

Assignment :3

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- Q.1. List different interaction styles. Explain command line interface and menus interface.
- i) A dialogue or a communication takes place between a computer and a user is known as interaction
- ii) Each communication or dialog has its own effects in the interaction
- There are several styles of interface all as follows
- Command line interface
 - Menus
 - Natural language
 - Question Answer and Query Dialog
 - Form - Fills and spreadsheet
 - Point and click
 - Three dimensional effect
 - WIMP

+ Command line interface :-

- It is preferred less in recent days as icon selection and touch and voice based interaction were in a use with plenty of options
- A command line interface is a one of the powerful mechanism of interaction as it gives an access to the entire environment in straightway approach
- You need to be very hands on with abbreviation, Function key, special characters to get an efficient interaction with the help

of command line interface.

- A command line interaction allows the user to interact with computer by typing in commands. The computer displays a prompt, the keys in command & presses enter or return.
- At present, telnet uses command line interface while access is via remote desktop

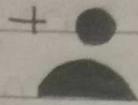
• Menus Interface

- The menu can be displayed in various ways in more user friendly approach
- menu driven program or applications can be operated with the help of mouse, alphabetic keys, numeric keys, function keys and special keys
- menu options needed to be grouped logically and on the basis of functionality
- For example :-
 - as shown in Fig (a) below, menu of text editor has 'Save As' option, followed by 'Save' is a good practice
- as shown in Fig (b) below. Google drive for any file menu you will find 'Remove' option, immediate after 'Download' which is separated by a thin line still sometimes user by mistake, click on or more chances to select remove rather than download as a bad practice may happen

Preview



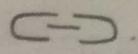
open with



share



Save



Get shareable link



move to...



Save as

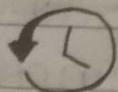


Add star

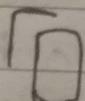
(a)



Rename



manage versions



make a copy



Download



Remove

(b)

Example of menu

Q.2 What is WIMP interface? Explain how to use its element in designing a user interface.

- WIMP stands for windows, Icons, Menus & Pointee

WIMP is style of graphical user interface that uses the above mentioned command widgets. WIMP is also sometimes said to be a paradigm for human-computer interaction.

A] Windows :-

- Windows are designed with text, icons & buttons. A user can view, edit, modify or update content on it.
- WIMP interfaces with windows in tiled or overlapping or cascading approach.

(i) Single Document Interface (SDI) :-

each primary window is assigned to each instance of the application. Each window has its own menu, toolbar and entry in the taskbar. Therefore an SDI is not constrained to a parent window.

example :- Notepad or text editor

(ii) Multiple Document Interface (MDI) :-

multiple windows are residing under one parent window, multiple document can viewed at a time.

example :- visual studio, Adobe photoshop

(3) Tabbed Document Interface (TDI) :-

multiple windows can be accessed with the help of arranging them in a tab, one tab can be viewed at a time multiple tab can be appear in sequence

example :- web browser application.

[B] ICON :-

- In HCI "ICONS" are pictographic symbols which are used as part of the dialogue in order to represent process and data in computer
- The user makes the selection of one or more icons on a display ,in order to invoke processes & manipulate data
- kinds of Icons :-
 - (A) object / document Icons
 - (B) Application Icons
 - (C) Toolbar Icons
 - (D) Menu Icons

[C] Menu :-

- A menu is a set of options presented to the user of a computer application to the help of the user find information or execute a program function. Menus are common in graphical user interface (GUIs) such as windows or Mac os
- menus are also employed in some speech recognition programs

D] Pointers :-

- The pointer is an essential element drug & drop, selection of menu, options, buttons & icons
- Various style pointer cursor is in use, depending on tool for PDF reader, blinking line pointer in a text editor or command prompt

E] Other Interfaces :-

- Dialog boxes are used to interact with immediate interaction in case of urgent input are required or notifying information to users for a specific task
- Toolbars with full options & icons are available in many tools placed horizontally or vertically on the sideline of the windows of the tool

F] Develop a System Menu :-

- Basically, a new user & inexperienced user are learners of the systems, they keep learning from environment of system with the help of menus.
- The menu should be designed with an approach where both user & experienced user should be satisfied.
- While designing a web system, it should be kept in mind that system they design are webpages are applied as text and multimedia based representation as well as interaction.

Q3 Explain the concept of Ergonomics with example

- 1) Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interaction among humans & other elements of a system & the profession that applies theory, principles, data & methods to design in order to optimize human well-being & overall system performance
- 2) If ergonomics is studied at the special level than concerned with HCI only then it is more about human psychology & system constraints
- 3) There are 3 primary types of ergonomics :-
physical, cognitive & organizational
- 4) Example :- If a tool allows Esc to back form any pop up notification on a screen, it should be uniformly work within all modules, it should not happen user needs to use click event of a mouse or enter key at sometimes
- 5) In the case of Health issues :-
It arises due to poor design, layout & arrangements of devices.
 - Physical Posture :- It is needed in a way to get a proper display without any efforts as well as to reach all controls easily
 - some support should be allowed to rest the part of the body for a long time activity like mouse pad with wrist support for animation or design task where use of

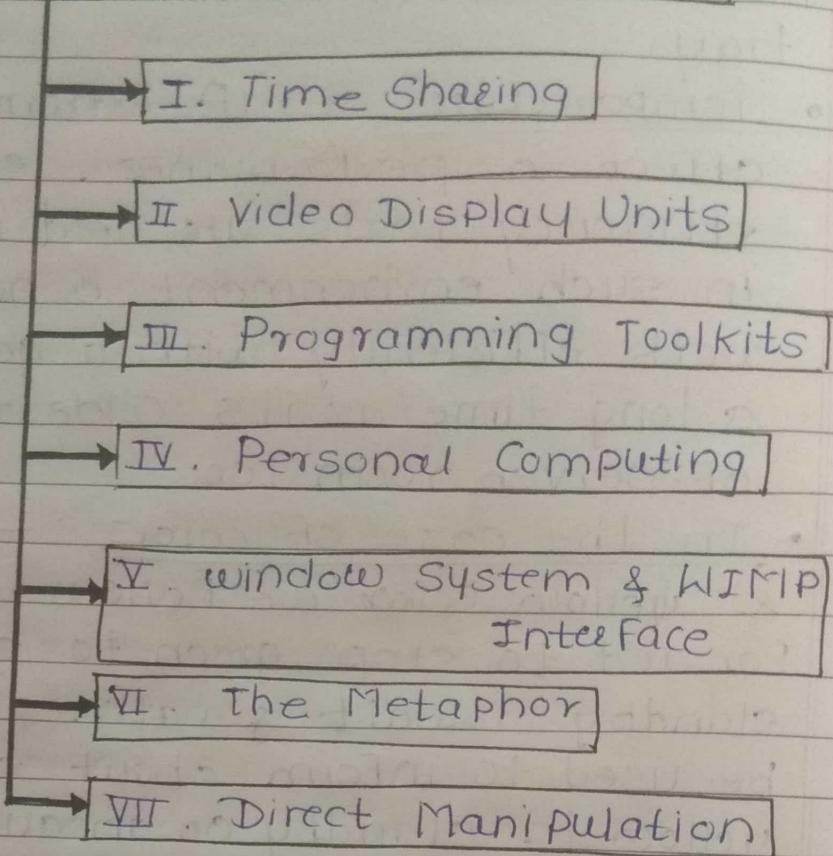
mouse in is more , wrist support to keyboard tray

- Temperature :- A extreme hot or cold will affect a performance. let say some network efficiency tests are held in a shielded room, in such environment a normal human cannot work efficiently with a good concentration for a long time as its coldest similarly in case of server room too.
- In the case of colors :- Generally red, green & yellow color we follow in a daily practice for red to stop, green to go and yellow to standby or wait & watch, similarly red should be used to inform about emergency & alarms, yellow in standby on an auxillary actions, green to routine & normal activity.
 - Use of blue color should be avoided to display critical information
 - color has its own culture everywhere, it is not uniform like red happiness & good fortune in china while rest of others think it as dangerous.

Q4. Explain paradigms of Interaction design

→ successful systems are marked as system with more usability, such system are considered as a paradigms for the upcoming development in the field of interaction.

Paradigms of Interaction



I) Time sharing :- In computing , time sharing is the sharing of a computing resource among many users at the same time by means of multi-programming & multi-tasking. Its emergence as the prominent model of computing in 1970s represented a major technological shift in the history of computing.

II) Video Display Units :-

- Display unit screen shows a series of picture to make a movie likewise effect in the Past
- Thin Film Transistor (TFT) screen , Liquid crystal Display (LCD) screen , Light Emitting Diode (LED) screen

III) Programming Toolkits :-

- Douglas Engelbart looks technology as human problem solving capability. He thinks computers can be used to teach humans
- Programming toolkits provide a means for those with substantial computing skills to increase their productivity gravity. But Engelbart's vision was not exclusive to the computer literate

IV) Personal Computing :-

Seymour Papert & his colleagues designed a computer controlled mechanical turtle used to design geometry shapes like circle & square. It was designed for children.

V) Window system & WIMP interface :-

Window is common platform for interaction with many applications. Multiple windows can be operated by a single user. Windows, icon, menu, pointers helps to improve interaction among the system & user.

VI) The metaphors :-

- Papert used metaphor while LOGO language was in development process which is used to teach children
- Metaphor are useful to knowledge transfer (KT)
- The metaphor helps to improve and increase the familiarity b/w the user and system.

VII) Direct Manipulation :-

- Direct manipulation gives visibility to interested objects.
- It provides rapid Feedback of all actions on the basics of incremental approach while engaged with the interface.

Q5. How does making a call differ when using a
 ① Smart Phone ② cell phone.

How have these devices been designed to take into account

- i) The kind of users
 - ii) Types of activity being supported
 - iii) Content of use
-
- i) User experience varies as per the scenario of ergonomic physical, legal & safety, context & environment, aesthetic, economic constraints within the system.
 - 2) User experience varies on every attempt of interaction with the system. User & system interaction activity gives a real time experience to user.
 - 3) Guidelines from physiologist & philosopher of computer interaction helps to improve user experience.
 - 4) Phone usage pattern among users are estimated & shared with the help of the table from RTI international, survey science Group LCC and team of Douglass Curran.
 - 5) David Roe, Jason Stockdale in journal the impact of landline & cell phone usage.

patterns among young adults on ROD survey

How many calls
to your regular
home phone do you
ans. when you don't
recognize the caller's
Phone no.

No shared
cell phone
(n = 1348)

At least one
Shared cell
Phone
(n = 784)

All or almost all	41.0% (552)	39.4% (309)
more than half	9.5% (128)	10.7% (84)
less than half	9.1% (123)	11.2% (88)
Very few or None	40.3% (543)	38.7% (303)

Table - likelihood of answering landline phone
by sharing of cell phone(s) in household

• Smart Phone -

① A smartphone is considered to be the combination of traditional PDA & cellular phone with a bigger focus on the cellular phone part

② Smartphone keyboards are usually virtual

• cell phone - The public phone box transmit electromagnetic signals wirelessly

- a) public phones are designed to be used by the general public
- b) most phone boxes are designed with a simple mode of interaction: insert card or money

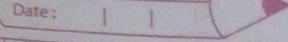
- & key in the phone number cell phones have a more complex mode of interaction
- phone boxes are intended to be used public places , say -on the street or in a bus-station.
 - cell phones have been designed to be used any place & any time

Q.6. Explain Following WIMP interface elements with respect to any text editors

- i) icons ii) Menus iii) Toolbars iv) Dialog boxes

- i) Icons :- These are graphical representation with or without buttons . Iconifying is shrinking of window or resizing of window with the help of some icon.
- Icon also called to give a reminder about some periodically activities like updates to install , battery status , LAN or WiFi status , speaker on or mute
 - Different icons are use as per the nature of the file some set of icons represents a word or text file similarly for image file , application file , system file etc .

- ii) Menus :- The menu can be categorized into
- pop up menu & pull down menu
- options in the menu can be arranged as per designer & user point of view . Some menu provides option in the list below to menu item , some menu & the options are provided in circular fashion too , depending on



how interactive user interface you required, targeted user group.

- For while mobile camera application menu is shown in a circular way & option in a list of few handsets some gaming appln has menu & option both in a circular fashion

iii) Toolbar :-

- It is permanently displayed panel consists of tools provided by that application
- Tools icons are placed on toolbar having a link associated with the respective set of function
- Tools are grouped on logical basis on toolbar. Ribbons, rulers or palettes, toolboxes etc. are few specialized toolbar

iv) Dialog boxes :-

- A dialog box is a secondary window that allows users to perform a command, ask users a question, or provides users with information or progress feedback
- Dialog boxes consist of a title bar, an optional main instruction, various controls in the content area & commit buttons
- A dialog box is a temporary window an appln creates to retrieve user input. An appln typically uses dialog boxes to prompt the user for additional information for menu items

Q.7 Describe briefly Five different interaction styles use to accomodate the dialog betn user & computer

→ A] Command line Interface :-

- Interaction betn user & computer where user input series of command lines into program

- It is preferred less in recent days as icon selection & touch & voice based interaction were in a use with plenty of option.
- At present , Telnet uses command line interface while access is via remote desktop

B] Menus :- series of drop down menu that logically grouped where use is presented with choice of already implemented commands In this style , user's selection is required

- The menu can be displayed in various ways in more user friendly approach
- menu driven program or applications can be operated with the help of mouse , alphabetic keys , numeric keys , function keys & special keys
- menu options needed to be grouped logically & on the basis of functionality
- For example , menu of text editor has 'Save As' option , followed by 'Save' is a good practice.

c] Natural language :-

- series of plain - Text instructions give to computer by user. Problem with the style lies in ambiguity
- It is relatively not much succeeded interaction but it is more curiously studied & researched. Natural language input is now interpreted as per expectation to machine to understand. Ambiguity in the meaning of words processed sometimes makes it less efficient.
- example - with the help of text to voice & voice to text conversion appl'n input can be provided to a system, which is helpful in some sort to establish the interaction with the help of natural language.

d] Form-Fills & Spreadsheet :-

A Form Fill is an easy & quick approach to fill the information within a form. It helps with buttons and icons for some repeatedly filled information or default values for some options.

- example :- student enrolment form. For training & placement we all student fill form with various kind of information like personal details - name, date of birth, address for communication, email id, educational qualification, passing year, technical skills etc.

e] Three dimensional effect :-

virtual reality uses 3D effect based interaction

- The 3D effects are given to icons, small bars, text area, menu items - with the help of shades for a more interactive interface.

Q.8 What is Ergonomics ? List and explain the various disciplines of Ergonomics.

→ ① Ergonomics - Ergonomics is specific discipline concerned with the understanding of interaction among humans & other elements of a system, & the profession that applies theory, principles, data & methods to design in order to optimize human well-being & overall system performance

② Ergonomics draws on many disciplines in its study of Humans & their environments, including anthropometry, biomechanics, mechanical engineering, industrial engineering, information design, physiology, industrial and organizational psychology and space psychology.

③ In case of healthy issues :-

- It arises due to poor design, layout & arrangements of devices. The improper quality of physical interaction leads to health issues

- Physical posture - It is needed in a way to get a proper display without any efforts as well as to reach all controls easily

- Temperature :- A extreme hot or cold will effect a performance. let say some network efficiency

tests are held in a shielded room, in such environment a normal human cannot work efficiently with a good concentration for a long time as its coldest. similarly in case of server room too

- The noise level should be maintained at a comfortable level
- Time spent on the system should be in a controlled manner. Excessive interaction with long time may affect issues with back pain, eye strain, care should be taken for in case of pregnant women for eyesbrain & accessing controls etc.

④ In case of colors :-

- Generally red, green & yellow color we follow in a daily practice for red to stop, green to go & yellow to standby or wait and watch, similarly red should be used to inform about emergency and alarms, yellow in standby on an auxiliary action, green to routine & normal activity.
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- color has its own culture everywhere, it is not uniform like red is happiness & good fortune in china while rest of others think it as dangerous.