INTRODUCTION TO INFORMATION TECHNOLOGY SYSTEM LAB(2002203)

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SUBMITTED BY

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Practical-01	Browser Feature, browsing, using various search engines, writing search queries.

Browser Feature:

The most popular browsers have a number of features in common. They allow users to set bookmarks and browse in a private mode. They also can be customized with extensions, and some of them provide a sync service.

Most browsers have these user interface (UI) features:

- Allow the user to open multiple pages at the same time, either in different browser windows or in different tabs of the same window.
- *Back* and *forward* buttons to go back to the previous page visited or forward to the next one.
- A *refresh* or *reload* and a *stop* button to reload and cancel loading the current page. (In most browsers, the stop button is merged with the reload button.)
- A *home* button to return to the user's home page.
- An address bar to input the URL of a page and display it.
- A search bar to input terms into a search engine. (In some browsers, the search bar is merged with the address bar.)

Browsing using various search engines:

A search engine is a web-based tool that enables users to locate information on the World Wide Web. Some popular examples of search engines are Google, Yahoo!, and MSN Search, etc.

Steps to use a search engine are:

- **Vary your search engine:** in fact, get used to using several, as they have different strengths.
- **Use specific keywords:** be as specific as you can in your wording.
- **Simplify your search terms:** strip out unnecessary stop words and avoid suffixes.
- **Use quotation marks:** this narrows searches down to particular words and phrases.
- **Remove unhelpful words:** remove confusing or misdirecting terms from your searches with the - (minus) operator.
- **Refine your search using operators:** use operators to search specific sites, related sites, and particular combinations of terms.
- **Avoid search pitfalls:** the internet is a selling tool as well as a fantastic resource. Be sure that you only view advertisements if you want to.

Writing search queries

A **search query** is a string of text that someone types into a search engine, using various combinations of keywords, in order to receive a list of results (called a SERP) with various information that is intended to help provide them answers.

There are mainly three types of search queries:

1. Navigational Search Query: A **navigational search query** is a search query entered with the intent of finding a particular website or webpage. For example, a user might enter "YouTube" into Google's search bar to find the YouTube site rather than entering the URL into a browser's navigation bar or using a bookmark. In fact, "face book" and "YouTube" are the **top two searches on Google**, and these are both navigational queries.

2. Informational Search Query: Queries that cover a broad topic (e.g., *Colorado* or *trucks*) for which there may be thousands of relevant results." When someone enters an informational search query into Google or another search engine, they're looking for information – hence the name. They are probably not looking for a specific site, as in a navigational query, and they are not looking to make a commercial transaction. They just want to answer a question or learn how to do something.

3. Transactional Search Query: A **transactional search query** is a query that indicates an intent to complete a transaction, such as making a purchase. Transactional search queries may include exact brand and product names (like "Samsung galaxy s3") or be generic (like "iced coffee maker") or actually include terms like "buy," "purchase," or "order."

Practical-2	**Visit various e-governance/digital India portals, understand their features, services offered.**

- **Digital India:** Digital India is a campaign launched by the Government of India in order to ensure the Government's services are made available to citizens electronically by improved online infrastructure and by increasing Internet connectivity or making the country digitally empowered in the field of technology.[1][2] The initiative includes plans to connect rural areas with high-speed internet networks. It consists of three core components: the development of secure and stable digital infrastructure, delivering government services digitally, and universal digital literacy.

- **Mygov.in:** It is a citizen engagement platform[2] founded by the Government of India to promote the active participation of Indian citizens in their country's governance and development.[3] It is aimed at creating a common platform for Indian citizens to "crowd source governance ideas from citizens".[4] Its users discuss and contribute to various government projects and plans.[5] It also allows users to upload documents in various formats. The website is hosted and managed by the National Informatics Centre (NIC).[6] Prime Minister Narendra Modi stated that the aim was to reduce

the long gap developed between the electorate and the Executive after being elected.

- **National Scholarship Portal:** **National Scholarship Portal** (NSP) is a digital scholarship platform that carries multiple scholarships offered by the central government, state governments and different government agencies like UGC (University Grants Commission). The **National Scholarship Portal** hosts about 50 scholarships worth hundreds of crores for the scholarship seekers registered on the platform. According to officials, the platform has, so far, helped the government implement and disburse scholarships worth more than INR 2,400 crores. The platform boasts of more than 110 Lakh applications out of which over 85 Lakh applications are verified also.

Introduced as the Mission Mode Project under the National e-Governance Plan (NeGP), the National Scholarship Portal emerges as one of the most prominent scholarship portals that offer a variety of services ranging from student scholarship application to the disbursal of scholarships to them. Offering a SMART (Simplified, Mission-oriented, Accountable, Responsive & Transparent) system for effective and faster disposal of scholarships, the portal ensures direct delivery of funds to the beneficiary's account thereby avoiding any chances of leakage.

Practical-3	<u>**Read Wikipedia pages on computer hardware components, look at those components in lab, identify then, recognize various ports/interfaces and related cables,etc.**</u>

Computer hardware includes the physical parts of a <u>computer</u>, such as the <u>case</u>,[1] <u>central processing unit</u> (CPU), <u>monitor</u>, <u>mouse</u>, <u>keyboard</u>, <u>computer data storage</u>, <u>graphics card</u>, <u>sound card</u>, <u>speakers</u> and <u>motherboard</u>.[2]

By contrast, <u>software</u> is the set of instructions that can be stored and run by hardware. Hardware is so-termed because it is "<u>hard</u>" or rigid with respect to changes, whereas software is "soft" because it is easy to change.

Hardware is typically directed by the software to execute any command or instruction. A combination of hardware and software forms a usable computing system, although other systems exist with only hardware.

<u>Components of computer hardware:</u>

Input Devices
Input devices comprise of any devices that users need in order to give instructions to a computer. Essentially input devices act as the medium for sending data to a computer so that users can interact with and control it. The most widely known examples are the keyboard and mouse. Input devices are also used to transfer data between computers.
Following are some of the important input devices which are used in a computer –

- Keyboard
- Mouse
- Joy Stick
- Light pen

- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Output Devices

Output devices are devices that allow computers to send data to other devices or to users. In general, the data that computers send to human users is in forms that we can understand. Most often, these forms include audio and video. The most widely known examples of output devices are monitors, speakers and printers. These devices produce video, audio and graphic output, respectively.

Following are some of the important output devices used in a computer.

- Monitors
- Graphic Plotter
- Printer

Processing Devices

Processing is the core function of any computer. When a computer receives data from an input device, this data must first go through an intermediate stage before it is sent to an output device. Processing is the intermediate stage where raw data is transformed into information so that it can be outputted meaningfully for the user. An example of a processing device is the central processing unit (CPU), which is a set of electronic circuitry that processes and executes instructions.

Memory (Storage) Devices

Memory devices are any devices that are capable of storing information temporarily or permanently. There are two types of memory; primary and secondary. Primary memory refers to RAM (random access memory), which is used to store instructions and data temporarily before and after they are processed. RAM is volatile, which simply means it only retains information when the computer is turned on and is cleared once the computer turns off.

Secondary memory refers to any external storage media. Secondary memory is non-volatile, which means that information can be stored long-term. The most common example of an external secondary memory device is the USB flash drive.

Digital Data Storage Devices for Computers

Hard Drive Disks.

Floppy Disks.

Tapes.

Compact Discs (CDs)

DVD and Blu-ray Discs.

USB Flash Drives.

Secure Digital Cards (SD Card)s.

Solid-State Drives (SSDs)

Practical-4	**Install Linux and Windows operating system on identified lab machine, explore various options, do it multipal times.**

Linux is an open source and free operating system to install which allows anyone with programming knowledge to modify and create its own operating system as per their requirements. Over many years, it has become more user-friendly and supports a lot of features such as

1. Reliable when used with servers
2. No need of antivirus
3. A Linux server can run nonstop with the boot for many years.

It has many distributions such as Ubuntu, Fedora, Redhat, Debian but all run on top of Linux server itself. Installation of every distribution is similar, thus we are explaining Ubuntu here.

So let's get started using this wonderful operating system by any of the following methods.

A. Install Linux Using CD-ROM or USB Stick

Download .iso or the ISO files on a computer from the internet and store it in the CD-ROM or USB stick after making it bootable using Pen Drive Linux and UNetBootin

1. Boot into the USB Stick

   You need to restart your computer after attaching CD –ROM or pen drive into the computer. Press enter at the time of boot, here select the CD-ROM or pen drive option to start the further boot process. Try for a manual boot setting by holding F12 key to start the boot process. This will allow you to select from various boot options before starting the system. All the options either it is USB or CD ROM or number of operating systems you will get a list from which you need to select one.

Note:-

You will see a new screen when your computer boots up called "GNU

GRUB", a boot loader that handles installations for Linux. This screen will only appear in case there is more than one operating system.


- Set the keyboard layout.

- Now you will be asked What apps would you like to install to start with Linux? The two options are 'Normal installation' and 'Minimal installation'.
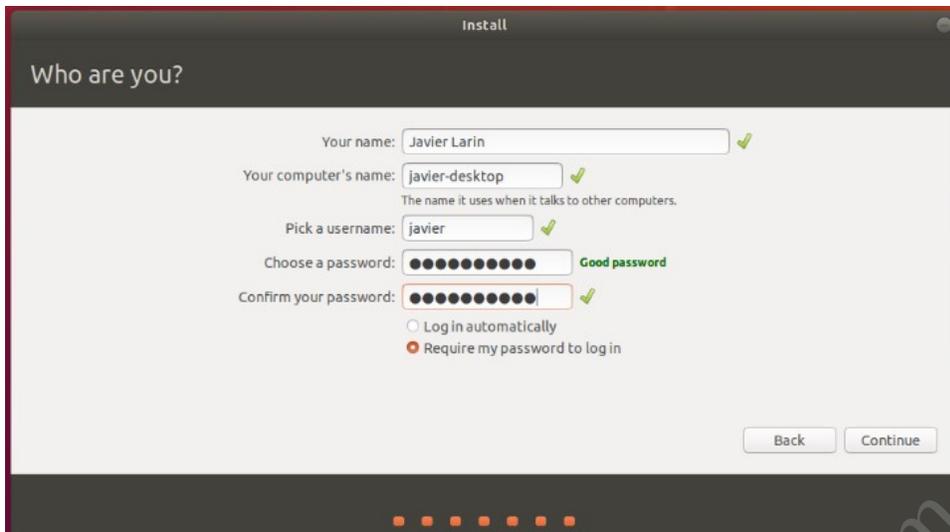
2. Derive Selection

Select the drive for installation of OS to be completed. Select "Erase

Disk and <u>install Ubuntu</u>" in case you want to replace the existing OS

otherwise select "Something else" option and click INSTALL NOW.
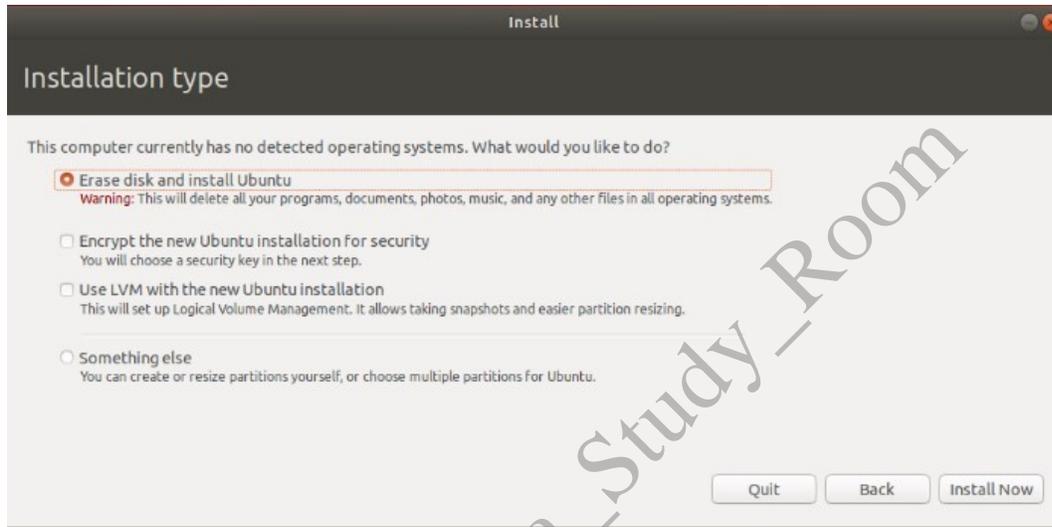

3. Start Installation

- A small panel will ask for confirmation. Click Continue in case you

  don't want to change any information provided. Select your

  location on the map and install Linux.

- Provide the login details.

Who are you?

Your name:	Javier Larin	✔
Your computer's name:	javier-desktop	✔
	The name it uses when it talks to other computers.	
Pick a username:	javier	✔
Choose a password:	●●●●●●●●●●	Good password
Confirm your password:	●●●●●●●●●●	✔

○ Log in automatically
● Require my password to log in

Back   Continue

4. Complete the installation process

After the installation is complete you will see a prompt to restart the computer.

You are almost done. It should take 10-15 minutes to complete the installation. Once the installation finishes, restart the system.

Installation Complete

Installation is complete. You need to restart the computer in order to use the new installation.

Restart Now
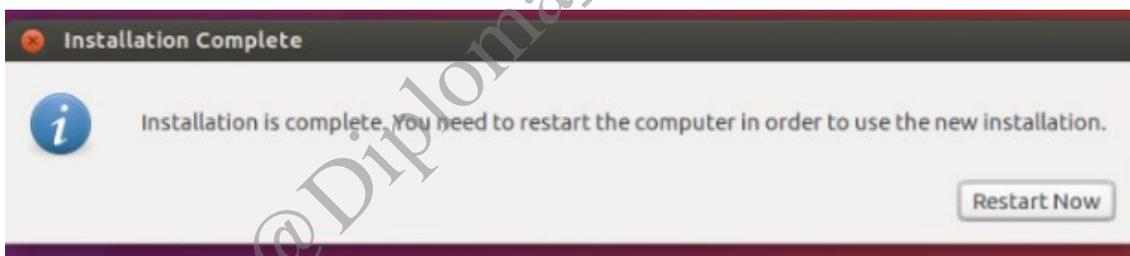
Practical-5	**Connect various peripheral (printer, scanner.etc) to computer ,explore various features of peripheral and their device driver software.**

Here are the general procedures to install any peripheral device:

1. Read the manufacturer's directions. I know you don't want to hear that again, but when you follow these directions, the installation goes better. If you later have a problem with the installation and you ask the manufacturer for help, being able to say you followed the directions exactly as stated goes a long way toward getting more enthusiastic help and cooperation.

2. Make sure the drivers provided with the device are written for the operating system (OS) you are using. 9 Recall that 64-bit drivers are required for a 64-bit operating system, and 32-bit drivers are required for a 32-bit OS. You can sometimes use drivers written for older Windows versions in newer Windows versions, but for best results, use drivers written for the OS installed. You can download the drivers you need from the manufacturer's website.

3. Make sure the motherboard port you are using is enabled. Most likely it is enabled, but if the device is not recognized when you plug it in, go into UEFI/BIOS setup and make sure the port is enabled. In addition, UEFI/BIOS setup might offer the option to configure a USB port to use SuperSpeed (USB 3.0), Hi-Speed USB (USB 2.0), or original USB (USB 1.1). Figure 9-5 shows the BIOS setup screen for one system where you can enable or disable onboard devices. In addition, if you are having problems with a motherboard port, don't forget to update the motherboard drivers that control the port.

4. Install drivers or plug in the device. Some devices, such as a USB

printer, require that you plug in the device before installing the drivers, and some devices require you to install the drivers before plugging in the device. For some devices, it doesn't matter which is installed first. Carefully read and follow the device documentation. For example, the documentation for one digital camera says that if you install the camera before installing the driver, the drivers will not install properly. If you plug in the device first, Device Setup launches and steps you through the installation of drivers (see Figure 9-6). As Device Setup works, an icon appears in the taskbar. To see the Device Setup box, as shown in the figure, click the icon.

5. Install the application software to use the device. For example, a FireWire camcorder is likely to come bundled with video-editing software. Run the software to use the dev

Plug a mouse or keyboard into a USB port and Windows should immediately recognize it and install generic drivers. Because PS/2 ports are not hot-pluggable, you must restart Windows after plugging a mouse or keyboard into a PS/2 port.

For keyboards with special features such as the one shown in Figure 9-7, you need to install the drivers that came with the keyboard before you can use these features. Also notice in Figure 9-7 a green USB to PS/2 adapter and a purple PS/2 to USB adapter, which can solve the problem when a case has PS/2 ports and doesn't have enough USB ports.

You can later use Device Manager to uninstall, disable, or enable most devices. However, USB devices are managed differently. To uninstall a USB device such as the USB keyboard shown in Figure 9-7, use the Programs and Features window.

To open the window in Windows 8, press Win+X and click Programs and Features. For Windows 7, click Start, click Control Panel, and click Programs and Features. In the Programs and Features window (see Figure 9-8), select the device and click Uninstall. Follow the directions on screen to uninstall the device.

Replacing the keyboard is pretty easy to do. Before you begin any disassembly of a laptop, refer to the manufacturer documentation. Here are typical steps that are similar to many models of laptops:

1. Power down the laptop and remove the AC adapter and the battery pack.

2. Remove two or more screws on the bottom of the laptop (see Figure 9-9). (Only the manufacturer documentation can tell you which ones because there are probably several of them used to hold various components in place.) Figure 9-9 Remove screws on the bottom of the laptop

3. Turn the laptop over and open the lid. Gently push the keyboard toward the lid while pulling it up to release it from the case (see Figure 9-10). Figure 9-10 Pry up and lift the keyboard out of the laptop case

4. Bring the keyboard out of the case and forward to expose the keyboard ribbon cable attached under- neath the board. Use a screwdriver to lift the cable connector up and out of its socket (see Figure 9-11).

5. Replace the keyboard following the steps in reverse order.
A barcode reader is used to scan barcodes on products at the point of sale (POS) or when taking inventory.
The reader might use a wireless connection, a serial port, a USB port, or a keyboard port. If the reader uses a keyboard port, most likely it has a splitter (called a keyboard wedge) on it for the keyboard to use, and data read by the barcode reader is input into the system as though it were typed using the keyboard. Figure 9-12 shows a barcode reader by Intermec that is a laser scanner and uses Bluetooth to connect wirelessly to the computer

A biometric device is an input device that inputs biological data about a person, used to identify a person's fingerprint, handprint, face, voice, eye, or handwritten signature.

For example, you can use a fingerprint reader to sign in to Windows or to access an iPhone using Touch ID technology. These fingerprint readers should not be considered the only authentication to control access to sensitive data: for that, use a strong password, which is a password that is not easy to guess.

A digital camera or camcorder can hold images and videos both in embedded memory that cannot be removed or exchanged and in removable flash memory cards.

Both of these types of memory retain data without a battery.

Here are two ways to transfer images from your camera or camcorder to a computer:

-- Connect the camera or camcorder to the computer using a cable. Using embedded memory or flash memory cards, you can connect the device to your computer using a USB or FireWire port and cable. To connect the device to the computer, you might need to first install the software and then connect the device, or you might need to connect the device and then install the software. Read the camera or camcorder documentation to find out which order to use. After the device and software are installed, the software displays a menu to download images or video to your computer.

-- Install the memory card in the computer. If images or video are stored on a flash memory card installed in your device, you can remove the card and then insert it in a flash memory card slot on your computer. Most laptop computers have one or more of these slots (see Figure 9-14).

If your computer doesn't have this slot, or the slot is not compatible with the type of card you are using, you have two choices:

-- Perhaps you can purchase an adapter so that your smaller memory card will fit into a larger card slot. (Examples of these adapters. MicroSDHC USB adapter PRO Duo adapter MiniSD adapter memory card SD adapter)

-- You can install a USB smart card reader that provides a memory card slot to fit your card. Figure 9-16 shows one reader that connects to a computer using a USB port.

A webcam (web camera) is embedded in most laptops and can also be installed as a peripheral device using a USB port or some other port. For example, the webcam shown in Figure 9-17 works well for personal chat sessions and videoconferencing and has a built-in microphone. First, use the setup CD to install the software and then plug in the webcam to a USB port. A+ Exam Tip A+ 220-901 1.12 A webcam comes with a built-in microphone. You can use this microphone or use the microphone port on the computer. Most software allows you to select these input devices.

Practical-6	06 Practice HTML commands, try them with various values make your own Webpage.

Learn HTML Using Notepad or TextEdit

Web pages can be created and modified by using professional HTML editors.

However, for learning HTML we recommend a simple text editor like Notepad (PC) or TextEdit (Mac).

We believe in that using a simple text editor is a good way to learn HTML.

Follow the steps below to create your first web page with Notepad or TextEdit.

Step 1: Open Notepad (PC)

Windows 8 or later:

Open the **Start Screen** (the window symbol at the bottom left on your screen). Type **Notepad**.

Windows 7 or earlier:

Open **Start** > **Programs > Accessories > Notepad**

Step 1: Open TextEdit (Mac)

Open **Finder > Applications > TextEdit**

Also change some preferences to get the application to save files correctly. In **Preferences > Format >** choose **"Plain Text"**

Then under "Open and Save", check the box that says "Display HTML files as HTML code instead of formatted text".

Then open a new document to place the code.

Step 2: Write Some HTML
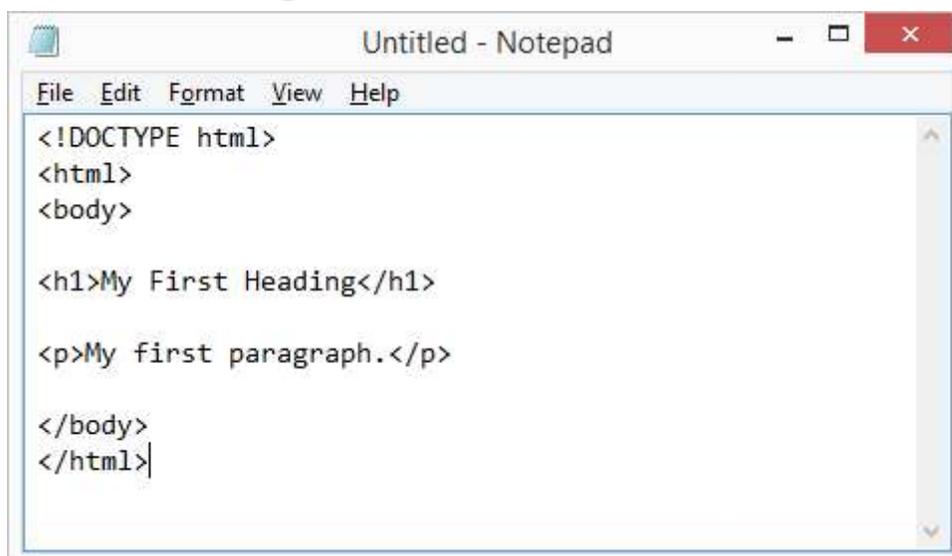
Write or copy the following HTML code into Notepad:

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```
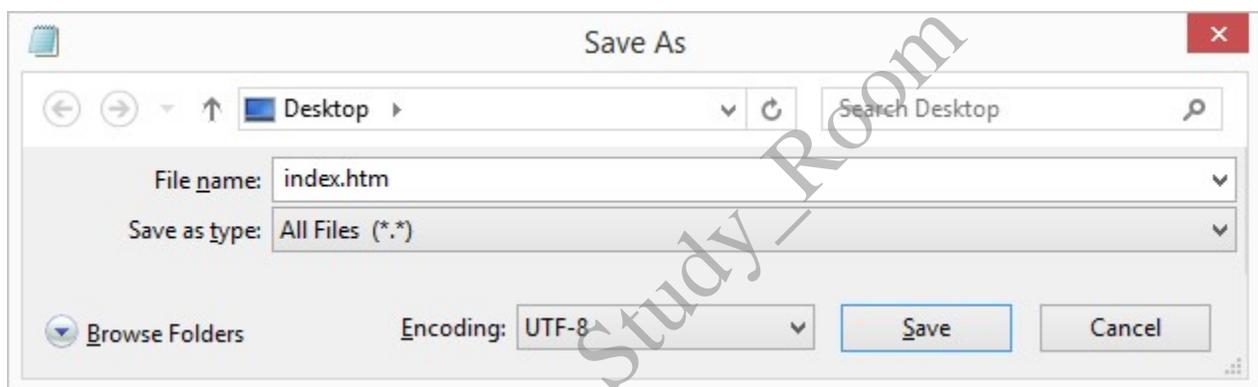
Step 3: Save the HTML Page

Save the file on your computer. Select **File > Save as** in the Notepad menu.

Name the file **"index.htm"** and set the encoding to **UTF-8** (which is the preferred encoding for HTML files).

Tip: You can use either .htm or .html as file extension. There is no difference, it is up to you.

Step 4: View the HTML Page in Your Browser

Open the saved HTML file in your favorite browser (double click on the file, or right-click - and choose "Open with").

The result will look much like this:

These are most important features of OPEN OFFICE TOOLS.

Practical-7	Explore features of Open Office tools , create documents using these features, do it multipale times.

These are most important features of OPEN OFFICE TOOLS :-

Productivity Enhancements

New Custom Properties Handling

OpenOffice.org allows users to define any number of custom document properties as name/value pairs in the **File > Properties** dialog. With version 3.3 it is possible to also define DateTime values and values that contain a duration.

Embedding of Standard PDF Fonts

In previous versions, the standard PDF standard fonts (Times, Helvetica, Courier, Symbol and ZapfDingbats) were only embedded into the resulting PDF when the resulting file was of the PDF/A type, since the PDF/A standards requires this. In version 3.3, you can optionally embed these fonts in all PDF documents created by OpenOffice.org to enhance display accuracy in PDF viewers.

New Narrow Font Family

Oracle contributed a narrow font family to the free and open source Liberation font families. Being metrically compatible to the Arial Narrow font, widely used on Microsoft Windows systems, this font family now completes the Liberation

family and delivers a compatible and free set of fonts available on all platforms.

Increased Document Protection in Writer and Calc

OpenOffice.org Writer and Calc now allow two levels of document protection. As before, you can save a document with a password that prevents unauthorized users to read the content. Now you can also set a password to protect a document against unwanted changes.

This way, you can make the content of a document available for reading to a selected group of people, and for reading and editing to a different group. This behaviour is now compatible with Microsoft Word and Excel file protection.

Automatic Decimals Digits for "General" format in Calc

In OpenOffice.org Calc, numbers formatted with the "General" number format will display as many decimal digits as required. In former versions, a maximum of 2 decimal digits were displayed with the "General" number format.

One Million Rows in a Spreadsheet

OpenOffice.org Calc spreadsheets now support 1,048,576 (1 Million) rows instead of 65,536 rows.

New Options for CSV (Comma Separated Value) Import in Calc
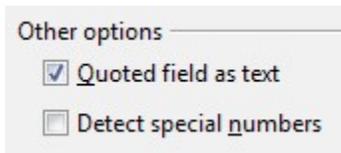
Two new options are available when importing CSV files that contain data separated by specific characters.

These options determine whether quoted data will always be imported as text, and whether OpenOffice.org Calc will automatically detect all number formats, including special number formats such as dates, time, and scientific notation. The detection depends on the language settings.

Insert Drawing Objects in Charts
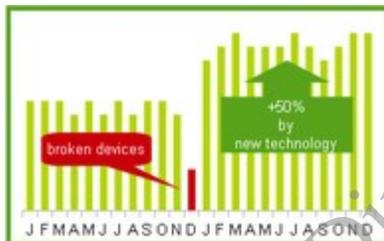
The Chart functionality is enhanced and now supports drawing objects. The drawing toolbar allows to insert simple shapes such as lines, rectangles and text objects and even complex shapes such as cubes, symbols, block arrows, flowcharts and stars. The drawing objects can be edited by several dialogs which can be opened via the context menu. Also the font and formatting of text objects can be changed

Hierarchical Axis Labels for Charts

If the categories in charts that get their data from spreadsheet span multiple rows and multiple columns, the direction of the first data series is detected. If the data for the first series comes from rows, the categories are split into multiple rows. Otherwise the categories are split into multiple columns. The split categories are then applied as different hierarchical labels at the x-axis.

For charts with own data (typically used in Impress or Writer), there is a new icon to add text columns, which then will be used for the different levels in the x-axis labels.

Improved Slide Layout Handling in Impress

Handling of slide layouts in presentations is vastly improved. The content type of slide sections is now defined directly on the slide by clicking on one of the four content type icons: table, chart, picture, or movie, or entering text directly.
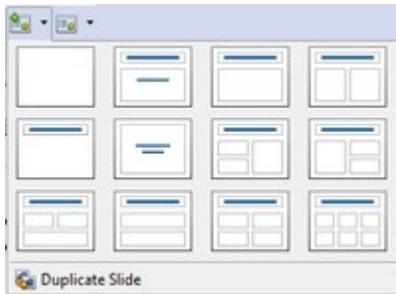
This reduces the number of slide layout varieties making the layout selection much clearer. In addition, you can now also assign layouts to slides and create new slides with a specific layout using the toolbar. One new toolbar element is used to add a new slide (or duplicate the currently selected slide).
A similar toolbar element is used to assign a layout to the currently selected slide, or reset the layout to the assigned layout after making changes.

Manual Setting for Primary Key Support for Databases

When connecting to a database via an ODBC, JDBC, or ADO driver, Base used to apply a heuristic method to determine whether the database supports primary keys. In some cases, this heuristic method failed. Therefore, version 3.3 introduces an explicit option to declare primary key support. When this setting is enabled, Base will always assume that the database supports primary keys, regardless of the result of the heuristic analysis.

Support of Read-Only Database Registrations

In OpenOffice.org, database registrations are stored in the application configuration files. Therefore, it is possible to deploy additional configuration fragments containing additional registrations. If those configuration fragments are declared as read-only (by using the usual configuration mechanisms for this), OpenOffice.org now blocks modifications (editions, removal) of the corresponding registration entry.

New Math Command 'nospace'

It will now be possible to explicitly remove the small horizontal space that always gets applied between two elements.

Usability and Interface

Common Search Toolbar

Usage data indicated that a large portion of OpenOffice.org users want to quickly search inside a document's text. This is now possible using the new "Find" toolbar containing a search field, and a next and previous button.

New Easier to Use Print Interface

The print dialog has been completely revamped in OpenOffice.org 3.3 to allow for a more efficient and usable printing experience.

An integrated preview is available to show the appearance of the document to be printed, and all relevant settings can be made from within this one dialog, including number of pages, collation settings, document objects to print or hide, page order, print multiple pages, and much more.

More Options for Changing Case

With version 3.3, you have more options for changing the case of a selected text portion. Apart from toggling uppercase and lowercase, you can now set the case to sentence case (first letter capitalized), capitalize every word, or invert the current case.

Redesign of Thesaurus
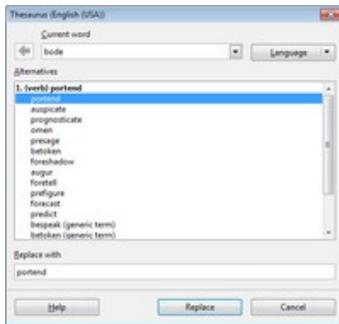
The thesaurus dialog has been redesigned for better usability. In addition, a new "Synonyms" sub menu in the default context menu allows you to select a synonym for the currently selected word right away.

Resetting Text to the Default Language in Writer
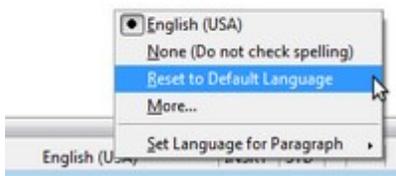
You can now reset the language of text back to the default language using the language status bar or the Tools > Language menu.

Text Rendering of Form Controls in Writer
Form controls in text documents now render their text the same way the document itself does, thus making the appearance of controls as part of a text flow much more seamless and consistent.

Changed Defaults for Charts

Several defaults have changed for OpenOffice.org charts: larger size, larger font size, no black borders, better 3D look and more.

Colored Sheet Tabs in Calc
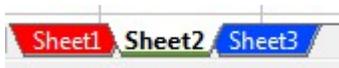
Each sheet in an OpenOffice.org Calc document can now be assigned a color for its tab in the Sheet tabs area at the bottom left of the window.

Adapt to Marked Selection for Filter Area in Calc
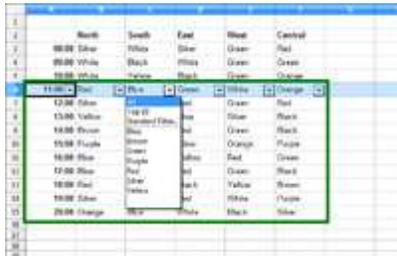
In OpenOffice.org Calc, a selection is now shrunk to the actually used data columns when enabling a filter (AutoFilter, StandardFilter, AdvancedFilter).

Users can select an entire row by clicking on a row header and expect a filter to operate on the data below the selected row. If one single row is selected the selection is shrunk to the actually used data columns and then expanded over all contiguous data rows below. Selecting only a portion of a row behaves similar by expanding the selected columns over the data rows. An area selected, e.g. more than one entire row, is shrunk to the actual used data columns.

Sort Dialog for DataPilot in Calc
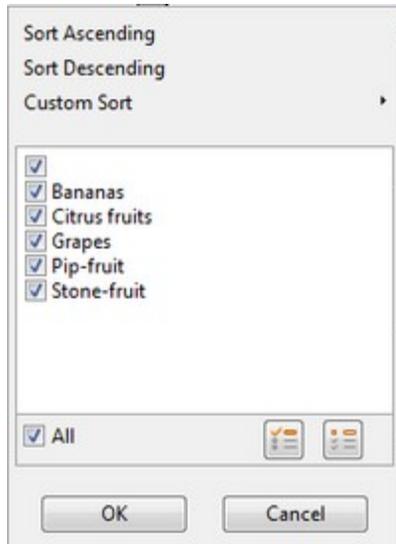
The DataPilot (sometimes known as Pivot Table) now supports a convenient way of sorting and filtering entries using a special popup window.

Display Custom Names for DataPilot Fields, Items and Totals in Calc

DataPilot fields, items and totals can now be assigned custom display names by typing into the corresponding cell in the DataPilot table.

Internationalization

Additional Locale Data

Arabic (Algeria) [ar-DZ], Bafia (Cameroon) [ksf-CM], Bushi (Mayotte) [buc-YT], Campidanese (Sardinia) [sro-IT], Gallurese (Sardinia) [sdn-IT], Gikuyu (Kenya) [ki-KE], Latgalian (Latvia) [ltg-LV], Logudorese (Sardinia) [src-IT], Maithili (India) [mai-IN], Malagasy Plateau (Madagascar) [plt-MG], Maore (Mayotte) [swb-YT], Papiamentu (Netherlands Antilles) [pap-AN], Rusyn (Slovakia) [rue-SK], Rusyn (Ukraine) [rue-UA], Sassarese (Sardinia)[sdc-IT], Sorbian, Tahitian (French Polynesia) [ty-PF], Upper Sorbian (Germany) [hsb-DE], Yoruba (Nigeria) [yo-NG]

Developer Features and Extensibility

Grid Control Enhancements

The grid control now accepts additional data types like numbers or images. The XGridDatamodel method
addRow(string headerName, sequence<string> data)
has changed to
addRow(string headerName, sequence<any> data)

You can now control the appearance of a grid control using additional parameters for horizontal and vertical alignment, row background colors, line colors, and text colors For more information and examples, see the OpenOffice.org Wiki pages.

New MetaData Node for Database

You can now define a new property in a database driver's xcu file. This is enabled by default for MySQL (JDBC) and ADO (including Microsoft Access) drivers. The property is defined in the MetaData section.

```
<node oor:name="SupportsColumnDescription" oor:op="replace">
  <prop oor:name="Value" oor:type="xs:boolean">
    <value>true</value>
  </prop>
</node>
```

When this property is enabled, the table designer will display the column description beside the normal description which is used as help text.

Extending Database Drivers Using Extensions
Some database drivers do not support special features like altering view definitions or adding/dropping table keys. Starting with OpenOffice.org 3.3, the corresponding interfaces can be implemented by an extension:
 com.sun.star.sdb.tools.XViewAccess

 com.sun.star.sdb.tools.XTableRename.
com.sun.star.sdb.tools.XTableAlteration
com.sun.star.sdb.tools.XKeyAlteration
 com.sun.star.sdb.tools.XIndexAlteration

Practical-8	Explore security features of Operating Systems and Tools , try using them and see what happens

Security refers to providing a protection system to computer system resources such as CPU, memory, disk, software programs and most importantly data/information stored in the computer system. If a computer program is run by an unauthorized user, then he/she may cause severe damage to computer or data stored in it. So a computer system must be protected against unauthorized access, malicious access to system memory, viruses, worms etc. We're going to discuss following topics in this chapter.

- Authentication
- One Time passwords
- Program Threats
- System Threats
- Computer Security Classifications

Authentication

Authentication refers to identifying each user of the system and associating the executing programs with those users. It is the responsibility of the Operating System to create a protection system which ensures that a user who is running a particular program is authentic. Operating Systems generally identifies/authenticates users using following three ways –

- **Username / Password** – User need to enter a registered username and password with Operating system to login into the system.

- **User card/key** − User need to punch card in card slot, or enter key generated by key generator in option provided by operating system to login into the system.
- **User attribute - fingerprint/ eye retina pattern/ signature** − User need to pass his/her attribute via designated input device used by operating system to login into the system.

One Time passwords

One-time passwords provide additional security along with normal authentication. In One-Time Password system, a unique password is required every time user tries to login into the system. Once a one-time password is used, then it cannot be used again. One-time password are implemented in various ways.

- **Random numbers** − Users are provided cards having numbers printed along with corresponding alphabets. System asks for numbers corresponding to few alphabets randomly chosen.
- **Secret key** − User are provided a hardware device which can create a secret id mapped with user id. System asks for such secret id which is to be generated every time prior to login.
- **Network password** − Some commercial applications send one-time passwords to user on registered mobile/ email which is required to be entered prior to login.

Program Threats

Operating system's processes and kernel do the designated task as instructed. If a user program made these process do malicious tasks, then it is known as **Program Threats**. One of the common example of program threat is a program installed in a computer which can store and send user credentials via network to some hacker. Following is the list of some well-known program threats.

- **Trojan Horse** − Such program traps user login credentials and stores them to send to malicious user who can later on login to computer and can access system resources.

- **Trap Door** − If a program which is designed to work as required, have a security hole in its code and perform illegal action without knowledge of user then it is called to have a trap door.

- **Logic Bomb** − Logic bomb is a situation when a program misbehaves only when certain conditions met otherwise it works as a genuine program. It is harder to detect.

- **Virus** − Virus as name suggest can replicate themselves on computer system. They are highly dangerous and can modify/delete user files, crash systems. A virus is generatlly a small code embedded in a program. As user accesses the program, the virus starts getting embedded in other files/ programs and can make system unusable for user

System Threats

System threats refers to misuse of system services and network connections to put user in trouble. System threats can be used to launch program threats on a complete network called as program attack. System threats creates such an environment that operating system resources/ user files are misused. Following is the list of some well-known system threats.

- **Worm** − Worm is a process which can choked down a system performance by using system resources to extreme levels. A Worm process generates its multiple copies where each copy uses system resources, prevents all other processes to get required resources. Worms processes can even shut down an entire network.

- **Port Scanning** – Port scanning is a mechanism or means by which a hacker can detects system vulnerabilities to make an attack on the system.

- **Denial of Service** – Denial of service attacks normally prevents user to make legitimate use of the system. For example, a user may not be able to use internet if denial of service attacks browser's content settings.