!

Father: Okay! When you are not well and you visit a doctor, he gives you prescription of medicines and we pay him money. Similarly, software is an **intellectual property** of the person(s) who made it and we should pay them money for their hard work. Hence, we should follow the licence agreement and should not make illegal copies of software.

Dobo's father further explained that there are, however, some software which are free.

As some people put the software on Internet and allow everyone to use it and do not ask for money, such software(s) are **Open Source software and are open to all for use.**

Father: Based on licensing policy softwares can be further divided into:

OPEN SOURCE SOFTWARE

The software for which programming code is available to the users in order to:

DO YOU KNOW

Programming Code: Computer instructions written in a programming language.

(a) **Read it**, and

(b) **Make changes**,

(c) **Build new versions of the software** according to one's requirements by modifying it, is called **Open Source Software**. *It can be distributed freely and used by everyone free of cost.*

Example: **OpenOffice Software, Mozilla Firefox, Android Operating System** etc.

It is Dobo's birthday. All his friends are invited. Dobo's mother baked chocolate cake at home.

Tobo's mother also brought Pineapple cake from a new bakery. The new bakery was giving free cakes to its first 50 customers.

Dobo's Friend Tom: Both the cakes are delicious.

Tom's Mother: Can you share the recipe of these cakes?
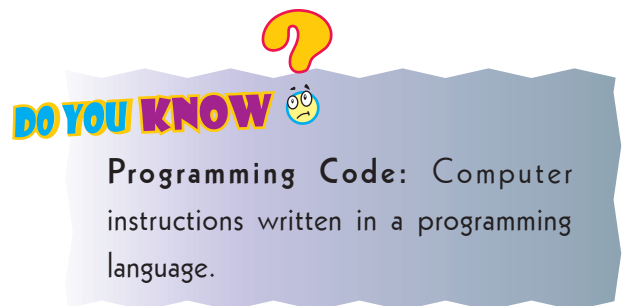
Dobo's Mother: Yes sure. I can share recipe of Chocolate Cake but cannot share the recipe of Pineapple cake as Tobo's mother has brought from the bakery.

Then Dobo's Mother shares the recipe with Tom's Mother.

Dobo's father who was listening to this conversation said, Oh! this is like **"Proprietary software".**

PROPRIETARY SOFTWARE OR CLOSED SOURCE SOFTWARE:

The pineapple cake purchased from the bakery can be compared to Proprietary or closed source software as we cannot make any changes or modifications in it.

Proprietary software doesn't allow people to look at its code or modify it and restrict its distribution. Such software can be freely available or can be purchased.

Example: **Microsoft Windows, Microsoft Office, Mac-OS , iOS** etc.

The chocolate cake made at home can be compared to Open Source Software as its recipe can be shared and modified according to personal taste.

FREEWARE SOFTWARE:

The Pineapple cake bought by Tobo's mother from a new bakery can be compared to Freeware software. It was free of cost, as it was promotional offer by the bakery.

The software which is:

    (a) Made available free of cost to the user

    (b) It is not necessarily free to be used, copied, modified and redistributed.

Example: **Open source software is freeware and some proprietary software are also freeware**.

Example: **Windows Movie Maker** is a Proprietary software as well as freeware software.

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Research and find out some examples of Open Source, Proprietary, Freeware software and complete the table given below:

TYPE	EXAMPLES
Open Source Software	1. _____ 2. _____
Proprietary Software	1. _____ 2. _____
Freeware Software	1. _____ 2. _____

ASSESSMENT ACTIVITY

1. (i) Go to the Computer Lab and try to find out the different examples of application software. Write these names in Column 'A'.

   (ii) Identify each of the icons shown below in Column 'B' and write name in the space provided below.

S.NO	'A' NAME OF APPLICATION SOFTWARE	'B' EXAMPLES
1.	_____	 _____ _____

2.	_____	_____ _____
3.	_____	_____ _____
4.	_____	_____
5.	_____	_____ _____

2. Find out and list the names of a few Utility software and also try to find out the Terms of licenses for these software.

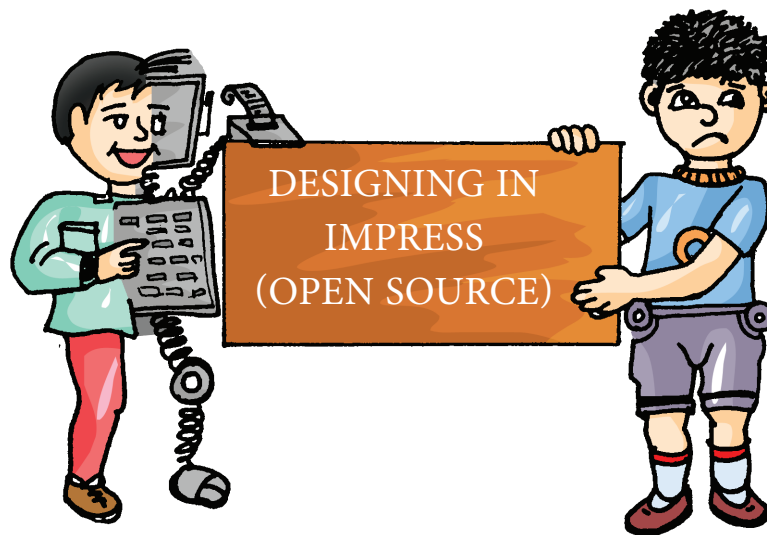| Utility Software	Terms of License
	1. _____ 2. _____
	1. _____ 2. _____
	1. _____ 2. _____

2 Designing in Impress (Open Source)

Learning Objectives :

After the completion of this chapter learners will be able to:

❑ appreciate the various styles in Apache OpenOffice Impress,

❑ understand and use various background styles in Apache OpenOffice Impress.

DESIGNING IN IMPRESS (OPEN SOURCE)

Dobo wants to make an attractive and interesting Science presentation on the topic,"Components of Food", so he asks his father to help him.

Dobo: Father, I am trying to make a presentation but it does not look **striking** and **effective.** Can you help me?

Father: Yes, sure my son! On which software are you making the presentation?

Dobo: My teacher asked me to make it in **Apache OpenOffice Impress 4.**

Father: Well, to make the Presentation effective and eye catching we have to choose **Themes** and **Theme colors** and can use various background styles.

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ACTIVITY :

1. Explore various software(s) that can be used to make Presentations. Also find out the names of the companies which provide the Presentation Software(s) and write your findings in the space provided.

Name of the Presentation Software	Name of the Company

2. Have you seen the various Themes on your parent's Mobile Phone. If yes, write the steps that you may follow to change the Themes. (Change the Theme of the phone under parental supervision and guidance).

_____

_____

_____

_____

DO YOU KNOW

Theme: It is a combination of various formats such as background colours, font style, text size or colour etc. which allows us to change the look and feel of the presentation.

Hands On

1. Search the internet and find out what type of software is Open Office Apache i.e. is it a Proprietary Software, Freeware or Open Source Software?

_____

2. Also find the various versions of Open Office.org along with their release date?

Name of the Version	Release Date

(3) Name all the Operating Systems on which Open office can be installed

_____

_____

INTRODUCTION

Open Office Impress is a software used for creating effective presentations. It is provided by Apache Open Office suite.

DO YOU KNOW

Software Suite: It is a collection of two or more software programs that are bundled and sold together.

RECALL:

Write the steps to Open OO Impress.

_____

_____

_____

Father: Dobo, What are the two options used to select theme and theme colors?

Dobo (thought for a while): Father I am unable to recall.

Father: Okay! Let me explain it to you my son.
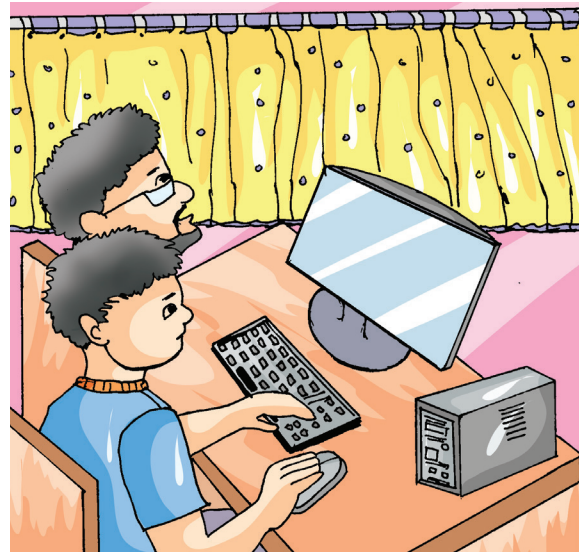
SELECTING THEMES AND THEME COLORS

Using various **slide designs we can make our presentations beautiful and attractive.** In order to select themes and theme colors, we need to choose from various Slide designs offered by Open office.

This can be done either before **'creating presentations'** or **'after creating the presentation'**. For this we may perform following steps from the options given below:

SELECTING THEMES AND THEME COLORS

Before Creating Presentation (Option 1)

After Creating the Presentation (Option 2)
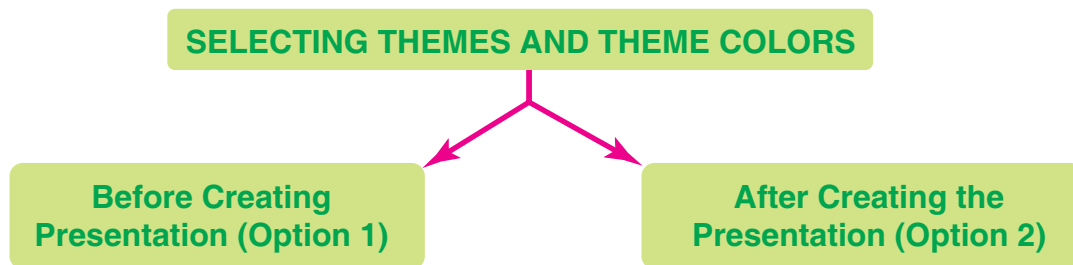
Father: Let me show you how to select the theme and theme colors by using the first option i.e before creating presentations.

OPTION 1: BEFORE CREATING PRESENTATION

Step 1:

Open Office.org Impress

Open Office.org

All Programs

Click on Start

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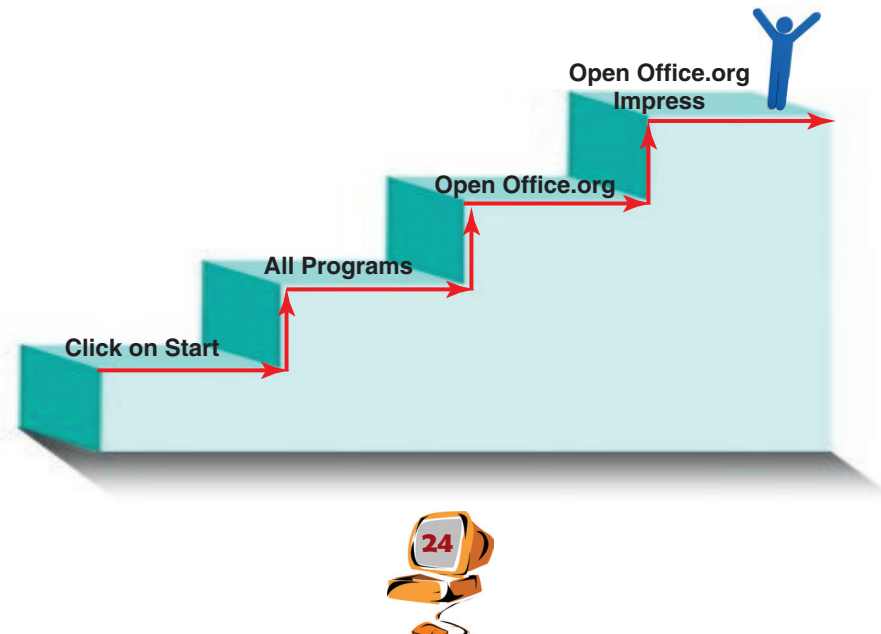
The following screen appears.

Presentation Wizard
Window
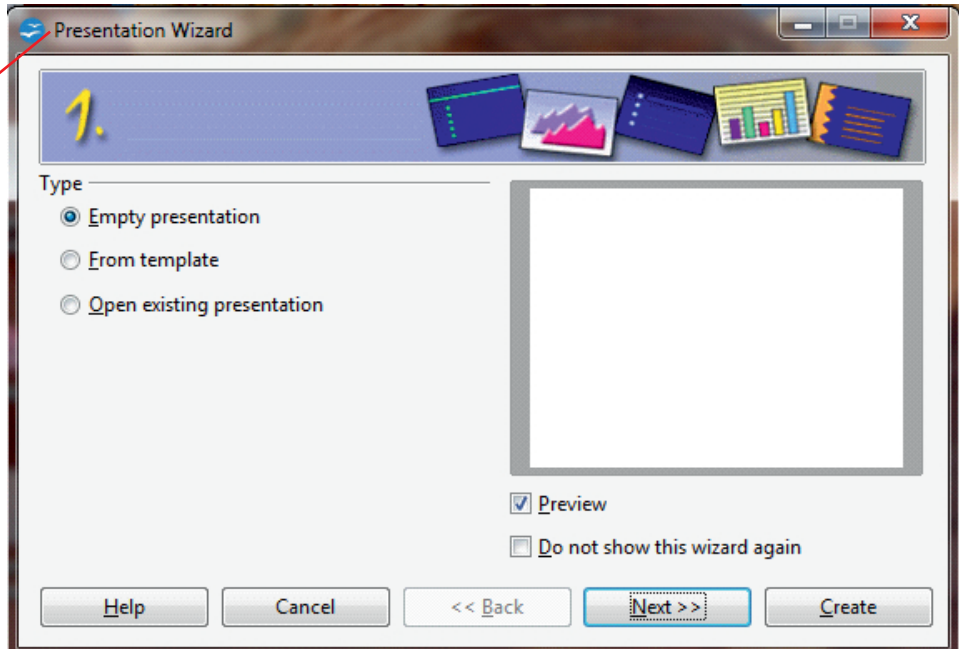
The above window is called *'Presentation Wizard'* window.

Step 2: Select **'Empty Presentation'** from Presentation Wizard window. Click on 'Next button'.
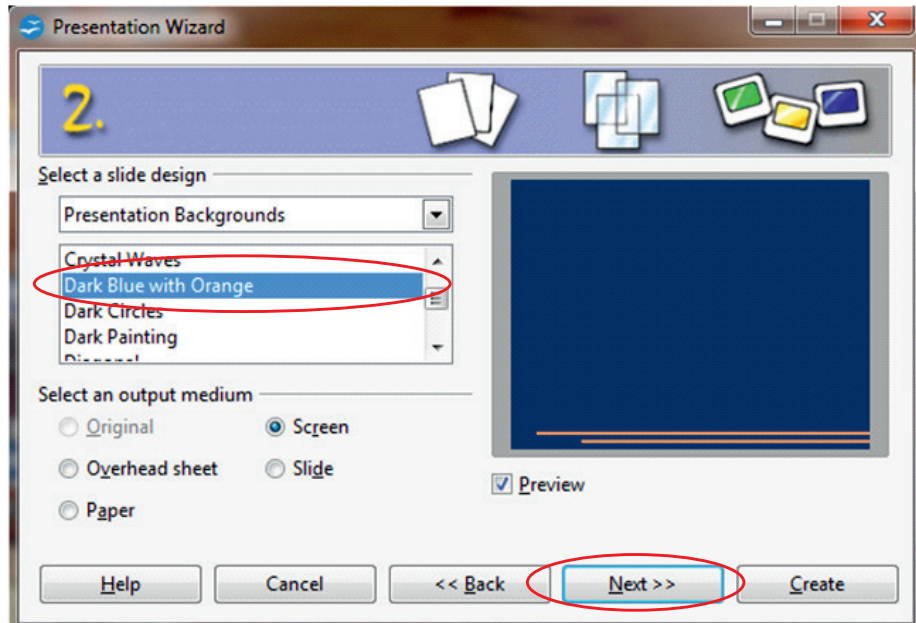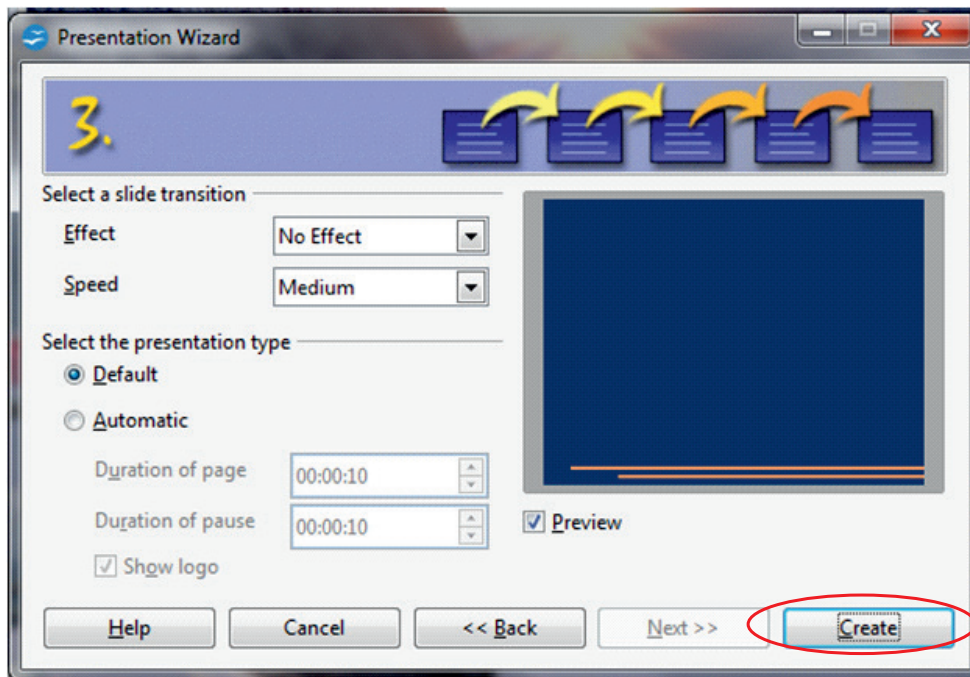

Empty
Presentation
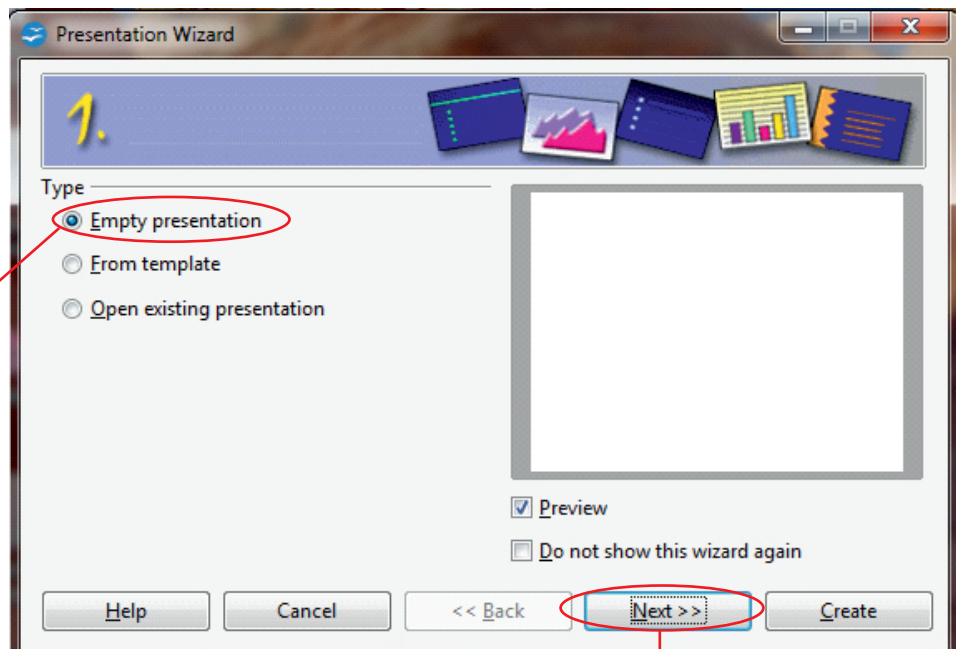
Next button

Step 3: Following screen appears.

Now Select **'Slide Design'.** In the screen shot shown below "Dark Blue with Orange" option is highlighted.

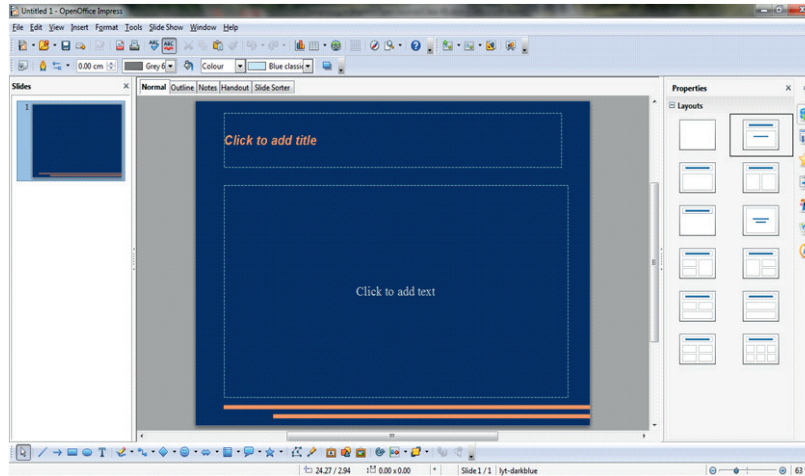

Select a **'Slide Design'** and Click on **'Next button'.**

Step 4: The following screen appears.

Here we may choose the desired effect or we can ignore the settings.

Click on Create button.

A presentation with the selected theme is created as shown below:

Hands On

Double click on the OpenOffice Impress Icon. Select any Slide Design from "Slide Design Window." Now choose the Effect 'Wipe Down' and Speed 'Medium' and click on Create button. Carefully observe the end result.

Father: Dobo, the other option, i.e. the option II is used to first create a plain presentation and then select a Slide Design.
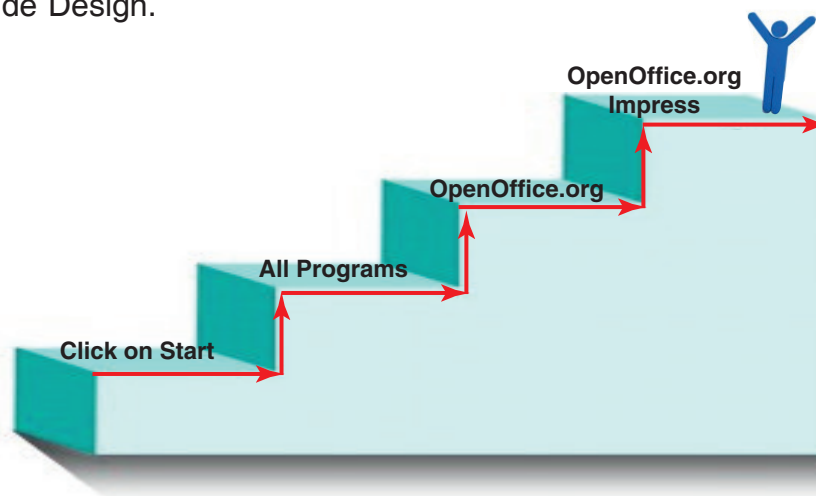
Tobo: How is it possible father?

Father: Let me show it to you.

OPTION 2: AFTER CREATING PRESENTATION

Instead of creating Slide Design in beginning we can create plain presentation. Later we can choose a suitable Slide Design.
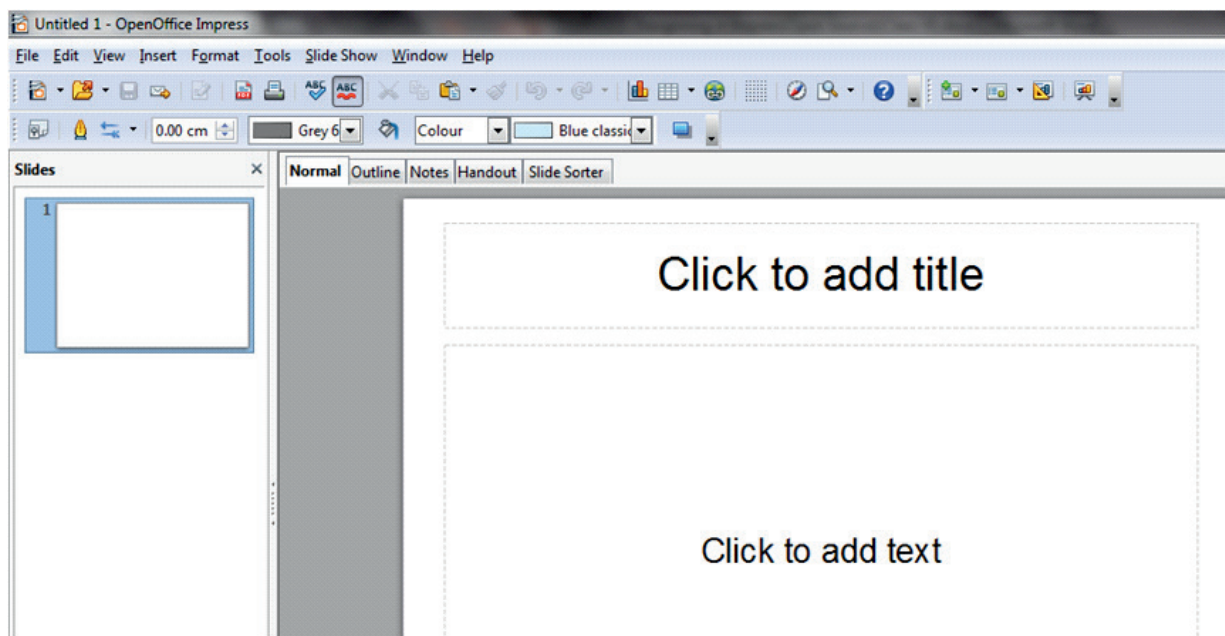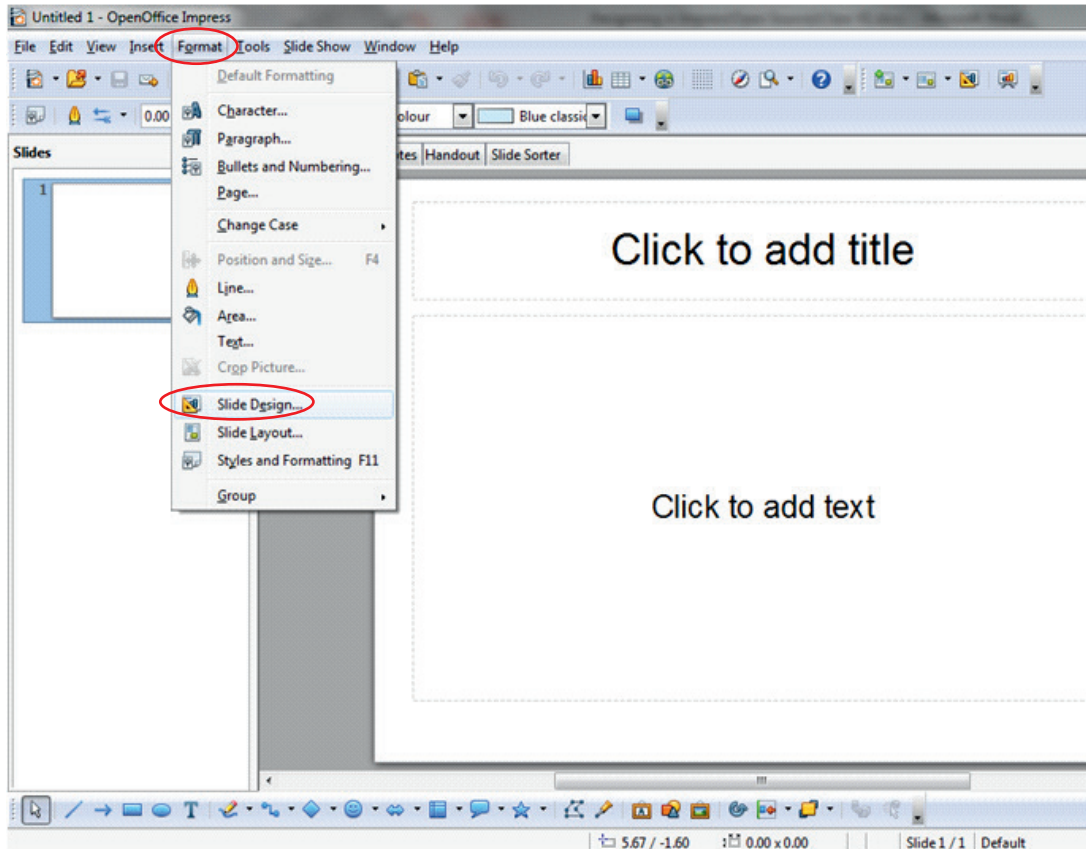
Step 1:

OpenOffice.org
Impress

OpenOffice.org

All Programs

Click on Start

The following screen appears. Select the '**Empty Presentation**' from the "Presentation Wizard window" and click on **Create Button.**
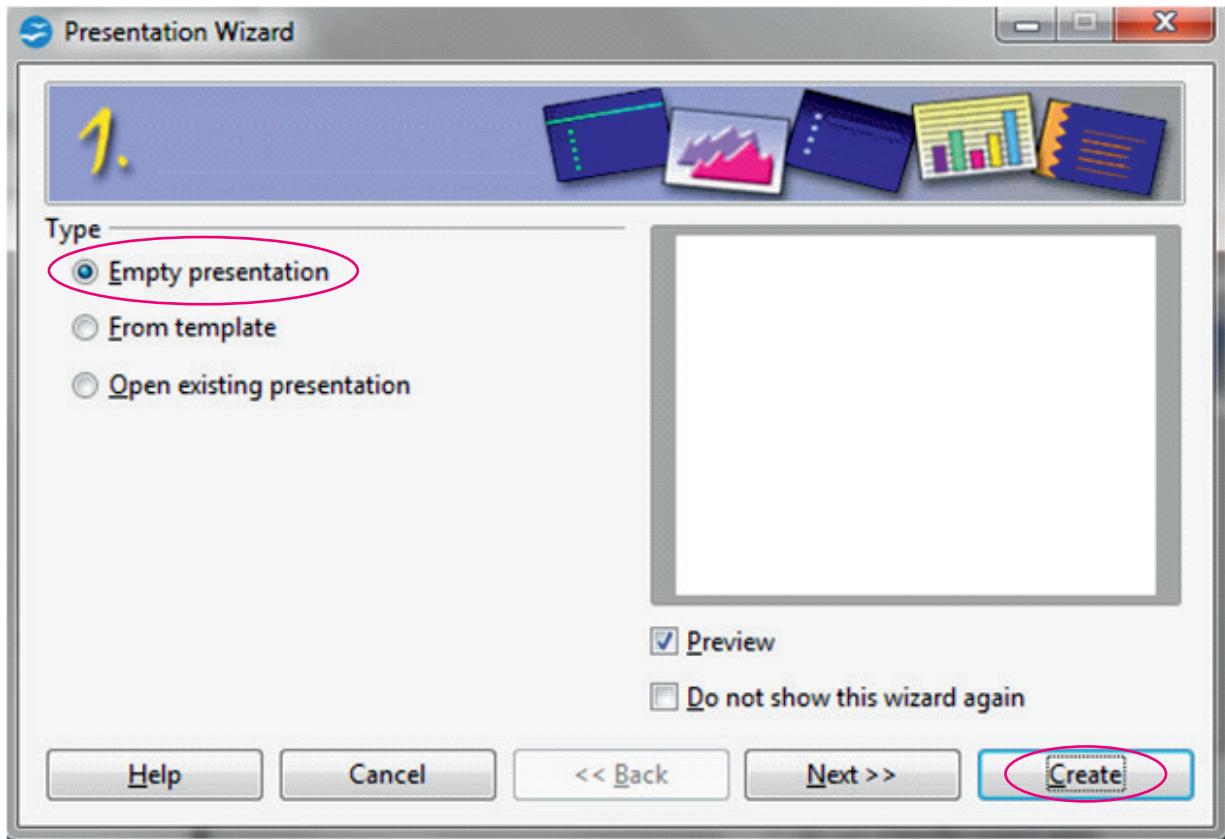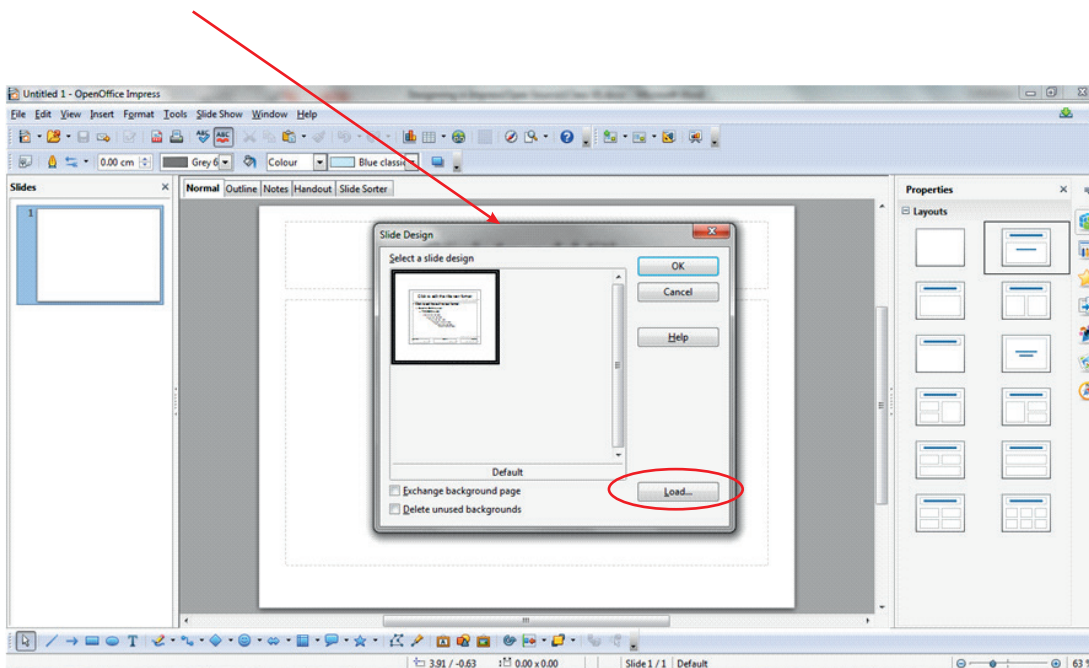

An empty presentation is created as shown below:

Step 2: Click on the '**Format**' menu in the Menu Bar and go to Slide Design.
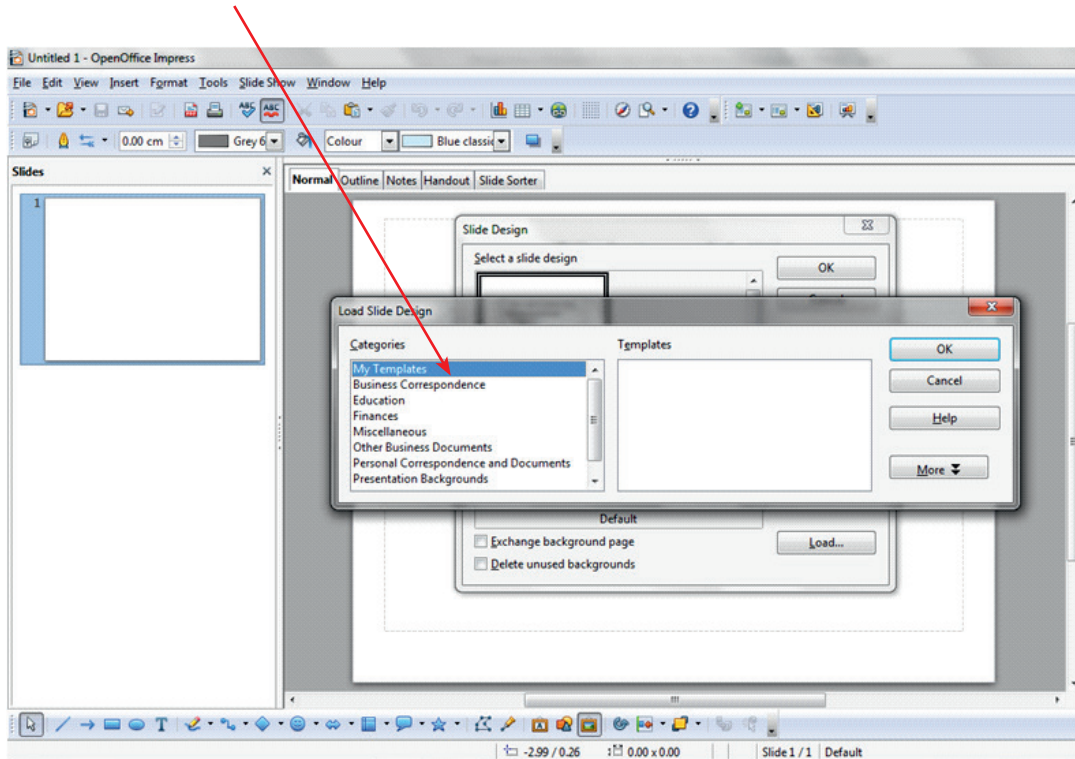
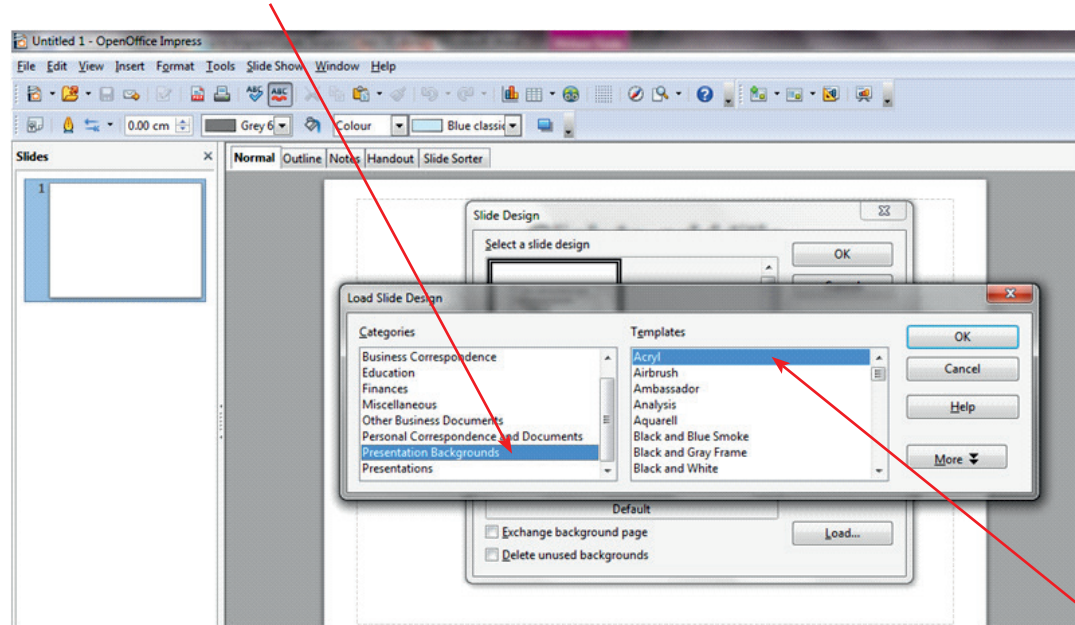

Slide Design window appears as shown below:

Step 3: Click on '**Load**' button as shown on previous screen.

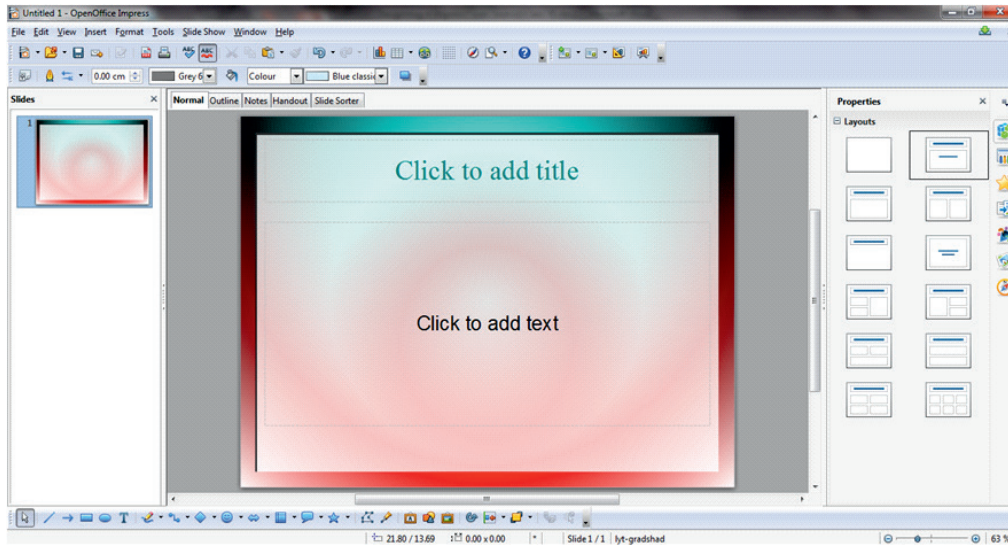Load Slide Design window appears as shown below:

Select **Presentation Backgrounds** option from '**Categories list Box**'.

Now choose the desired templates from a list of sample templates from the **"Template box"**.

Click on 'OK' and all the slides will get the selected theme.

1. Create an Empty Presentation. From the Format Menu select "Slide Design option".

   Now go to 'Presentations' option in Categories Box and select the Ambassador template.

2. Create a presentation on 'Components of Food'. You can use any theme of your choice.

Dobo: Father, can we add various background types in OpenOffice Impress?

Father: Yes, we have various background styles that we can add in our presentation.

Dobo: Could you please explain; how can this be done?

Father: Sure.

SELECTING BACKGROUND STYLE:

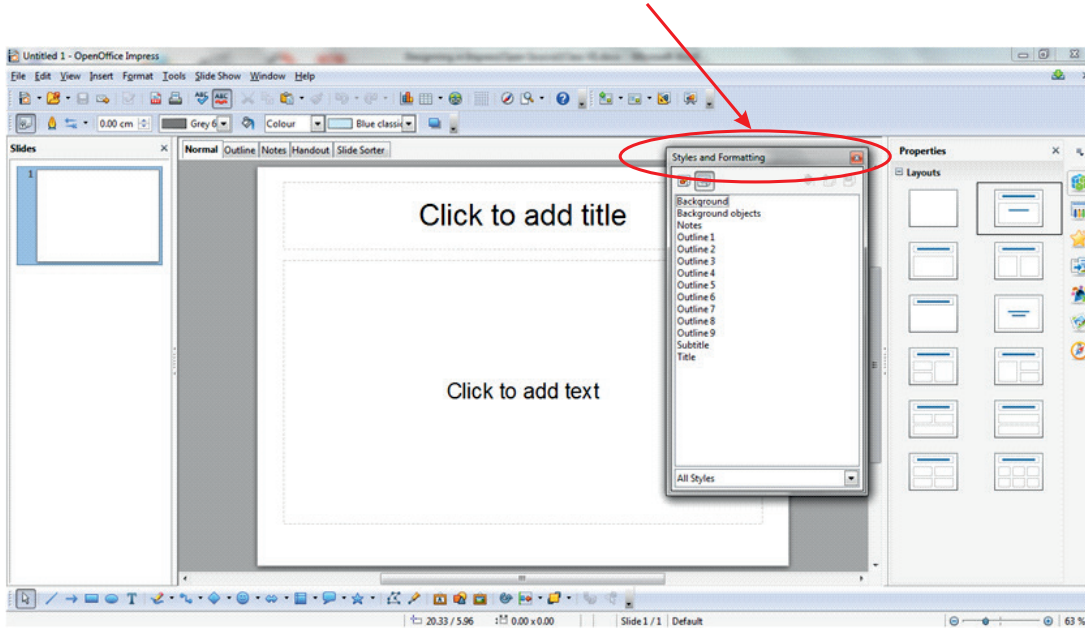Background style option can be applied on the slides by using 'Styles and Formatting' option.
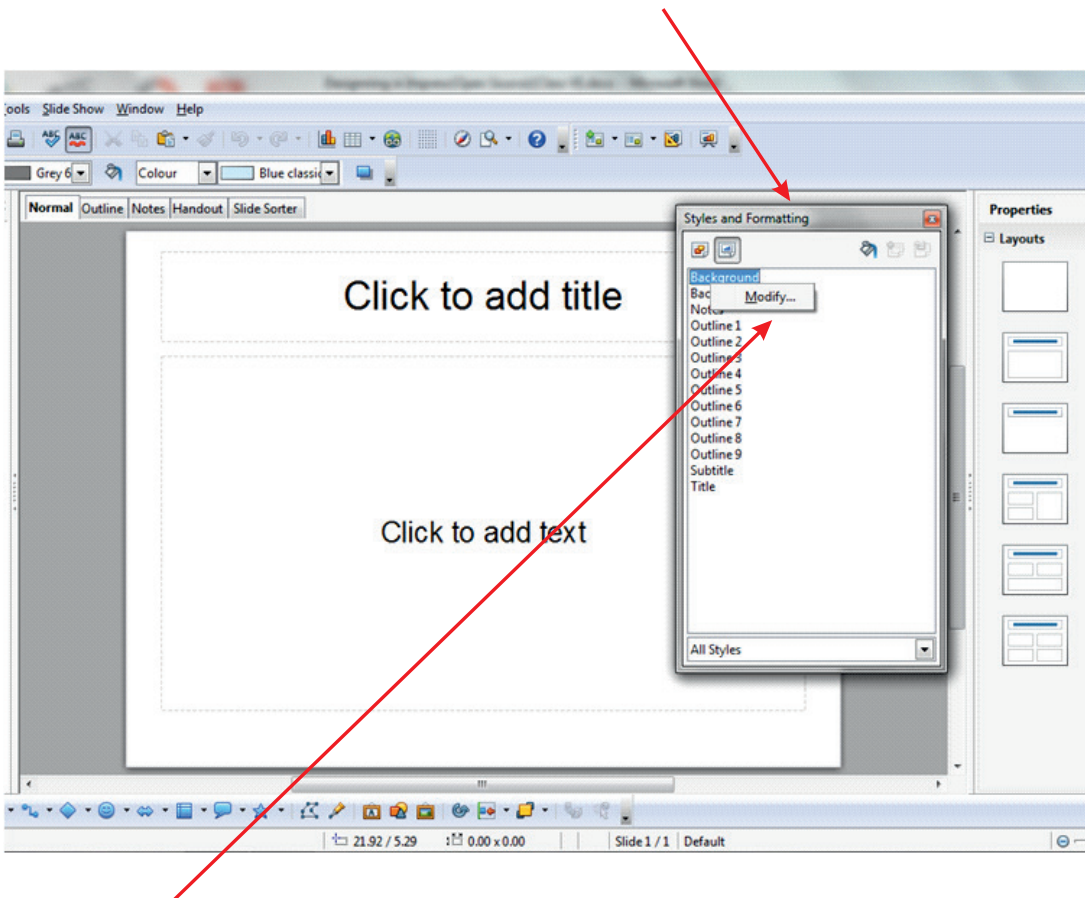
Step 1: Click on Format Menu

Select 'Styles and Formatting' Option

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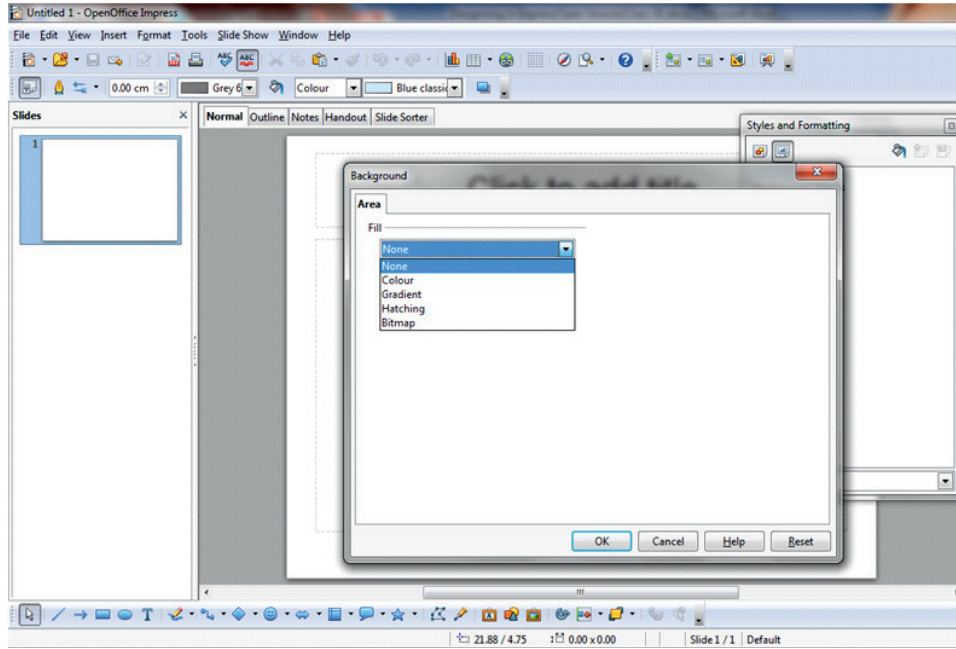Styles and formatting Window appears as shown below:

Step 2: Right click on the Background option.

Click on Modify option.

Step 3: Following screen appears:

Hands On

1. Find out the shortcut key(s) for selecting Styles and Formatting option in Open Office Writer and Impress?

   _____

2. Open the Open Office Impress, find out and list various Background Style options under each of the fill drop down menus:

| Fill drop down menu list	Background Style Options (Any 5)

Is the process of adding background styles in Open Office Writer similar to Open Office Impress? Compare the two processes by listing all the steps used in case of Writer and Impress.

Writer	Impress

DO YOU KNOW ?

Drop Down Menu: is a list of items that appear when we click on a button or text selection.

We can choose from one of the available list of items.

List item 3 ▼
List item 1
List item 2
List item 3
List item 4
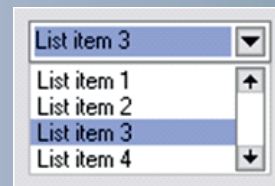
Dobo: Thanks father I am sure I can add background style in the slides

Father: Dobo you must watch this video this will further provide you clarity on how to add Background Style in a Slide:

Watch this video and answer the questionnaire given below:

https://www.youtube.com/watch?v=7aBA7gNXYRI

1. What is the other method of adding Background Style in Open Office Impress?

   _____

   _____

2. Name the dialog box under which the option Background styles is available?

   _____

   _____

Assessment Activity

Hands On

1. Open the OpenOffice Impress and add 'Roses option' from Bitmap menu item under Area tab in Background dialog box.

2. Now add 'Red Gradient1' under the Gradient menu item under Area tab in Background dialog box.

3. Divide the class in two groups. Let the first group find various themes, theme colors and Background Styles available in OpenOffice Impress and the other group find various themes, theme colors Background Styles available in Microsoft PowerPoint.

4. Also within the same group make a presentation on 'History of Apache OpenOffice' using theme and theme colors and various Background style options.