Introduction To Computing

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Contents

Chapter 1

Lab 1: Introduction to Computer H/W and S/W

Objectives

To familiar with computer hardware, software, input/output devices, operating system etc.

Description

Computer

A computer is an integrated set of data structures and algorithms capable of storing and executing programs.

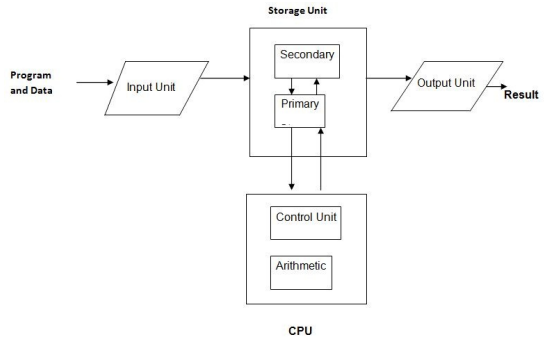

Figure 1.1: Block Diagram of Computer

Central Processing Unit (CPU)

- The brains of your computer. If you have a 1.6 GB CPU, then your processor can handle 1.6 billion instructions in a second.
- The CPU is responsible for all calculations performed within the PC.
- It determines how fast the PC will work and what systems will work on it.
- Additionally, it gets involved in other activities, such as overseeing the transfer of data from the hard disk into RAM.

Classification of Storage capacity:
1 nibble = 4 bits
1 byte = 8 bits
1 KB = 1024 bytes
1 MB = 1024 KB
1 GB = 1024 MB
1 TB = 1024 GB
Examples of Storage Capacity

- Byte = One character typed in plain text editor e.g. Text files
- Kilobyte = 1,024 byes e.g. Web pages, Office documents
- Megabytes = 1,024 kilobytes e.g. MP3 files, videos, large software, RAM
- Gigabytes = 1,024 megabytes e.g. Hard drives, RAM

Hardware

All the devices such as keyboard, monitor, mouse, printer, cabinet, circuits, microprocessor (except CPU), floppy disk drive, hard disk drive and other storage devices are called the hardware of a computer.

Software

A set of instructions is called a program and a set of programs is called software. Software used on computers may be of different types: (1) Application Software (2) System Software (3) Utility Software

Application Software

Software suited for specific applications is called as application software e.g. Payroll, Banking, Life Insurance, Hospital Management, Electricity Billing, Telephone Billing, Railway/Airlines/Bus reservation, etc.

System Software

Programs that control and direct the operations of the computer hardware are called as system software e.g. Compilers, Linkers, Loaders, Interpreters, Assemblers, Operating systems viz. DOS, UNIX, and Windows, etc..

Utility Software

These are the supporting software packages e.g., MS-Excel, MS-Access, Oracle, Drivers etc.

Input Devices

An input device is a device which accepts data from the outside world, and translates it into a form which the computer can interpret. Several input devices are available today. They can be broadly classified into the following categories:

- Keyboards

- Point-and-draw devices
- Data scanning devices
- Digitizer
- Electronic card based devices
- Voice recognition devices
- Vision based devices

Output Devices

An output device is a device which accepts data from a computer and translates it into a form which is suitable for use by the outside world. Several output devices are available today. They can be broadly classified into the following categories:

- Monitors
- Printers
- Plotters
- Screen image projector
- Voice response systems

For example: Floppy disk, Hard Disk, CD ROM, Pen drive, etc.

Operating System

The software used to operate or run a computer is called an operating system. This software is responsible for the working of a computer. The two primary objectives of an operating system are:

- Making a computer system convenient to use.
- Managing the resources of a computer system.

Main functions of an operating system:

- Process Management
- Memory Management
- File Management
- Security
- Command Interpretation

Memory

A computer system has storage area, which is referred to as memory. The memory can receive, hold and deliver data when instructed to do so. Data that are being processed are held in primary memory, which is capable of sending and receiving the data at very high speed. Secondary memory stores data not currently being used and operates more slowly. For example, floppy diskettes, magnetic tape, magnetic drums, magnetic disk.

Types of computer Memory

(I) Primary storage

Primary storage typically consists of three kinds of storage:

- Processor registers
- Cache memory
- Main memory

The main memory consists of :

1. RAM (Random Access Memory)

- Read/write memory
- DOS and application programs are loaded into RAM
- Any data to be processed must be stored in memory rather than on the hard drive. This makes access much faster since the RAM can be accessed quicker than the hard drive. When you start a program, the program is loaded from the hard drive into memory. When a computer does not have enough memory, information must be swapped from RAM to the hard drive, thus slowing down performance extensively.
- When application software is running in memory, an icon appears on the task bar. However, system software does not appear on the task bar.
- You can purchase additional RAM chips to gain more memory for your PC. A currently acceptable amount of RAM is 512 MB.

2. ROM (Read-Only Memory)

- Contains hard coded information that is used by the operating system
- ROM-BIOS
- Video ROM
- Hard disk ROM
- ROM is a class of storage media used in computers and other electronic devices. Because it cannot (easily) be written to, its main uses lie in the distribution of firmware.
- Modern semiconductor ROMs typically take the shape of IC packages, i.e. "computer chips", not immediately distinguishable from other chips like RAMs but for the text printed on the chips.

- "ROM" in its strictest sense can only be read from, but all ROMs allow data to be written into them at least once, either during initial manufacturing or during a step called "programming".
- Some ROMs can be erased and re-programmed multiple times, although they are still referred to as "read only" because the reprogramming process involves relatively infrequent, complete erasure and reprogramming, not the frequent, bit- or word at a time updating that is possible with random access memory (RAM).

3. PROM(Programmable Read-Only Memory)
PROM is a form of digital memory where the setting of each bit is locked by a fuse or antifuse. Such PROMs are used to store programs permanently. They are frequently seen in computer games or such products as electronic dictionaries, where PROMs for different languages can be substituted.
Advantages

- Reliability
- Stores data permanently
- Moderate price
- Built using integrated circuits, rather than discrete components.
- Fast: speed is between 35ns and 60ns.

4. EPROM (Erasable Programmable Read-Only Memory)
EPROM is a type of computer memory chip that retains its data when its power supply is switched off. In other words, it is non-volatile. Once programmed, an EPROM can be erased only by exposing it to strong ultraviolet light. That UV light has usually a wavelength of 235nm (for optimum erasure time) and belongs to the UVC range of UV light. EPROMs are easily recognizable by the transparent quartz window in the top of the package, through which the silicon chip can be seen, and which permits UV light during erasing.
5. EEPROM (Electronically Erasable Programmable Read-Only Memory)
EEPROM is a non-volatile storage chip used in computers and other devices to store small amounts of volatile data. When larger amounts of more static data are to be stored other memory types like flash memory are more economical.
RAM is generally much faster to write than EEPROM (typically a few nanoseconds as opposed to a few microseconds), and most types of RAM are volatile (they lose their contents when power is removed). EEPROM retains its data after power down.
6. DRAM (Dynamic Random Access Memory)
DRAM is a type of random access memory that stores each bit of data in a separate capacitor within an integrated circuit. Since real capacitors leak charge, the information eventually fades unless the capacitor charge is refreshed periodically. Because of this refresh requirement, it is a dynamic memory as opposed to SRAM and other static memory. Its advantage over SRAM is its structural simplicity: only one transistor and a capacitor are required per bit, compared to six transistors in SRAM. This allows DRAM to reach very high density. Since DRAM loses its data when the power supply is removed, it is in the class of volatile memory devices.
7. SRAM (Static Random Access Memory)
SRAM is a type of semiconductor memory. The word "static" indicates that the memory retains its contents as long as power remains applied, unlike dynamic RAM (DRAM) that

needs to be periodically refreshed.
Each bit in an SRAM is stored on four transistors that form two cross-coupled inverters. This storage cell has two stable states which are used to denote 0 and 1. Two additional access transistors serve to control the access to a storage cell during read and write operations. It thus typically takes six MOSFETs to store one memory bit.
The size of an SRAM with m address lines and n data lines is 2m words, or bits.
8. DDRAM
Double Data Rate SDRAM (DDR) doubles transfer rates by transferring data on both the rising and falling edges of the clock. DDR uses additional power and ground lines and is packaged on a 184-pin DIMM module rather than the 168-pin DIMM used by the first SDRAM chips.
Floppy disk
A floppy disk is a data storage device that is composed of a disk of thin, flexible ("floppy") magnetic storage medium encased in a square or rectangular plastic shell. Floppy disks are read and written by a floppy disk drive or FDD.
CD-ROM
CD-ROM is a Compact Disc that contains data accessible by a computer. While the Compact Disc format was originally designed for music storage and playback, the format was later adapted to hold any form of binary data. CD-ROMs are popularly used to distribute computer software, including games and multimedia applications, though any data can be stored . Some CDs hold both computer data and audio with the latter capable of being played on a CD player, whilst data is only usable on a computer. These are called Enhanced CDs.
In comparison a single layer DVD contains 4.4 GB of data, nearly 7 times the amount of a CD-ROM.
Hard disk
A hard disk (commonly known as a hard disk drive or hard drive and formerly known as a fixed disk) is a digitally encoded non-volatile storage device which stores data on rapidly rotating platters with magnetic surfaces. Strictly speaking, "drive" refers to an entire unit containing multiple platters, a read/write head assembly, driver electronics, and motor while "hard disk" refers to the storage medium itself.
Setting Up a Hard Disk From Scratch

- Low level formatting
  - Hard disk supplied with low level formatting
  - DOS FORMAT command will not low level format a hard disk
- Partitioning
  - With FDISK
- High level formatting
  - Using DOS FORMAT command

Disk Partitions

- Options include setting up
  - A single primary partition
  - A single extended partition

  - Multiple logical drives
- Manipulated via the DOS command FDISK
  - A logical drive is anything addressed by a drive letter
  - If you have a single large primary partition, it is referred to as drive C:
  - If you have an extended partition, use FDISK to split this into one or more logical drives
  - Referred to as drive D: E: F: etc.

High Level (Logical) Formatting

- Also called logical formatting
- All logical drives within hard disk partitions must first be formatted
- Use the DOS FORMAT command
- Only drive C: needs to be a system (bootable) disk.

Copying and Labeling Diskettes

- DISKCOPY
  - Uses identical source and target diskettes

Speeding Up Disk Access With DEFRAG

- Removes file fragmentation
- Speeds up disk access
- Run DEFRAG if the disk appears slow

Disk Structures

- Sides
- Sectors
- Tracks
- Clusters

Pen drive

USB flash drives are NAND-type flash memory data storage devices integrated with a USB interface. They are typically small, lightweight, removable and rewritable.A flash drive consists of a small printed circuit board encased in a plastic or metal casing, making the drive sturdy enough to be carried about in a pocket, as a key fob, or on a lanyard. Only the USB connector protrudes from this protection, and is usually covered by a removable cap. Most flash drives use a standard type-A USB connection allowing them to be connected directly to a port on a personal computer.

Size and style of packaging

Overweight or ill-fitting flash drive packaging can cause disconnection from the host computer. This can be overcome by using a short USB to USB (male to female) extension cable to relieve tension on the port. Such cables are USB-compatible, but do not conform to the USB standard.

Exercise

1. What is input device?

2. What is output device?

3. Is keyboard input or output device?

4. What different types of memory you know?

5. What is RAM?

Chapter 2

Lab 2: DOS environment and its commands

Objectives

Familiarization with DOS environment and its important commands

Description

Files

- A file is a collection of information contained in a single unit, stored on disk
- The DIR command displays a list of files contained in the current directory (the current directory is the directory you are in at the time)
- Files on disk can also contain letters, memos, data, program etc.

DOS: Disk Operating System

DOS commands
There are two types of DOS commands:
1. Internal command
2. External command
Internal commands are part of DOS' COMMAND.COM file. If you delete COMMAND.COM, you can no longer command DOS to do anything at the command line.
For example: Dir, Copy, Ren, Date, Type and Cls etc.
External commands are lie on the hard disk as separate executable files.
Each external command, such as Format, Xcopy and Backup, resides in its own file in the DOS directory. If any of those files are deleted accidentally or purposefully, you can still execute all of DOS' internal commands and any external commands that are still left on disk.
For example: Format, Xcopy and Backup etc.
More about DOS

- Commands follow a prompt; three parts to a command: action, source, and destination.
- Compiled programs have either a .COM or .EXE extension.

- Batch programs, with .BAT extensions, are not complied and are entered as plain-English lists of commands.

DOS Versions

- Range from PC-DOS 1 to DOS 6.x.
- The VER command (internal) is used to discover which version of DOS is running on a PC. At the command prompt, type 'VER' and press Enter. The screen will return the version number and whether the computer is using PC-DOS or MSDOS.

Internal vs External DOS Files

- External DOS files are held on the disk, and loaded into your computers memory (RAM) only as and when required
- Internal commands are pre-loaded in your computers memory (RAM) when you switch on a DOS-based computer

Directory Tree

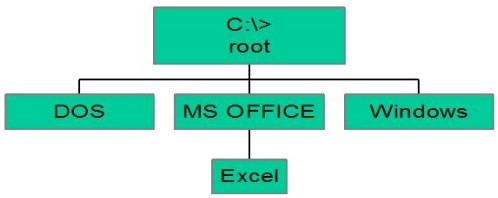

Figure 2.1: Directory Tree

PATH

- Path=[directory] [;] [directory] is the syntax for the path command
- Semicolons separate each directory you choose to list in the path.
- The user chooses to enter a path into the environment.
- 256 characters is the maximum number of characters allowed in a path

Search Path

- Typing "PATH" and pressing Enter will show you the current search path.
- DOS looks for a .com file, then an .exe file and finally a .bat file.
- PATH is a list of directories that DOS can search to find a program name entered on the command line. The advantage of a PATH is that the command can be entered without being logged into the specific dir.

DOS internal commands

1) DATE and TIME: DOS keeps track of the date and time of the day.

```
    Format: A:\DATE   (MM-DD-YY)
A:\TIME                  (Hrs: Mnt: Sec: 100th of a second)
2) DIR: DIR is a directory listing command.
it is designed to tell us the list of files On a disk.
Format:   A:\DIR with drive specification, file specification
Example: A:\DIR b:
This will tell the computer to list all the files from the disk in the drive B.
The list will include the file name, the file name extension,
the size of the file
Example: A:\DIR

Directory of A:\
DEMO             BAT                 1646         03-01-88         10:00P
README           DOC                 512          01-01-89         10:30A

3) CLS: CLS commands clear the screen.
Format: A:\CLS
4) VOL: This reports to you the volume label on a disk
i.e. each disk is given a label which is called volume.
Format: A:\VOL
5) VER: this reports to us the version number of MS-DOS(1.0,2.1,3.0etc)
Format: A:\VER
DOS TOP 10 COMMANDS
Below is a listing of the top 10 MS-DOS commands most commonly used and
that you will most likely use during a normal DOS session.
1. cd
2. dir
3. copy
4. del
5. edit
6. move
7. ren (rename)
8. deltree
9. cls
10. format
```

Exercise

- Is there any difference between internal and external command?

- Just tell five internal commands?

Chapter 3

Lab 3: Operations in MS-Windows

Objectives

Operations in MS-Windows.

Description

Typical Windows Desktop Icons

- `My Documents--A storage area for your documents. Documents that you create can be stored anywhere, but most programs default to saving in My Documents. Folder is located under C:\Documents and Settings \YOUR USER NAME \My Documents`

- My Computer–Allows you to view the computer's contents.
- My Network Places–Allows you to work with other computers on the same network as you.
- Recycle Bin–Purgatory for deleted files. When you delete a file it goes to the recycle bin. Files can be restored from the recycle bin, but once the recycle bin is emptied, the files are gone for good.
- Explorer–Web browser used extensively by Windows. You can download and install another browser such as Fire fox. A special folder that contains all files previously deleted from the system's hard drive. Files may be recovered from the recycle bin. File may be removed from the recycle bin by emptying the recycle bin.

Anatomy of a Window

- Menu bar
- Title bar
- Toolbar
- Min/Max button
- Status Bar
- Restore button

- Close button
- Tiles view
- Task panel

Moving and Sizing a Window

- To Move a Window
  - Click and drag the title bar
- To Size a Window
  - Click and drag a corner to change the length and width in proportion with one another
  - Click and drag a border to change just the length or the width 8

Pull-down Menus

- Ellipsis
- Check (toggle)
- Bullet
- Arrowhead
- Submenu

Toolbars

- Contain icons that execute tasks when clicked.
- In Microsoft Office, you have to click the double down arrows to show each toolbar on its own row.
- You can also right click on a toolbar to hide it or to show additional toolbars.

Menu Bars

- Hierarchical lists of commands. If you click a menu bar in Office, you won't see the full list of commands unless you wait a few seconds or click the double down arrows at the bottom of the menu bar.
- Options that aren't currently available are grayed out.

Title Bars

On the far right of the title bar there are three buttons found in most Windows applications:

Minimize

Eliminate the window, but leave the program open. The program icon will still appear on the task bar.

Restore down or maximize

If the window is as large as possible, meaning it is maximized, the restore down button will be visible. Clicking the restore down button will return the window to the size it was before it was maximized. The size it returns to might have been set in a previous Windows session. If the Window is not maximized, the maximize button will appear instead.

Close

- End application and remove from memory.
- You may be prompted to save files before closing.

Required Mouse Skills

- Pointing
- Clicking
- Right Clicking
- Double Clicking
- Dragging
- Right Dragging

Right Clicking

- The menu that you see when you right click will depend upon which program you are using and where the mouse pointer is currently located.
- Right clicking displays a context sensitive shortcut menu.
- Some of the options may be dimmed. This indicates that they are not currently available.

Dragging

- Dragging involves holding the left mouse button down while resting over an object and moving the mouse.
- Dragging is finished when the mouse button is released.

Right Dragging

- Right dragging means you point to an item, hold down the right mouse button, drag and release.
- When you let go, a shortcut menu appears containing context specific options.
- If you drag with the left mouse button, releasing will execute the default drag option.

Scrolling

- Clicking the scroll arrows–Best for line by line scrolling
- Clicking the scroll bar–Best for scrolling one screen at a time
- Clicking between the bar and the arrows.–Best for long distance scrolling.

Start menu

This menu contains all of your basic programs that you use on a regular basis. Like my computer, control panel, and even a few games that you may have on your computer.

Systems under the Start Menu

Under the Start Menu you have several options to use, these are your internet browser, email, top used programs, all programs, my documents, pictures, music, my computer, network places, and other systems in your computer.

All programs
All Programs has all of your program files. When you click the list of programs that you can use on your computer appears. As shown to the left.
Task Bar
This is the Task bar, the task bar allows you to multi task or use more than 1 program at a time. Using this will also slow your computer down if you have too much going on at one time though. Once you have more programs than the task bar can hold, the task bar will place the programs that are similar into one group.
Log Off and Shut down
Log off logs who ever that is on the computer out and the shut down turns the computer completely off if it is already programmed to do that by its self. That does not mean that you can just hit the power switch to turn the computer off. It means that if you hit this shut down icon, the computer will begin its shut down sequence.
Run
Run is used for multiple tasks. Some programs that auto-run wont work for this Run will, hopefully. This will help also if your searching for a program that wont run through start.
My Computer
Below, there is a brief figure of what My computer normally looks like. As you can see this computer has 3 Local Disk Drives. Each computer has at least one Local Disk drive.
Control Panel
Control Panel controls the basics of your computer. You can change display, mouse settings, as well as game controller settings. In control panel you can also manage sounds that you want the computer to make as alerts. And this is where programs are safely added and removed. **Add Or Remove Programs**
When you click on the add and remove program icon in control panel, you can go in and remove any program that you do not want in your system.
Display Properties
A theme is a background plus a set of sounds, icons that will help you personalize your computer. And you can do this from here with one click. And you can also save your selection here too.
Desktop
Desktop under display properties allows you to change the desktop settings. The wallpaper that you should choose. You can use a photograph here that has been stored in your computer, or use the default setting.
Screen Saver
The Screen saver allows you to setup a screen saver to come on after several minutes of inactivity. Power saver is also found here. It can be programmed to shut the monitor off after a certain length of inactivity.
Appearance
Under the appearance tab you can choose the style of windows and buttons that you prefer to use. This is where you would choose the color scheme or leave it as the default setting as shown here. Font sizes can be changed here too, and as you see these fonts on this computer are set on Normal.
Settings
There are programs which can be run that require certain resolutions. The screen resolutions can be changed here by moving the slide to less or more. Color quality can be changed from Highest (32 bit) to Medium (16 bit) for an example. If you have a problem with using the settings here, you might want to use the troubleshoot button. Which will open a box with answers to some of your questions, to lead to a self help kind of solution.
Windows Explorer

- Windows Explorer is an application program included with Windows 2000 that allows you to view the contents of the computer, the hierarchy of folders on the computer, and the files and folders in each folder.
- Single clicking a drive/folder in the folders pane will display the folder list in the contents pane. Double clicking a drive/folder will display the drive/folder contents in the folders pane as well.
- Notice that the title bar changes to indicate the currently selected drive/folder currently selected.
- Hidden files, which are used by software applications, may not be visible.
- You can copy files from hard drive to any external drive and vice versa.

Windows Explorer Tips

- Holding down the control key will allow you to select multiple files
- Holding down the shift key will allow you to select contiguous files
- Hitting control–>A will select all of the files in the contents pane
- A file's type is indicated by the icon representing it.
- You can easily delete a file by right clicking a file name and choosing delete from the shortcut menu.

File Management

- Filename = Unique name given to a file.
- Extension= Identifies program used to open a file.

File Compression

- Allows you to a shrink a file to a smaller file. The smaller file is compressed.
- File compression applications include Winzip and Pkzip.

Moving Files

- Select file(s)
- Click and drag to a different folder on the same drive.
- Edit, Cut and Edit, Paste from the Menu Bar.
- Cut and Paste buttons from the Toolbar.
- Shortcut Menu (right click), Cut and Paste.

Copying Files

- Select file(s)
- Click and drag from one drive to another
- Ctrl + drag to a different folder on the same drive

- Edit, Copy and Edit, Paste from the Menu Bar
- Copy and Paste buttons from the Toolbar
- Shortcut Menu (right click), Copy and Paste

Deleting a File

- Select the file(s) and Press the Del key
- From the menu = select File then Delete
- Shortcut Menu (right click)

Renaming a File

- Select file(s)
- From the menu select File then Rename
- Shortcut Menu (right click)
- Type the new file name
- Warning! Do not change or delete the 3- character extension

Files and Folders

File = A set of instructions or data that has been given a name and stored on a disk.
1) Program file = an executable file, such as Word, Excel, game, etc.
2)Data file = a file that contains information that is processed by a program file, such as an essay that has been saved to a disk.
1) Files must have names Up to 255 Characters and an extension of 3 characters.
2) May include spaces and punctuation.

File type

- Determined by application used to create it.
- 3-character extension appended to file name, such as .doc, .xls, .ppt
- icon shown next to file name.

Folder

- Used to organize files on disk like a file cabinet
- Can contain program files, data files or other folders (called subordinate folders).

To create a folder

- Select drive where folder will go and Use Menu Bar and go to File, New Folder
- Key in name of folder and Press [enter] key
- Can also use shortcut menu (right-click)

To create a subordinate folder

- Select folder where subfolder will go and Use Menu Bar and go to File, New Folder
- Key in name of folder and Press [enter] key
- Can also use shortcut menu (right-click)

Exercise

1. Is there any difference between files and folder?

2. What is the use of folder?

3. What is the demerit of working on windows?

4. Just tell five best features you liked in your operating system?

5. How many icons are present on the desktop of your OS?

Chapter 4

Lab 4: Introduction to MS-WORD

Objectives

Introduction to MS-WORD

Description

Introduction

Before windows launched MS-WORD as a part of MS-OFFICE.

Starting 'MS-WORD'

The following methods of starting and closing Word are applicable in Word 7 to onwards
Click on the 'Start' button and select 'Programs'. Click on 'MS WORD' option in 'Programs'.

Closing 'MS-WORD'

Click on the button with a cross sign.

Creating a Document

A file created in 'Word' is known as Document. in order to use the capital characters while writing, press the Caps Lock key. If you want to write only the first character Capital , press the Shift key and the letter key simultaneously.

Editing Text

If you have made any mistakes in typing the text it becomes necessary to correct it. Sometimes you may also want to change the text (insert or delete a word). Any correction or change in text is called editing the text.
You can edit a text in three ways:

- Using the delete key.
- Using the backspace key.
- Highlighting a word and using the delete key.

Saving a Document

1) Click on File in the menu bar.
2) Select the save option from menu to open the save dialog box. Then you can save a file in the 'my documents'.
3) Type 'my first file' in the 'file name' box.
4) Click on the save button and the file is saved and the dialog box will close.

Save Vs. Save As

- The first time you save a file there is no difference between the two.
- Once you've saved a file:
  - Choosing save automatically saves the current file to the hard drive.
  - Choosing save as allows you to save the file using a different name and/or change the file's location.
- Two files can't have the same name and file type if they're located in the same folder. They can, however share the same name if they are in subfolders of one another.

Font and font size
The characters used in the text are called fonts. Times new roman, Arial etc. are some of the fonts.
To change the font and the font size:
1) Highlight the text with the help of the mouse.
2) Click on the small arrow against the font name.
3) Select a new font from the list of font names and click on it.
4) The font of the highlighted text will be changed.
Font style
The manner or style in which text is displayed is called font style.
There are three font styles in word: BOLD, ITALICS and UNDERLINE.
There are three buttons in the menu with B, I and U on them.
Cut Copy and Paste
To cut and paste text:
1) Highlight the text
2) Click on the cut icon on the menu bar.
3) The highlighted text will be cut and placed in the clipboard.
4) Move the mouse cursor to that part of the document where you want to place the cut text.
5) Click on the paste icon on the menu bar.
6) The cut text will appear at that place.
Cut, copy and paste can also be done from the 'Edit' menu.
Paragraph format
In the 'Word' you can begin a new paragraph by pressing Enter key. If you press the Enter key after typing a line, paragraph will be of that one line only.
Paragraph format is used to determine:
1) Font and font size
2) Tab
3) Borders
4) Alignment
5) Bullets
6) Background
Word Menu
The menu bars of the word are:
1) File: When you click on file ,you will see a drop-down menu
Click on New to create a new document. Open is used to open an existing document.
Click on Close to close a document.
Click on Save to save a document.
Save As is used to save a document with other name. Send to helps to e-mail a document.
Properties contain the details of a document.
2) **Edit**: This menu contains cut, copy, and paste. it also contains undo, typing and repeat

typing, find/replace commands.
3) **View**: When you click on View you will see a drop down menu and gives
Normal, print layout, zoom, toolbars, customize, standard and formatting.
4) **Insert**: This menu contains hyperlink, File and Object, picture, text box.
5) **Format**: This menu contains font, paragraph, bullets and numbering, borders shading.
6) **Tools**: Spelling and Grammar is the most important options of this menu.
7) **Table**: this menu is used to insert a table in a document.
8) **Window**: In word every file has its own window. You can open more than one window at a time.
9) **Help**: This menu is useful to a new user of 'word'. All the information
About 'word' is available under this option and a user can get answers to almost all his questions.

Exercise

1. Is there any difference between MS-WORD and WordPad?

2. What is the use of status bar?

3. What is the demerit of MS-WORD?

4. Just tell five best features you liked in MS-WORD?

5. What the difference is between save and save as?

Chapter 5

Lab 5: Detail function in MS-WORD.

Objectives

Detail function in MS-WORD.

Description

Template

When you start 'word' you open a file with the name 'Document 1' on the Title bar. The first blank page of this file opens with pre-set margin, font, font size.
These properties always remain the same because the default templates are predetermined by 'word'.
The entire document prepared using this template will have identical properties.
Style
'Word' provides a variety of easy options to format a document.
Style of a paragraph means to select the various properties which will determine the way a paragraph will appear. It includes:
1) Selecting the font and size of a character.
2) Selecting the margin, tab, line spacing.
Click on the format menu and select style.
Header and Footer
Header represents the top most part of a page and Footer the bottom part of a page.
Header and Footer contain page number, date, name and logo of the company, File name. To insert Header or Footer in a document click on the View menu and select Header and footer.
Besides Insert Auto Text, we can see the icons to:
1) Insert Page Number
2) Insert Number of pages
3) Format Page Number
4) Insert Date
5) Insert Time
6) Page Setup
7) Show/Hide Document Text
8) Same as previous
9) Switch between header and Footer

10) Show Previous
11) Show Next
12) Close header and Footer

Table

In the 'Table' menu select Insert and click on the Table icon. You will be given the option to fill in the number of rows and columns of the table.
If you want to add two rows:
1. Click on the insert menu and select Rows.
2. You have two options: Rows Above and Rows Below.
3. If you click on Rows Below, a row will be added below the row in which you have moved the cursor.

Graphics

The use of graphics in a document:
Click on the insert menu and select picture. We can see the following options:
1) Clip Art
2) From File
3) Auto shapes
4) WordArt
5) From Scanner
6) From Camera
7) Chart
1) Clip Art:
When you click on Clip Art you will see the different category and click on it to see it on the screen.
For Examples:

- Click on places you will see the Clip Art symbolizing various places.
- Click on the Taj Mahal.
- You will see an icon of Insert Picture. Click on it.
- The picture of the Taj Mahal will be inserted in the document.

2) From File:
Pictured stored in form of files can also be inserted in the document. Click on Insert, select pictures .Click on From File to open a Dialog box. Select a file from the place where it is stored in the computer to insert the picture in the document. You can change the size of picture, remove a picture or even place it. In the centre of the text by the following the same procedure as in the clipart.
Printing:
A document typed in word has to be finally printed it is necessary to know whether the printer is Dot matrix ,color ink jet or laser printer. When a document is ready for printing ,click on print preview icon on the menu bar to see how the document will appear on the paper. This view can be enlarged or reduced.

Exercise

1. How clipart are used in word?

2. Is there any difference between clipart and word art?

3. What is the use of table can you make table?

4. What is the demerit of MS-WORD?

5. Just tell five best features you liked in MS-WORD?

6. What is the difference between header and footer?

Chapter 6

Lab 6: Introduction to MS-EXCEL

Objectives

Introduction to MS-EXCEL

Description

Microsoft Office Excel 2013 is a powerful tool you can use to create and format spreadsheets, and analyze and share information to make more informed decisions. With the new results-oriented interface, rich data visualization, and PivotTable views, professional-looking charts are easier to create and use. Office Excel 2007, combined with Excel Services, a new technology that will ship with Microsoft Office SharePoint Server 2007, provides significant improvements for sharing data with greater security. You can share sensitive business information more broadly with enhanced security with your coworkers, customers, and business partners. By sharing a spreadsheet using Office Excel 2007 and Excel Services, you can navigate, sort, filter, input parameters, and interact with PivotTable views directly on the Web browser.

Create better spreadsheets
Office Excel takes advantage of a new, results-oriented user interface to make powerful productivity tools easily accessible. It also offers more room for you to work in and delivers faster performance.

Take advantage of the new results-oriented user interface Find the tools you want when you need them using the new results-oriented interface in Office Excel. Based on the job you need to accomplish, whether it is creating a table or writing a formula, Office Excel presents the appropriate commands to you within the new user interface.

Enjoy increased spreadsheet row and column capacityof 1 million rows by 16,000 columns that enable you to import and work with massive amounts of data and achieve faster calculation performance with support for dual or multicore processors.

Quickly format cells and tables. Use Cell Styles and Table Styles galleries to quickly format your spreadsheet the way you want. Tables include AutoFilters while column headers stay in view when you scroll through the data. AutoFilters populate and expand any table auto-

matically.

Formulas authoring experience includes a resizable formula bar and context-based Formula AutoComplete – so that you can write the proper formula syntax the first time, every time. You can also refer to named ranges and tables within formulas and functions.

Create professional-looking charts with dramatic visual effects in just a few clicks. Use predefined Chart Layouts and Chart Styles, or manually format each component, such as axes, titles, and other chart labels. You can use stunning effects such as 3-D, soft shadowing, and anti-aliasing to help identify key data trends and create more compelling graphical summaries. Create and interact with charts the same way, regardless of the application you are using, because the Excel charting engine is consistent in Microsoft Office Word 2007 and Microsoft Office PowerPoint 2007.

Use Page Layout View to see exactly how your spreadsheet will print and add or edit headers and footers. Adjust page margins with direct visual feedback where the page will truncate and avoid multiple printing attempts.

Office Excel 2007 includes quick table formatting and a completely redesigned charting engine that will help you better communicate your analysis in stunning charts. View a larger image.

A spreadsheet is the computer equivalent of a paper ledger sheet. It consists of a grid made from columns and rows. It is an environment that can make number manipulation easy and somewhat painless.

The math that goes on behind the scenes on the paper ledger can be overwhelming. If you change the loan amount, you will have to start the math all over again (from scratch). But lets take a closer look at the computer version looking at our previous example it seems pretty evenly matched. Right? WRONG! The nice thing about using a computer and spreadsheet is that you can Experiment No. with numbers without having to RE-DO all the calculations. Lets change the interest rate and then the number of months. Let the COMPUTER do the calculations! Once we have the formulas set up, we can change the variables that are called from the formula and watch the changes.
Change the Interest Rate, Change the Number of Months

So let's get started digging into what makes a spreadsheet work.
Spreadsheets are made up of

- columns
- rows
- and their intersections are called cells

In each cell there may be the following types of data

- text (labels)
- number data (constants)
- formulas (mathematical equations that do all the work)

Take a look at the explanations of each of these.
Remember there will be a short quiz later on so if there is something you need to take notes on,
TAKE NOTES ON IT!
In a spreadsheet the COLUMN is defined as the vertical space that is going up and down the window. Letters are used to designate each COLUMN'S location.

In the above diagram the COLUMN labeled C is highlighted.
In a spreadsheet the ROW is defined as the horizontal space that is going across the window. Numbers are used to designate each ROW'S location.

In the above diagram the ROW labeled 4 is highlighted.
In a spreadsheet the CELL is defined as the space where a specified row and column intersect. Each CELL is assigned a name according to its COLUMN letter and ROW number.

In the above diagram the CELL labeled B6 is highlighted. When referencing a cell, you should put the column first and the row second.

Exercise

1. What is MS-EXCEL?

2. How MS-EXCEL is useful?

3. Is there any difference between MS-EXCEL and MS-WORD?

4. What is the use of spreadsheet?

5. What is the demerit of MS-EXCEL?

6. How MS-EXCEL is useful in deriving formula?

7. What is cell?

Chapter 7

Lab 7: Introduction to PowerPoint.

Objective

Introduction to PowerPoint.

Description

Microsoft Office PowerPoint 2013 enables users to quickly create high-impact, dynamic presentations, while integrating workflow and ways to easily share information. From the redesigned user interface to the new graphics and formatting capabilities, Office PowerPoint 2007 puts the control in your hands to create great-looking presentations.
Use Office PowerPoint to quickly create high-impact, dynamic presentations.
Create dynamic presentations
Quickly create dynamic and great-looking presentations using the new results-oriented user interface and new graphics capabilities.

Get better results faster with a redesigned user interface. Office PowerPoint has a redesigned user interface with a new look and feel to make creating, presenting, and sharing presentations an easier and more intuitive experience. You now have all of the rich features and capabilities of PowerPoint in a streamlined, uncluttered workspace that minimizes distraction and helps you achieve the results you want more quickly and easily.

Create powerful, dynamic SmartArt diagrams. Easily create relationship, workflow, or hierarchy diagrams from within Office PowerPoint 2007. You can even convert a bulleted list into a SmartArt diagram or modify and update existing diagrams. ItâĂŹs also easy for users to take advantage of rich formatting options with the contextual diagramming menus in the new user interface.

Help ensure that your content is up to date. With PowerPoint Slide Libraries, you can easily repurpose slides from existing presentations stored on a site supported by Microsoft Office SharePoint Server. Not only does this cut down the time you spend creating presentations, but any slides you insert from the site can be synchronized with the server version, to help ensure your content is up to date.

Create presentations quickly and easily by re-using custom layouts. In Office PowerPoint

2007, you can define and save your own custom slide layouts, so you no longer have to waste valuable time cutting and pasting your layouts onto new slides or deleting content on a slide with the layout you want. With PowerPoint Slide Libraries, it is easy to share these custom slides with others so that your presentations have a consistent and professional look and feel.

Apply a consistent look and feel in one click. Document Themes help you change the look and feel of your entire presentation with just one click. Changing the theme of your presentation not only changes the background color but the colors of diagrams, tables, charts, and fonts, and even the style of any bullet points within a presentation. By applying a theme, you can be confident that your entire presentation has a professional and consistent look and feel.

Dramatically modify shapes, text, and graphics with new tools and effects. You can now manipulate and work with your text, tables, charts, and other presentation elements in much richer ways than ever before. Office PowerPoint 2007 makes these tools readily available through the streamlined user interface and contextual menus, so that in just a few clicks, your work can have greater impact.

Create powerful diagrams using the new, rich formatting tools in Office PowerPoint 2007.
Presentation
Data is fed, processed and analyzed in a computer. The final result may have to be presented in an attractive form by the user. PowerPoint is a component of Microsoft Office that is used to create attractive professional presentation. They can be reproduced on paper, e-mail, web page, transparencies, slides, etc. Thus a presentation can be said to be a slide show that is prepared by a computer using audio, video, text and graphics.

Starting PowerPoint

There are four ways to start the powerpoint, listed below

- Click on the Start menu and select Microsoft PowerPoint from Programs.
- Click on the Office Shortcut menu and select Microsoft PowerPoint to open a blank presentation.
- Double click on the PowerPoint file to open a file in 'PowerPoint'.
- Click on Start and select New Office Document. Select General - Blank Presentation – AutoContent Wizard

Stopping PowerPoint

There are four ways to stop a power point listed below.

- Click on Exit from the File menu.
- Click on the cross button in the 'PowerPoint' window
- Press Alt + F4.
- Click on Close from the Control menu.

Exercise

1. How MS-POWERPOINT is useful?

2. Is there any difference between MS-POWERPOINT and MS-WORD?

3. What is the use of presentation?

Chapter 8

Lab 8:Detailed functions in PowerPoint

Objectives

Detailed functions in PowerPoint.

Description

Effectively share presentations

Dramatically improve the way users share and repurpose information.

- **Communicate with users across platforms and devices.** Help ensure broad communication with your PowerPoint presentations by converting your files to XML Paper Specification (XPS) and PDF for sharing with users on any software platform.
- **Reduce your document sizes and improve file recovery** at the same time. The new, compressed Microsoft Office PowerPoint XML Format offers a dramatic reduction in file size, while also offering an improvement in data recovery for damaged files. This new format provides a tremendous savings to storage and bandwidth requirements, and reduces the burden on IT personnel.
- **Integrate presentations stored in Microsoft Windows** SharePoint Services with Microsoft Office Outlook. Any changes you make to the presentation saved in Outlook will be reflected on the server version when you reconnect to your network.
- **Easily repurpose and share content.** Wish there were a better way to reuse content from one presentation to another? With PowerPoint Slide Libraries, you can store presentations as individual slides on a site supported by Office SharePoint Server and easily repurpose the content later from within PowerPoint. Not only does this cut down the time you spend creating presentations, but any slides you insert can remain synchronized with the server version to help ensure your content is always up to date.
- **Use Microsoft Office Groove** for real-time review sessions. Using Groove, you can initiate a live review of a PowerPoint presentation within a Groove workspace. You can view and work on a presentation collaboratively and in real time with your teammates while taking advantage of presence information and instant messaging capabilities built right into your workspace.

Manage presentations efficiently

Apply the right protections to your presentations and easily initiate a review workflow.

- **Initiate a review or approval workflow** right from within Office PowerPoint. With Office PowerPoint and Office SharePoint Server 2007, you can send a presentation to your team for review or create a formal approval process and collect signatures on that presentation, making collaboration a smooth and easy process.
- **Help protect the private information** in your documents. Detect and remove unwanted comments, hidden text, or personally identifiable information using the Document Inspector, to prepare your presentation to be shared with others.

1. Entering and Editing Text: when you start 'PowerPoint' you will be given the Following options:

- AutoContent Wizard
- Design Template
- Blank presentation
- Open an existing presentation

AutoContent Wizard provides you with a ready presentation on some specific topics. To open The 'AutoContent Wizard' dialog box, click on the Auto content Radio button and then click OK.
Blank Presentation: Click on the 'Blank presentation' radio button and then click **OK** to open the **NEW SLIDE** menu. Select a slide for your presentation, we have selected the 'title slide' then you may select any one of the following slides.
1. Bulleted list
2.Two columned bulleted list
3.Table
4.Chart with right or left bulleted list
5.Organization chart
6.Chart
7.Clip art with right or left bulleted list.
8.Title
9.Blank slide

- First select the (Title slide) and clip OK .on the screen u can see a blank slide with two boxes to write text.
- First box is for title and the second one is for the subtitle, move the curser in the first box and click. The cursor will look like an 'I'.
- Type computer training program in the first box.
- Move the cursor to the subtitle box .Type 'Microsoft windows 10'.
- The text written in the slide will appear in the left hand side of the screen as note .To insert a new slide click on new slide on the insert menu.

2. Style and Design: PowerPoint provides you with Design Template which can be applied to any presentation to make it attractive. You can also apply the 'Design Template' before creating a new presentation.
To apply a 'Design Template' click on the Format menu and select the sub-menu **Apply Design Template**. A 'Design Template' can not only be applied to but also changed in a presentation.
A design template cannot only be applied to but also change in a presentation. let us now study the slide sorter ,slide show and master from the view menu.
Master has the following options:

- Slide, Title, hand out and note.
- Any modification made in master is applied to the entire presentation.
- Slide sorter presents the slide in the form of small images in the screen. The position of the slides can be changed and they can also be cut , copied, pasted or deleted. You cannot edit a slide in slide sorter.
- To edit the slide double click on the slide.

3. Slide Show: It is the last view of a presentation. It will show you only one presentation slide on the screen. You can see the previous or next slide with the help of 'Page Up' and 'Page Down' keys.
4. WordArt: It makes the text of a slide attractive. You can see the 'WordArt' icon at the bottom of the screen. A title, sub-title or any part of the text can be written on the screen in a variety of styles. Click on the icon to invoke the WordArt Gallery dialog box.
5. Graphics: Graphics are very important in presentation. A picture speaks more than a thousand words. However, excessive use of graphics may also take the reader's mind away from the actual content. Different graphic:

- ClipArt: A picture created in a computer with the help of line art and colour is called ClipArt.
- Image: A photograph file is stored in BMP, JPG, GIF or PIX format in a computer. It can also be used in presentation. A photograph of a place, an event or a product may have to be often used in a presentation.
- Chart: In 'Excel', you have already learnt about the different types of charts and how they are created.
- Table: The methods to insert a Chart in a slide are also applicable for inserting a 'Table' in a slide.
- Animation: Animation is a very important part of presentation. T his toll allows the user to determine how the slides will appear one after the other on the screen during the presentation.

6. Slide Transition: You can give a transition effect to the slide show, that is, a visual effect when one slide changes to another. For this go to Slide Show menu and click on Slide Transition.
7. Printing: 'PowerPoint' the user to print a presentation in different ways.
Sometimes the user may want to print the slide or the text of the presentation or only the hand-out.

Exercise

1. What is the the procedure to insert images in MS POWERPOINT?

2. Why you use tables and chart in slide?

Chapter 9

Lab 9: Basic internet fundamentals

Objectives

Basic internet fundamentals

Description

Internet fundamentals

This is a brief article on **Internet fundamentals** written especially for the beginner. You are encouraged to read the other detailed articles on Internet fundamentals such as email and the World Wide Web which would provide a stepping stone for learning web development.
The Internet started as a small government project in the United States of America back in 1970s. The Advanced Research Projects Agency (ARPA) linked their computers to ease the transfer of data. This network came to be known as ARPANET and is the birthplace of the Internet.
The Internet is now a huge global network of computers. It is not just one network but consists of thousands of other networks worldwide. No one knows how many computers are connected to the Internet because each day several new machines are added and some old ones taken off. The Internet, you see, is always in a state of flux.
Internet:
The internet is a worldwide network of computers, which hold large amounts of data that you can easily access from a PC. Besides, you can communicate with others worldwide with the help of email. You can also communicate 'live' in On-line chatting. You need not to be a computer expert to use the Internet. To understand how the Internet works first you have to understand **Networking.**
Networking means connecting two or more computers with one another, which can share both hardware and software. Networks can be broadly classified into two categories:

- LAN (Local area network): The Network system where all the connected computers are close to one another.
- WAN (Wide area network): The Network system where all the connected computers are spread across many cities or even countries is called WAN.

Getting connected:
Generally, to connect to the Internet, you need a computer and a modem. A modems convert's data so that it can be sent through the telephone line. In windows, you are provided

with **Dial-UP Network** to get connected to the internet through the telephone line. You also need an account with a service provider, who will connect you with the Internet. Some of the prominent Internet Service Provider in India are VSNL, MTNL, MANTRA, SATYAM, WILNET, ICENET, JINDAL, GROWTH, etc.

Internet explorer:

It is one of the most popular versions of web-browsing programs. It comes as a standard part of Windows.

Starting internet explorer:

- On the Windows desktop, click on the Internet Explorer icon.
- On the Start menu, point to programs and click Internet Explorer.

When you get connected to the Internet, you will see a web page, which is the Home Page for the browser.

Menu bar: you can see the following main menus File Edit, View, Favorites, Tools and Help.

Email - Internet Fundamentals

The rapid development of the Internet can be attributed to the immense popularity of email. Email has been the most used Internet application because it has revolutionized the way we communicate. Email messages can be received almost instantly and can include images, video and sound in addition to text. Furthermore, interactive emails can be created using HTML.

The World Wide Web - Fundamentals

The World Wide Web, also called **WWW** or simply **the web**, is a subset of the Internet. It brings text, images, animation, video, sound and other multimedia content, all under one roof. The Web is changing continuously by absorbing new technologies and updating the old ones. The pages on the Web, appropriately called web pages, can contain multimedia objects such as images, sound, and video in addition to text. Highly interactive web pages can be developed using HTML and a client-side language such as JavaScript or VBScript. This greatly enhances the web experience for the web surfer. Web pages are viewed using browsers such as Internet Explorer (from Microsoft), Firefox (from Mozilla), Opera (from Opera Software) and Netscape Communicator (from Netscape). A list of web browsers can be found in the **Web page Design** section of this web site.

With video conferencing and wireless applications, the Internet is ready to take us to the new realm of communication and information exchange.

HTML - HyperText Markup Language

HTML (HyperText Markup Language) is the lingua franca of the Internet. It is the language used to develop web pages. **Hypertext** means that some text in the HTML document carries a link to a different location, which can be on the same page or another page. On clicking this 'hot spot', the viewer is transferred to that location. **Markup** means that specific portions of a document are marked up to indicate how they should be displayed in the browser.

According to purists, HTML is not a language per SE, and they are right in one way. HTML simply consists of tags that are placed around elements, which then changes the properties of these enclosed elements. There are hundreds of HTML tags and some of these are proprietary, which means that only some browsers recognize them.

URLs - What is an URL?

URL stands for Uniform Resource Locator, which means it is a uniform (same throughout the world) way to locate a resource (file or document) on the Internet. The URL specifies the address of a file and every file on the Internet has a unique address. Web software, such as your browser, use the URL to retrieve a file from the computer on which it resides.

Exercise

1. What is www?

2. Just tell what is networking?

3. What is the relation between websites and web pages?

Chapter 10

Lab 10: IDE Introduction for C language

Objectives

Study the features of Integrated Development Environment (IDE) for C language.

Description

IDE basics

C language features an integrated development environment (IDE) as a programmer platform. The IDE screen, which initially displays only a menu bar at the top of the screed and status line below, will appear. The menu bar displays the menu names, File, Edit, Search, Run and so no. The status line tells you what various function keys will do.

INTEGRATED DEVELOPMENT ENVIRONMENT

Invoking the IDE
To activate the IDE, all you need to do as type 'TC' at the DOS prompt and press Enter.

```
E.g. C: \ TC \ BIN \ TC  ( (Enter)
```

Using Menu Bar

The menu bar is used either to tell turbo C to do some thing Such as executes a program or compile a program, or to set an environment options etc. When you first invoke the IDE the menu bar will be active. (if for some reason the main menu is not active press F10 to reactive it). To select different menus move the Highlight left and right with the cursor arrow keys. To cause the highlighted menu to drop down so you can see its contents press the down cursor key. An other approach to viewing a menu is to press Alter key and the first letter of the menu name. You would press Alter + F for the File Menu. To close the menu and return to the menu bar press Esc key.

File Menu

The file menu provide command for

- Creating New File
- Opening Existing Files
- Saving Files
- Changing Directories
- Printing Documents
- Shelling To Dos
- Quitting C

New
To write a program Open File menu and select New. A new window will appear on the screen with double line border. New Edit Windows with the default name NONAMEXX.C (xx stand for a number from 00 to 31). These NONAME files are used as temporary edit buffer.

Open
The open command Displays the Open a File dialog box, where you can select a program file to open in a window. Pressing the F3 key can also complete this operation

Save
The Save command saves the file that's in the active window to disk (this menu item is disable if there is no active window). Pressing the F2 key can also complete this operation.

Save As
Save As command opens the Save File As dialog box, where you can save the file in the active Edit window under a different name, in the different directory, or on the different drive.

Print
The Print command prints the contents of the active edit, output, or message window.

Dos Shell
With the Dos Shell you can leave the turbo C environment temporarily to perform a dos command or to enter another program. To return to turbo C type EXIT at the Dos prompt, then press Enter.

Quit
The Quit command exists turbo c, remove it from the memory, and return it you to Dos.

Edit Menu

Undo
Undo command takes back the last editing command you performed on a line.

Redo
Redo command reverses the effect of the most recent Undo command.

Cut
The Cut command removes the selected text from your document and places the text in the clipboard. You can choose Edit | Paste to paste that text on other place.

Copy
Copy command leaves the selected text intact and places an exact copy of it in the clipboard.

Paste
Paste command inserts the text from the clipboard into the current window at the cursor position.

Clear
Clear command removes the selected text but does not put it into the clipboard.

Opening file from command line

C language program can be opened from the command line as well. This can be done by typing TC followed by the file name, when you first invoke the IDE.
C: TC BIN TC filename (TC HELLO.C)

Making the .exe file

After the program code is completed and the source is written, you must turn it into an executable file. It includes different tasks to be performed on the file, which are

Compiling

It is the process in which source code is translated into machine understandable language. 'Compiler' Which is the part of the IDE, translate this source code into another file, consisting of machine language.

Linking

Program may need to be combined with various library routines and functions. The Linking process combines these files into single executable file.
The text editor produces the .c source file, Which go to compiler, which produces .obj files,

which goes to linker, which produce the .exe files.
You can compile your program from main menu by selecting Compile | Compile.
You can link your program from main menu by selecting Compile | Link.
You can execute your program from main menu by selecting Run | Run.
Pressing the Alt+F9 can also perform the Compile operation.
Pressing the Ctrl+F9 can also perform the Run operation.

Compiling and Linking from the command line

You can compile and link a file from command line interface as well. To compile and link with the command line system, programmer must first generate a source(. c) file using any editor. To compile and linking any program from Dos prompt, you would enter the following:

```
C:\ TC \ BIN \ tcc filename (tcc hello.c)
```

This produces the object and executable file just as the IDE does.

Setting the environment of the IDE

You can set the foreground and background colors of the IDE elements (Menus, Dialog boxes, Edit window etc) by selecting Options | Environment | Color.
You have to also specify the Path in IDE, where the header file and Library files are present in the turbo C compiler, This can be done by selecting Options | Directories.

```
E.g. C:\TC\INCLUDE (For include directories).
C:\TC\LIB (For library files)
```

Exercise

Write a simple program in C (edit,save,compile,link ,run using IDE)

Chapter 11

Lab 11: Basic Structure of C Program

Objectives

Study the basic structure of C program Write a program that declares different variables and data types.

Description

In order to write program in any programming language, it is necessary to understand the basic structure of the program, its command and syntax.

Major Parts of C program

main()
This marks the point where the C programs begins execution. Required for all programs.
( )
Must appear immediately after main. Information that will be used by the program is usually contained within that braces.
//
These symbols are optional and used to indicate the comments.
;
Each C statement is terminate with the semicolon.

The braces are required in all C programs. They indicate the beginning and the end of the program instruction.

printf Function

The **printf** function is used to write information to standard output(normally your monitor). It can be used to print numbers, string or characters. A typical structure of this function is

```
printf("Hello, World!");
```

Statement is in the **stdio.h** header file, so it must be include in to the program.
Example:

```
#include<stdio.h>
int main()
{
printf("2"); // DISPLAY NUMBER.
printf("Hello"); // DISPLAY STRING.
printf("a"); // DISPLAY CHARACTER.
}
```

VARIABLES

A variable is a named location that can hold various values. All variables must be declare before they can be used. A variable's declaration serves one important purpose that it tells the C compiler that you are giving an identity to the variable.

Data type Description

char :
It is eight bit long and it is commonly used to hold a single character.
int :
Integer may hold singed whole numbers (Numbers with no fractional part). It may hold values in the range of -32768 to 32767.
float and double :
Data type float and double hold signed floating point values, which may have fractional component. The difference between float and double is that double provides twice the precision as does float.
Example:

```
#include<stdio.h>
int main()
{
int number=100;
printf("%d \n",number);
printf(sizeof(number)); /* sizeof() function is used for getting the size of
variable in memory. */
}
```

OUTPUT
100
2

scanf Function

the **scanf** function allows your program to get user input from the keyboard. A typical structure for this funcion is scanf("Example:
// program that calculates the voltage by ohm's law

```c
#include<stdio.h>
int main()
{
float vol,cur,res;
printf("enter the value of the current");
scanf("%f",&cur);
printf("enter the value of the resistance");
scanf("%f",&res);
vol=cur*res;
printf("voltage is %f",vol);
}
```

Exercise

1- Output of the above program?

2- Write and program to insert 4 numbers from user , add them and display output.

Chapter 12

Lab 12:Familiarization with different types of operators

Objectives

Familiarization with different types of operators

Description

OPERATOR

Operators are the symbols that cause a program to do something on the variables.
Following are the operators which are commonly used in C language.
Arithmetic operators:
There are five arithmetic operators in C. they are

```
    Operator Purpose
    + addition.
    -Subtraction.
    * Multiplication.
    / Division.
   % remainder after integer division.
The % operator some times to referred as modulus operator.
```

Increment and Decrement Operator

C provides the unary increment operator (++), and the unary increment operator (–) for the increment or decrement of one (1) from the variable. If increment or decrement operator is placed before the variables, they are referred to as the preincrement or predecrement operator, respectively. If increment or decrement operator are placed after the variable, they are referred as the post increment or postdecrement operators
Example

```
1 #include<stdio.h>
2 int main( )
3 {
4 int a=1;
```

```
printf("%d",++a); // increment first then display.
printf("%d",a++); // first display then increment.
printf("%d",a);
printf("%d",--a);   // decrement first then display.
printf("%d",a--); // first display then decrement.
printf("%d",a);
}//Observe the output
```

Relational Operator

There are four relational operators they are

```
Operators        Meaning
       <Less than.
       <= Less than or equal to.
       >Greater than.
       >= Greater than or equal.
```

Closely associated with the relational operators are the following two equality operators.

```
Operators Meaning
 = =      Equal to.
 ! =       Not Equal to.
```

These six operators are used to form logical expression, which represents condition that is either true or false. Resulting expression will be of type integer, since true is represented by integer value 1 and false is represented by the value 0.
Example

```
#include<stdio.h>
int main()
{
int a=1,b=2;
printf("%d %d",a<b);
printf("%d %d",a>b);
printf("%d %d",++a==b);
printf("%d %d",a<=b);
printf("%d %d",a>=b);
}
```

Observe the Output

Logical Operator

C contains three logical operators, they are

```
  Operators Meaning
&& And
| | OR
! Not
```

The logical operators act upon the operands that are themselves logical expressions. The net effect is to combine the individual logical expressions into more complex conditions that are either true or false. The result of logical and operation will be true only of all the expression are true, where as the result of a logical or operator will be true if either expression will be true. In other words, the result of logical or operation will be false when all expression will be false.

```
#include<stdio.h>
int main()
{
int a=1,b=2,c;
c=(a<b) && (a<=b);
printf("%d",c);
c=(a= =b) || (a<b);
printf("%d",c);
c=!(a= =b);
printf("%d",c);
}
Observe the Output
```

Exercise

Write a program that uses all arthematic operator (+, - , * , / , %).

Lab 13: To be familiar with if - else statement.

Objective

To be familiar with if - else statement.

Description

The if else statement:
The if else statement is used to carry out a logical test and then take one of two possible actions, depending on the outcome of the test (i.e., whether the outcome is true or false).
The else portion of the if else statement is optional. Thus in its simplest general form, the statement can be written as
If (expression) statement
The expression must be placed in the parenthesis, as shown above, In this form the statement will be executed only if the expression has a nonzero value (i.e. if expression is true. If the expression has a value zero (i.e. if the expression is false then the statement will be ignored.
The general form of an if statement which include the else clause is
if (expression) statement1 else statement2
If the expression has a nonzero value (i.e. if expression is true), then statement1 will be execute, otherwise statement2 will be execute.
Example

```
// Program to display a number if user enters negative number
// If user enters positive number, that number won't be displayed

#include <stdio.h>
int main()
{
    int number;

    printf("Enter an integer: ");
    scanf("%d", &number);

    // Test expression is true if number is less than 0
    if (number < 0)
    {
        printf("You entered %d.\n", number);
    }
```

```
17
18      printf("The if statement is easy.");
19
20      return 0;
21  }
```

Exercise

Write a program that find the largest number between three numbers.

Chapter 14

Lab 14:To be familiar with switch statement.

Objective

To be familiar with switch statement.

Description

The switch statement:
The switch statement causes a particular group of statements to be chosen from several available groups. The selection is based upon the current value of an expression, which is included within the switch statement. The general form of the switch statement is
Syntax

```
switch(expression) {

   case constant-expression  :
      statement(s);
      break; /* optional */

   case constant-expression  :
      statement(s);
      break; /* optional */

   /* you can have any number of case statements */
   default : /* Optional */
   statement(s);
}
```

Where expression results in an integer value. Note that expression may also be of type char, since individual characters have equivalent integer values.
The embedded statement is generally a compound statement that specifies alternate courses of action. Each alternative is expressed as a group of one or more individual statement within the overall embedded statement. For each alternative, the first statement within the group must be preceded by one or more case labels the case label identify the different group of the statement (i.e. the different alternatives) and distinguish them from one another.
Example

```

```

```c
#include <stdio.h>

int main () {

   /* local variable definition */
   char grade = 'B';

   switch(grade) {
      case 'A' :
         printf("Excellent!\n" );
         break;
      case 'B' :
      case 'C' :
         printf("Well done\n" );
         break;
      case 'D' :
         printf("You passed\n" );
         break;
      case 'F' :
         printf("Better try again\n" );
         break;
      default :
         printf("Invalid grade\n" );
   }

   printf("Your grade is  %c\n", grade );

   return 0;
}
```

Note that each of the groups is end with the break statement. The break statement causes control to be transferred out of the switch statement, thus preventing more than one group of statement from being executed. One of the labeled groups of the statement within the switch statement may be labeled default. This group will be selected if none of the case labels matches the value of the expression.

Exercise

Program to create a simple calculator using switch. Performs addition, subtraction, multiplication or division depending the input from user

Chapter 15

Lab 15:To be familiar with while,do while and for loop.

Objectives

To be familiar with while and do while loop.

Description

The while loop
The for loop does something a fixed number of times. What happens if you donâĂŹt know how many times you want to do something, in this case the while lop is used.
The structure of the while loop is
while (testExpression)

//codes

The statement may be a single statement or compound statement (enclosed in the braces). The statement is executed zero or more times until the expression becomes FALSE. In the operation of while loop the expression is first evaluated, if this evaluation is FALSE (0), Then statement is never executed. And control passed from the while statement to the rest of the program. If the evaluation is TRUE (non zero), then statement is executed and the process is repeated again.
Example

```
// Program to find factorial of a number
// For a positive integer n, factorial = 1*2*3...n

#include <stdio.h>
int main()
{
    int number;
    long long factorial;

    printf("Enter an integer: ");
    scanf("%d",&number);

    factorial = 1;

```

```
    // loop terminates when number is less than or equal to 0
    while (number > 0)
    {
        factorial *= number;  // factorial = factorial*number;
        --number;
    }

    printf("Factorial= %lld", factorial);

    return 0;
}
```

Do While Loop

The do..while loop is similar to the while loop with one important difference. The body of do...while loop is executed once, before checking the test expression. Hence, the do...while loop is executed at least once. The Structure of do while loop is
do

// codes

while (testExpression);
Example

```
// Program to add numbers until user enters zero

#include <stdio.h>
int main()
{
    double number, sum = 0;

    // loop body is executed at least once
    do
    {
        printf("Enter a number: ");
        scanf("%lf", &number);
        sum += number;
    }
    while(number != 0.0);

    printf("Sum = %.2lf",sum);

    return 0;
}
```

The for loop

The for loop executes the section of a code a fixed number of times. It's usually used when you know, before entering the loop, how many times you want to execute the code.
The for loop contains four major parts

- The value at which the loop start (initial expression).
- The condition at which the loop is to continue (conditional expression).
- The changes that are to take place for each loop (increment expression).
- The loop instructions.

These parts are put together in the for loop as
for (variable initialization; condition; variable update)

Code to execute while the condition is true

The initial expression is executed only once, when the loops first starts. The test expression usually involves a logical operator. It is evaluated each time through the loop, just before the body of the loop executed. The increment expression changes the value of the loop variable, it always executed at the end of the loop after the loop body has been executed. You can execute more then one statements in the body of the loop, by placing the statements in the brackets.
Example

```
#include <stdio.h>

int main()
{
    int x;
    /* The loop goes while x < 10, and x increases by one every loop*/
    for ( x = 0; x < 10; x++ ) {
        /* Keep in mind that the loop condition checks
           the conditional statement before it loops again.
           consequently, when x equals 10 the loop breaks.
           x is updated before the condition is checked. */
        printf( "%d\n", x );
    }
    getchar();
}
```

Exercise

Write A program to display N(limit) even/Natural numbers with their sum(use While loop and do while loop)
Write A program to display N(limit) even/Natural numbers with their sum(use For loop)

Chapter 16

Lab 16:Open Ended Lab

Objectives

Let the students push to think for themselves and think harder.

Task

Display Prime Numbers Between two Intervals.