Unit - 5

CUI vs GUI

Difference

GUI	CUI
1. Graphical User Interface	1. Character User Interface
2. User interacts with the application with the use of Graphics	2. User interacts with the application with the use of codes.
3. We are allowed to work using any pointing device like mouse.	3. We are allowed to work using keyboard.
4. Multiple task can be run Simultaneously.	4. Can run only one task at a time.
5. Easy to access & understand.	5. User needs to remember commands that are difficult.
6. Eg:- Windows	6. Eg:- Unix terminal, DOS.
7. It is slow in execution	7. Execution is fast.
8. Requires more memory.	8. Memory requirement is less.
9. High ~~Sp~~ speed components are required that are expensive.	9. It is cheaper as comparision to GUI.

10. GUI is not link to Computer itself. It is linked to the O.S of the program.	10. It can be linked directly.
11. The user controls the flow of actions.	11. The programmer controls the flow of actions.

Event Driven Programming (E.D.P)

It is a programming paradigm in which flow of the program is determined by the events such as user actions (Mouse click, keypressing), Sensor outputs or messages from other programs or threads. (E.D.P) is a dominant paradigm used in GUIs and other applications that are focused on performing certain actions in response to user input.

In Event driven applications, there is a main loop that listens for events and then triggers a callback function when one of those events detected.

In embedded system the same we will achieve using hardware intrupts.

- The first step in developing an Event driven program is to write the series of subroutines or methods called event handler routines.

Eg:- जैसे form bharte hai to password box me clk karte hi password show karta h (itna lamba).

spatial — arrange. (text, graphics)

temporal - Time based. handlers

- The second step is to bind event ~~handler~~ to events so that the correct function is called when the event takes place.
- The third & final step in developing the program is to write the main loop.

Disadvantage:

* It is error ~~prone~~ prone.
* The code is difficult to extend.
* The application code is excessively complex.

VISUAL * PROGRAMMING

These are languages that lead users to create programs by manipulating program elements graphically rather than textually.

The visual programming allows programming with visual expressions, spatial arrangements of texts and graphic symbols, used either as elements or syntax or secondary location.

Ex- Some visual programming languages also known as data flow languages or diagramatic programming are based on the idea of "boxes & arrows" where boxes or other screen objects are treated as entities connected by arrows, lines, arcs which represent relation.

classification of visual programming languages

classifications depends on the type & extend of visual expression used -

1. Icon based languages.
2. Form based languages.
3. Diagram languages.

Visual Programming environments provide graphical or iconic elements which can be manipulated by the users in an interactive way. according to some specific spatial grammer for program construction.
Ex - Scratch, flowgorithm.

Scripting language :-

It is a programming language for a special run time environment that automate the execution of tasks. which could alternatively be executed one by one by human operator. Scripting languages are generally interpreted and not compiled.

Environments that can be automated through Scripting include Software applications, webpages within a web browser, usage of the shells of operating systems, Embedded System as well as numerous games. Typically Scripting languages are intended to be very fast to learn and write in, either as short source code files or interactively in a read, evaluate, print, loop

Scripting languages are usually interpreted from source code or byte codes.

Types of Scripting Lang.

1. Glue languages. (Code के अलग अलग element को जोड़ना)
2. Job Control languages. (Jobs/task को sequence में लगाना)
3. GUI Scripting. (Eg. Javascript).
4. Application Specific languages (जब तक ~~lang.~~ App. chal raha है तब तक चलेगी).
5. Extension/embedded languages (replace script of other App.) [ECMA script]