INTRODUCTION TO WINDOWS

WHAT IS WINDOWS

Windows is an operating system developed and marketed by Microsoft.An operating system performs the following tasks:

- Input & Output Management
- Resource Management
- Data Management
- Process Management
- User interface WINDOWS AS GUI

Windows is a Graphical User Interface (GUI) Operating System. GUI means a platform where items are represented by an icon (picture) on the screen which are easier to remember. You need not to remember lengthy and complex syntax for performing different operations as you do it in DOS. GUI gives you a ready made on screen menu system that helps you finding suitable option for your task. Just select the job you wish to do and all the internal processing will be done by the OS itself without asking you about typical commands.

GUI also gives you a multitasking, multithreading environment. It means that if you are working in an OS that supports GUI, you will be able to open more than one task at a time. Besides this, you will be able to transfer one kind of data to a different application e.g. A cartoon can be inserted in a Letter or vice versa.

GUI gives you the description of the tasks currently running. In DOS it was not possible to see what processes are running but in Windows 95 it is possible to see all the applications that are currently active either in foreground or in background. GUI gives you most user friendly environment where you can get on-line help for each and every step you are performing.

WINDOWS : SALIENT FEATURES

- Graphical User Interface (GUI) – Items represented by pictures, which are easier to remember.
- User friendly – Easier to learn and use.
- Multitasking – Facility to run more than one application at a time. For e.g. You can type a letter while printing another one.
- Multithreading – Facility to transfer data between different applications. For

  e.g. A cartoon can be inserted in a Letter or vice versa.

- Common Menus. For e.g. Same commands for printing in all software's.
- Runs in protected mode – The protected mode ensures that the failure of any one programme does not halt the computer.
- Faster processing (called 32 Bit processing) enhances system efficiency.
- Support for –LAN, Multimedia and Internet.
- On-Line Help facility.
- Windowing capability.

WINDOWS SCREEN

On starting Windows , the initial Windows screen is displayed. Parts of Windows Screen are as follows:

- The Desktop
- The Desktop Icons
- The Task Bar
- The Start Button
- System Tray DESKTOP

When you start Windows, the entire screen area that you see, is called the desktop. The desktop is Windows user interface. You can customize the desktop by adding shortcuts to your favorite programs, documents, and printers, and by changing its look to fit your mood and personality.

DESKTOP ICONS

An icon is a picture. Windows uses small video icons that represent objects – folders, files, documents, applications and devices.

Icons on the Desktop:

- My computer
- Recycle Bin
- Internet Explorer
- Network Neighborhood

TASKBAR

The long horizontal bar at the bottom of the desktop is the Taskbar. The taskbar contains three elements:

- Start Button (extreme left) – allows access to all applications
- System Tray (extreme right) – shows status and time indicator
- Task status (middle section) – shows buttons for all open windows on the desktop.

START BUTTON

The Start Button opens the Start Menu. All applications are accessible through the Start Button. Click the Start button. The Start Menu pops up. Options on the Start Menu and their functions are as follows:

Programs: Provides the primary means of starting an application.

Documents: Provides a list of the last 15 documents that you have opened directly from Windows (not from the application).

Settings: Provides the means to adjust many aspects of your system through special control panel windows.

Find: Allows you to locate files and folders on your network by their name and location.

Help: Opens the Windows 95 Help system.

Run: Provides a command line in which you type a path and program or folder same to run the Program or open the folder.

Shut Down: Allows you to leave Windows 95 and either shut down or restart your computer.

SYSTEM TRAY

Displays the current date & time indicator and provides other status information about system, like print status**.**

WHAT IS A WINDOW?

A window is a basic unit of display for Windows , and all its applications. A window can represent a folder on the desktop, a running programme, or a document or a dialog box in a programme.

COMPONENTS OF A WINDOW

Parts of a standard window and their functions are as follows:

- Title Bar
- Frame
- Control Menu
- Menu Bar
- Work Space
- Minimize & Maximize Buttons
- Restore Button
- Close Button
- Help Button
- Scroll Bars

The Format of a Window

TITLE BAR

The title bar displays the title associated with the window and indicates by its colour when the window has the focus. It is also the means for moving the window when you point the mouse cursor to the title bar and drag the mouse, you more the window.

FRAME

The frame surrounds the window. You can resize the window by pointing the mouse to one of the frame edges or corners.

CONTROL MENU

Each window has a control menu, which contains commands for manipulating the window. You open a window's control menu by clicking the icon in the upper-left corner of the window.

MENU BAR

Most applications windows have a menu bar, which contains the title of pull down menus. For example, most applications have File, Edit and Help menus.

WORK SPACE

The work space is that portion of a window that is inside the frame and under the tide bar and menu bar. This space is also called the client area. The window displays retentions of its data and documents in the work space.

MINIMIZE AND MAXIMIZE BUTTONS

A window can be in one of three configurations with respect to its size and placement – maximized, minimized or restored using Maximize or Minimize buttons. The window can be maximized, which means that it fills the desktop or parent window's work space completely. The window can be minimized, which means that it is represented by a short title bar at the bottom of the parent window's work space or as a button on the Taskbar. It can be restored which means that it occupies a section of the desktop or its parent window's work space.

RESTORE BUTTON

When a window is maximized, its Maximize button is replaced by a Restore button. When the window is minimized, its Minimize button is replaced by a Restore button.

CLOSE BUTTON

Clicking the Close button closes the window. This button is alternative to using Close command on the control menu.

HELP BUTTON

Some windows have a Help button in the button group in the window's upper-right corner. A help button has a question mark icon.

SCROLL BARS

Often, the display of data in the window's work space extends beyond the area covered by the window. Graphic pictures and many text files can be wider than the space displayed by the window. To view the hidden data, you must be able to scroll the window horizontally and vertically. The horizontal and vertical scroll bar allow you to do this using the mouse.

COMMON GRAPHICAL USER INTERFACE TERMS

This section presents a list of terms used commonly with the graphical user interface (GUI).

1. **Pointing devices:** Pointing devices allow users to point at different parts of the screen. Pointing devices can be used to invoke a command from a list of commands presented in a menu. They can also be used to manipulate objects on the screen by:

- Selecting objects on the screen

- Moving objects around the screen, or
- Merging several objects into another object.

Since 1960s, a diverse set of tools have been used as pointing devices include the light pen, joystick, touch sensitive screen and the popularity of the mouse is due to optimal coordination of hand and easier tracking of the cursor on the screen.

2. **Bit-mapped displays:** As memory chips get denser and cheaper, but displays are replacing character-based display screens. Bit-mapped display made up of tiny dots (pixels) that are independently addressable and much finer resolution than character displays. Bit-mapped displays have advantages over character displays. One of the major advantages include graphic manipulation capabilities for vector and raster graphics, which present information in the final form on paper (also called WYSIWYG: What You See Is What You Get).

3. **Windows: When a screen is split into several independent regions, each one is called a window.** Several applications can display results simultaneously in different windows. The figure presents a screen with two windows.

   The end-user can switch from one application to another or share data between applications. Windowing systems have capabilities to display windows either tiled or over-lapped. Users can organize the screen by resizing the window or moving related windows closer.

   Menus: A menu displays a list of commands available within an application. From the menu, the end-user can select operations such as File, Edit or search. Instead of remembering commands at each stage, a menu can be use to provide a list of items. Each menu item can be either a word or an icon representing a command or a function. Menu item can be invoked by moving the cursor on the menu item and selecting the item by clicking the

mouse.

Dialog boxes: Dialog boxes are used to collect information from the user or to present information to the user. For example, when printing a file a dialog box is displayed to get additional information.

Some of the information obtained are the number of copies and page numbers to be printed. Dialog boxes are also used to indicate error messages in the form of alert boxes. Dialog boxes use a wide range of screen control elements of communicate with the user.

Icons: Icons are used to provide a symbolic representation of any system/user- defined object such as file, folder, address, book, applications and so on. Different types of objects are represented by a specific type of icon. In some GUIs, documents representing folders are represented by a folder icon. A folder icon contains a group of files or other folder icons. Double clicking on the folder icon causes a window to be opened displaying a list of icons and folder icons representing the folder's contents.

Desktop metaphor: In the desktop metaphor, users are not aware of applications. Users deal with files, folder, drawers, a clipboard and an out-box. Instead of starting the word processor and loading file, users merely open the report document, which implicitly invokes the word processor. Clicking the mouse on an icon representing the report cause word processor to get started and to load the report file implicitly. Today, several computing environments provide this capability.

Graphic User Interfaces: GUIs are systems that allow creation and

manipulation of user interfaces employing windows, menus, icons, dialog boxes, mouse and keyboard. Macintosh toolbox, Microsoft windows and X-windows are some examples of GUIs.

FUNCTIONALITY OF GRAPHICAL USER INTERFACES

The development environment for most GUIs consists of four major components:

- A windowing system
- An imaging model
- An application program interface (API), and
- A set of tools and frameworks for creating interfaces and developing integrated applications.

Windowing systems allow programs to display multiple applications at the same time. Windowing systems include programming tools for building movable and resizable windows, menus, dialog boxes, and other items on the display. Some GUIs contain proprietary windowing systems, such as Macintosh. Others use common windowing systems such as, X Window or simple X.

An imaging model defines how fonts and graphics are created on the screen. Imaging models handle, for example, typeface and size in a wordprocessor or curves and lines in a drawing program. This component of the system enbvironment has taken on increasing sophistication as applications incorporate complex curves, colour, shading and dimension. Some GUIs support more than one imaging model.

The API is a set of programming language functions that allow the programmer to specify how the actual application will control the menus, scross bars and icons that appear on the screen. Like windwing models. APIs align with particular GUIs.

Finally, GUI development environments can include toolkits and frameworks. Most of these toolkits are based on object-oriented approach.

Although the structure of the basic development for most GUIs is similar, there are major differences in how the GUI is integrated with the operating system. Some, like the Macintosh and NeXT GUIs, are closely integrated with the operating system. Others, like X window or Microsoft's Windows, can be set up as options to be selected by the user when the computer boots up.

Programming of software for GUIs across these components is fairly complex and challenging Commercial developers who want to support multiple environments find their task further complicated by the absence of standards across heterogeneous computing platforms. The higher-level toolkit component is intended to mitigate much of this difficulty.

Although the graphical user interface has become a standard component of most systems, no standards in windowing systems, imaging models, APIs, or high-level toolkits have emerged. However, three major camps of GUIs dominate. The first camp is IBM's System application Architecture (SAA), which includes primarily Microsoft's Windows and PM (Presentation Manager). The second camp is UNIX systems, usually build around X window. The third camp is the Macintosh. In the next section we will discuss about the GUI interface provided by MS-Windows.

Check Your Program I

1. What is GUI and what are its features?
2. Define the features of a Windows.
3. What is the difference between Bitmapped and character based displays?

WINDOWS NT is a Microsoft Windows computer Operating System designed for users and businesses needing advanced capability Windows 2000.