FACTFILE:
GCE DIGITAL TECHNOLOGY

AS2: FUNDAMENTALS OF DIGITAL TECHNOLOGY

Hardware and Software –The User Interface

Learning Outcomes

Students should be able to:
- describe the main features of different types of user interface: WIMP, command line and forms dialogue;
- evaluate different types of user interface: WIMP, command line and forms dialogue;

Content in User Interface Fact File

- ✔ Introduction
- ✔ Interface Types
  - WIMP
  - Command Line
  - Forms dialogue
- ✔ Evaluating user interfaces

Introduction

In order for an application to be successful, developers always try to make their product easy to use and attractive to the user. They spend a lot of time working on how the interface looks and feels to the user and they will take into consideration things such as how the end user interacts with the software. The end user wants an application that will complete a task quickly and easily.

There are a variety of approaches taken to the development of a user interface and the interface type chosen will often depend on a variety of factors such as:–
- User ability
- Range of input and output devices available
- Processor capability
- Memory capacity

Interface Types

We shall consider some of the main interface types below.
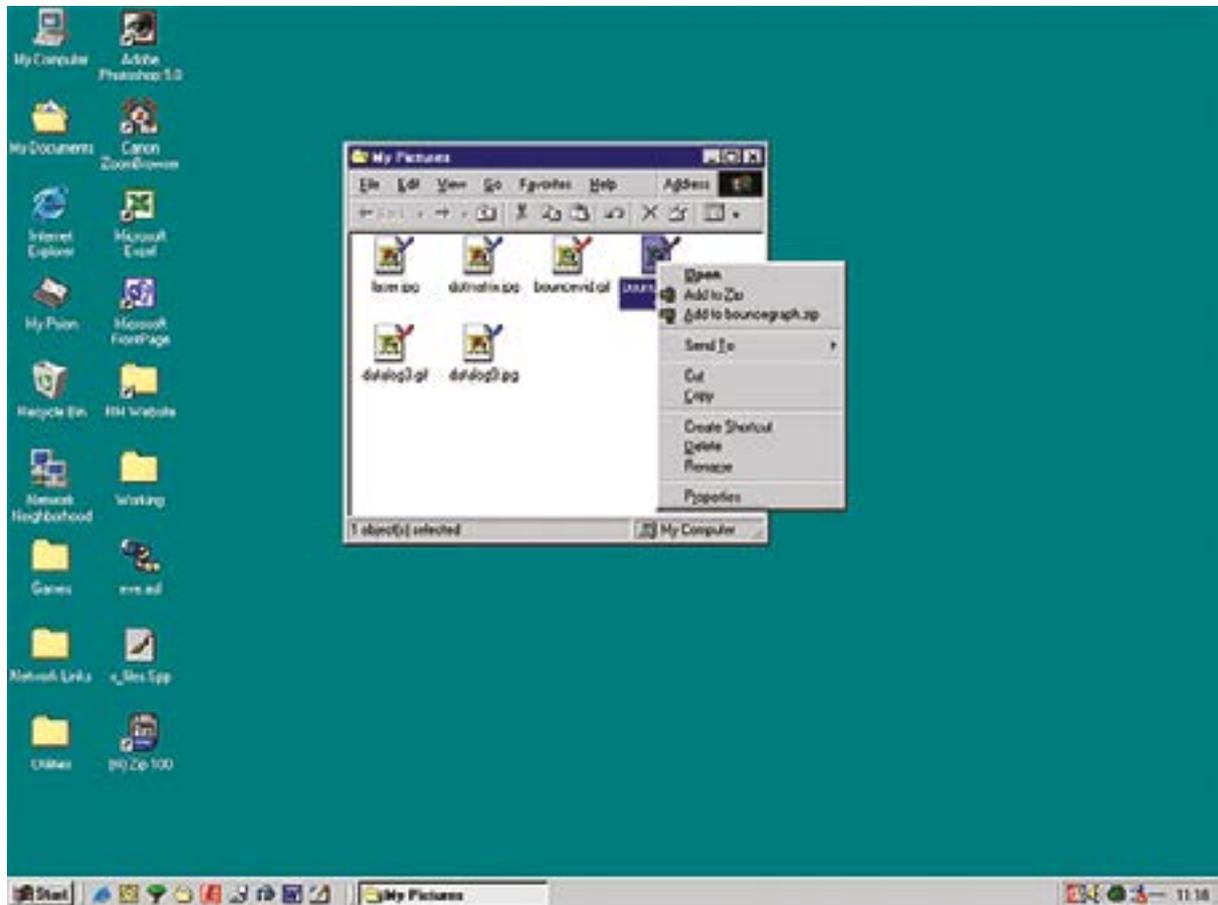
WIMP (Windows Icons Menus Pointers)

Figure 1.1 – Example of a WIMP interface

The WIMP interface (shown in figure 1.1) will allow the user to communicate with the computer using:–

* **Windows** – These represent an active area of the computer screen which is opened up to display some form of activity; perhaps in the form of processing in a program or perhaps presenting a range of files and folders. More than one window can be open on screen at any one time and it can be moved around or closed down.

* **Icons** – These are small pictures used to provide a graphical representation of an application or activity. An icon can be selected by moving a selection tool over the top of the icon and an activity can be started through double clicking on the icon.

* **Menus** – A menu is used to present an end user with a range of options. The menu system is used to group related options / actions together. A variety of menu types may be presented to the end user including pop-up menus (often used to present a series of shortcuts to the user when they right click on the computer screen) and pull-down menus (normally used to present a range of options / items in a submenu, linked to a menu title presented across the top of a screen).

* **Pointers** – A pointer will move around a computer screen based on the movements instigated by the end users manipulation of a peripheral device such as a tracker pad or a mouse. The pointer can be used to select an item on screen, (for example an icon or a menu option) it may change shape. The user can then initiate further action to indicate their desire to select said item; perhaps a left button click or double click.

Command Line

Figure 1.2 – Example of a Command Line interface

A command line interface, such as the one shown in figure 1.2 above, allows the user to type commands which the computer will execute. Commands are usually fixed in structure (syntax) and limited to one line. Users require an intricate knowledge of the internal operation of the computer in order to use a command line interface and they must be well versed in the range of acceptable commands made available to them using the interface. Instructions can be combined to carry out more complex tasks.

Forms Dialogue

Examples of a forms dialogue interface are shown below
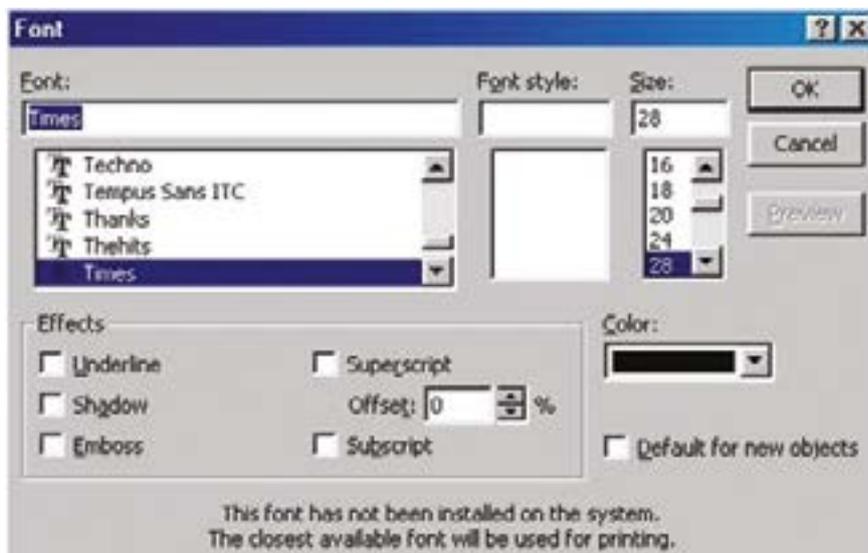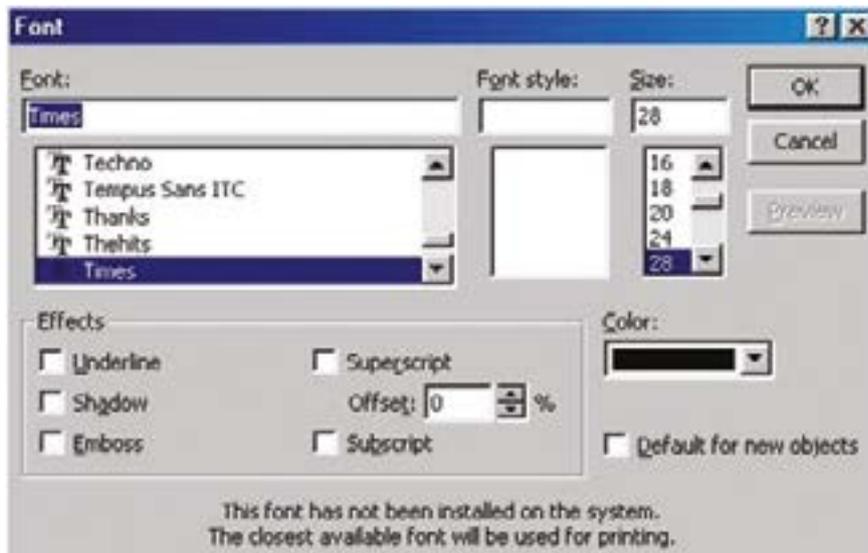
Figure 1.3 – Examples of Forms Dialogue interface

As can be seen above, a form dialogue interface will output prompts and response fields to the user on screen. The user must then provide input via each of the empty fields, which must be completed.

A forms dialogue interface will use the following methods to secure the required input from the end user:–

- **Response field** – a position on the forms dialogue box where the end user will enter a response. The may move the cursor from field to field, e.g. with a mouse click or perhaps using the tab key on a keyboard.
- **Prompt** – a prompt may appear for the end user at the position where data entry is required. The prompt may be in the form of a flashing cursor in a response field.
- **Error messages** – used to inform the end user there has been an error in the data entry process. The most user friendly error messages will include some form of diagnostic information for the end user.

Evaluating User Interfaces

Interface Type	Applications	Advantages	Disadvantages
WIMP	Suitable for less experienced user.	Intuitive. Provides user with simple approach to carrying out complicated tasks.	Complex interfaces of this nature require extensive resources for effective operation.
Command Line	Suitable for experienced users who need to maximise processing capabilities of the computer.	Minimum resources required to display interface to end user.	User must be familiar with syntax. Complex command sequences are required for more complicated tasks.
Forms Dialogue	Suitable for use when entering data into a database or when completing a task using a wizard application.	Supports the user through the data entry process. Ensures the end user is presented with an opportunity to enter all data required to complete the current task.	Limits the data entry options available to the end user.

? Questions

1 One type of interface is a command line interface. Describe the main features of a command line interface.

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2 Explain why a command line interface might not be the most suitable option for an inexperienced end user trying to communicate with a computer system.

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3 An inexperienced user might prefer to use a WIMP interface to communicate with a computer system. Describe the main characteristics of a WIMP interface and describe why it might be suitable for an inexperienced user trying to interact with a computer system. [6]

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4 One type of interface is a forms dialogue box.
a. Describe the main features of a forms dialogue box. [4]
b. Give one example where a forms dialogue box might be used for data entry by an end user in a WIMP environment. [1]

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