

Multiple Choice Questions

Choose the correct option for following questions. All the Questions carry equal marks	
1.	The controls on a device panel are designed by the designer in such a way that a user is not able to press or push the buttons since they are either too small or too close. This constraint is called as _____.
Option A:	Positional
Option B:	Accessibility
Option C:	Feedback
Option D:	Ergonomics
2.	Human Memory is viewed as consisting of two components:
Option A:	Long Term Memory and Mid Term Memory
Option B:	Short Term Memory and Random Access Memory
Option C:	Long Term Memory and Short Term Memory
Option D:	Long Term Memory and Random Access Memory
3.	Three basic ways to define a color palette for mobile design are _____.
Option A:	Sequential , Adaptive, Inspired
Option B:	Irrational , Adaptive, Inspired
Option C:	Sequential , Descriptive, Inspired
Option D:	Inspired , Adaptive, Influenced
4.	Mobile platforms those are sold to device makers for nonexclusive distribution on devices are called as _____.
Option A:	Open sourced platforms
Option B:	Proprietary platforms
Option C:	Licensed platforms
Option D:	Distributors platforms
5.	Technically games are really just native applications that use the similar platform SDKs to create immersive experiences. But they are different from native applications for the reason:
Option A:	They cannot be easily duplicated with web technologies
Option B:	Porting them to multiple mobile platforms is not easier
Option C:	They can be easily duplicated with web technologies
Option D:	They are not compatible with web technologies.
6.	Economy in visual pleasing composition refers to-
Option A:	Uniformity of elements based on some principle or plan.
Option B:	Stabilization or equilibrium, a midway center of suspension
Option C:	Frugal and judicious use of display elements
Option D:	Axial duplication
7.	The most immediate level of processing level that deals with audio, visual and other aspects of a product before experiencing it is :
Option A:	Behavioral level
Option B:	Reflective level

Option C:	Incremental level
Option D:	Visceral level
8.	As an interface designer, to ensure that emphasized screen elements stand out, which of the following techniques you will avoid?
Option A:	Higher Brightness
Option B:	Underlining
Option C:	Screen Clutter
Option D:	White Space
9.	Which of the following is the correct color association?
Option A:	Yellow — Go, OK, clear, vegetation, safety.
Option B:	Red — Stop, fire, hot, danger
Option C:	Green — Cold, water, calm, sky, neutrality.
Option D:	Blue — Caution, slow, test.
10.	The use of pop-up windows is to_____.
Option A:	Display additional information when an abbreviated form of the information is the main presentation technique.
Option B:	Collect primary information
Option C:	Cannot display textual labels for graphical controls.
Option D:	Collect the information of hardware system
11.	_____ is excluded in 'Direct manipulation'.
Option A:	The system is portrayed as an extension of the real world.
Option B:	Continuous visibility of objects and actions.
Option C:	Actions are rapid and incremental with visible display of results.
Option D:	Incremental actions are not reversible.
12.	A pie chart allows you to easily see_____.
Option A:	Information about the proportion of parts relative to the whole.
Option B:	The total number of each category.
Option C:	How much data occurs within a range of numbers.
Option D:	The spread of the data.
13.	The message which calls attention to conditions that require a user action before the system can proceed is :
Option A:	Informational message
Option B:	Status message
Option C:	Critical message
Option D:	Warning message
14.	Java, BREW, S60 comes under which layer of mobile ecosystem-
Option A:	Applications
Option B:	Application frameworks
Option C:	Operating Systems
Option D:	Operators
15.	To reduce screen complexity, Choose correct options.

Option A:	Optimize the number of elements on a screen
Option B:	Do not use any color on a screen
Option C:	Use too many colors on a screen
Option D:	Add more alignment points
16.	Good _____ Model provides Affordance, Mapping and Feedback.
Option A:	Physical
Option B:	Logical
Option C:	User
Option D:	Conceptual
17.	Technically games are really just native applications that use the similar platform SDKs to create immersive experiences. But they are different from native applications for the reason:
Option A:	They cannot be easily duplicated with web technologies
Option B:	Porting them to multiple mobile platforms is not easier
Option C:	They can be easily duplicated with web technologies
Option D:	They are not compatible with web technologies.
18.	A window will have a _____, usually rectangular in shape, to define its boundaries and distinguish it from other windows.
Option A:	Title bar
Option B:	Frame or border
Option C:	Toolbar
Option D:	Status bar
19.	SMS applications can be both _____ or _____.
Option A:	free , premium
Option B:	paid , premium
Option C:	paid , worthless
Option D:	free , worthless
20.	When you move the mouse towards the right pointer it will move towards right. This is an example of.....
Option A:	Feedback
Option B:	Constraints
Option C:	Mapping
Option D:	Affordances
21.	Analogical mapping becomes difficult if domains are _____.
Option A:	Semantically different
Option B:	Semantically same
Option C:	Logically different
Option D:	Syntactically different
22.	If a dial of the microwave is not able to fit on the washing machine controller panel, the constraint faced by designer is_____.
Option A:	Aesthetics
Option B:	Physical

Option C:	Ergonomics
Option D:	Environment
23.	Find odd one out regarding fundamental principles of interaction given by Don Norman.
Option A:	Heuristics
Option B:	Signifiers
Option C:	Affordances
Option D:	Mapping
24.	User drags a folder and animation appears on screen showing files moving from one location to another. This is an example of:
Option A:	Error Prevention
Option B:	Visibility of status
Option C:	Simplicity
Option D:	Consistency
25.	People's requirements always take precedence over technical requirement. This defines :
Option A:	Transparency
Option B:	Trade-offs
Option C:	Simplicity
Option D:	Responsiveness
26.	Disadvantage of a Web interface includes _____.
Option A:	Revolutionized Computing
Option B:	Faster Interaction access
Option C:	User control and slow download time
Option D:	Incremental Displays
27.	The remarkable principle of Mobile 2.0 is :
Option A:	Recognising that we are not only the consumers.
Option B:	Recognising that we are the Lords of the Mobile market
Option C:	Recognising that we are in a new age of consumerization
Option D:	Recognising that we are not recognised at all
28.	Which will be appropriate statistical graphics used to show relationships among individual data points in a two-dimensional array?
Option A:	Scatterplots
Option B:	Bar graph
Option C:	Pie chart
Option D:	Flowchart
29.	Browsers use colors that succeed on a variety of browsers and platforms, a palette of _____ colors.
Option A:	256
Option B:	216
Option C:	128

Option D:	64
30.	Which of the following is the correct color association?
Option A:	Yellow — Go, OK, clear, vegetation, safety.
Option B:	Red — Stop, fire, hot, danger
Option C:	Green — Cold, water, calm, sky, neutrality.
Option D:	Blue — Caution, slow, test.
31.	_____ appear in one plane on the screen and expand or contract to fill up the display surface, as needed.
Option A:	Cascading windows
Option B:	Tiled windows
Option C:	Overlapped windows
Option D:	Primary window
32.	Android is an example of _____.
Option A:	Open sourced platforms
Option B:	Proprietary platforms
Option C:	Licensed platforms
Option D:	Distributors platforms
33.	As an interface designer, to ensure that emphasized screen elements stand out, which of the following techniques you will avoid?
Option A:	Higher Brightness
Option B:	Underlining
Option C:	Screen Clutter
Option D:	White Space
34.	In web interface, navigation can be done through _____.
Option A:	Menus
Option B:	Lists
Option C:	Links
Option D:	Dialogs
35.	Which of the following refers to context SMS, Mobile websites, Mobile web widgets, Mobile web applications, Native applications?
Option A:	Interface types
Option B:	Mobile application medium types
Option C:	Mobile elements
Option D:	Design strategies
36.	A field of research called _____, a technology can manipulate our sense of touch.
Option A:	Haptics
Option B:	Virtual reality
Option C:	Augmented reality
Option D:	Brain computer interfaces

37.	Which interaction style is based on the user's memory retention ability?
Option A:	Command Language
Option B:	Form fill-in
Option C:	Menu Selection
Option D:	Direct Manipulation
38.	The within-text links should always be placed ____.
Option A:	At the end of the page
Option B:	At the beginning or end of paragraphs or sections of text
Option C:	Within the text
Option D:	Above the text
39.	To reduce screen complexity, Choose correct options.
Option A:	Optimize the number of elements on a screen
Option B:	Do not use any color on a screen
Option C:	Use too many colors on a screen
Option D:	Add more alignment points
40.	A special type of overlapping window that has the windows automatically arranged in a regular progression is ____
Option A:	Tiled Window
Option B:	Cascading Windows
Option C:	Primary Window
Option D:	Secondary Window

Descriptive Questions

1. Explain different phases of the goal directed design process.

Answer:

GOAL DIRECTED DESIGN PROCESS:

1. Goal Directed Design is a **user-centered methodology**.
2. It was developed by **Alan Cooper**.
3. Goal Directed Design identifies the goals and behaviors of users.
4. Goal Directed Design combines:
 - a. Techniques of ethnography.
 - b. Stakeholder's interviews.
 - c. Market Research.
 - d. Detailed user models.
 - e. Scenario based design.
 - f. A core set of interaction principles and patterns.
5. The process is broken down into the following steps as shown in figure 2.1.

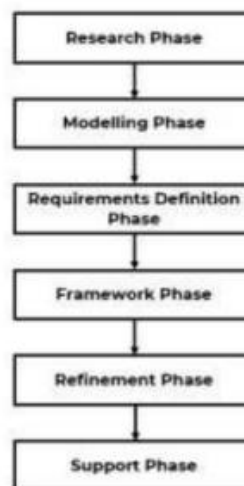


Figure 2.1: Goal Directed Design Process.

I) Research Phase:

1. Research Phase mainly focuses on market survey, conducting user interviews and user observation.
2. This phase will help to understand gap between user and developer.
3. This phase will generate **actual user information**.

II) Modelling Phase:

1. The output of research phase is converted to user model.
2. User model includes **information flow** and **work flow**.
3. This phase will help to understand user in details.

III) Requirement Definition Phase:

1. This phase is very important phase.
2. This phase is used for requirement collection.
3. This phase is used to provide the **connectivity** between the user, models and product framework.

IV) Framework Phase:

1. Framework Phase is used to provide actual product design and framework for the system behaviour.
2. It also proposes **product interaction framework**.

V) Refinement Phase:

1. Refinement Phase mainly emphasizes on details of system and product implementation.
2. It helps to create story board at very high level of details.

VI) Support Phase:

1. This phase tries to meet all future requirements.
2. Application and design level support is provided.
3. This phase will perform UAT to make sure that all developmental goals are fulfilled.

2. Mobile 2.0? Explain the principles of Mobile 2.0.

Answer:

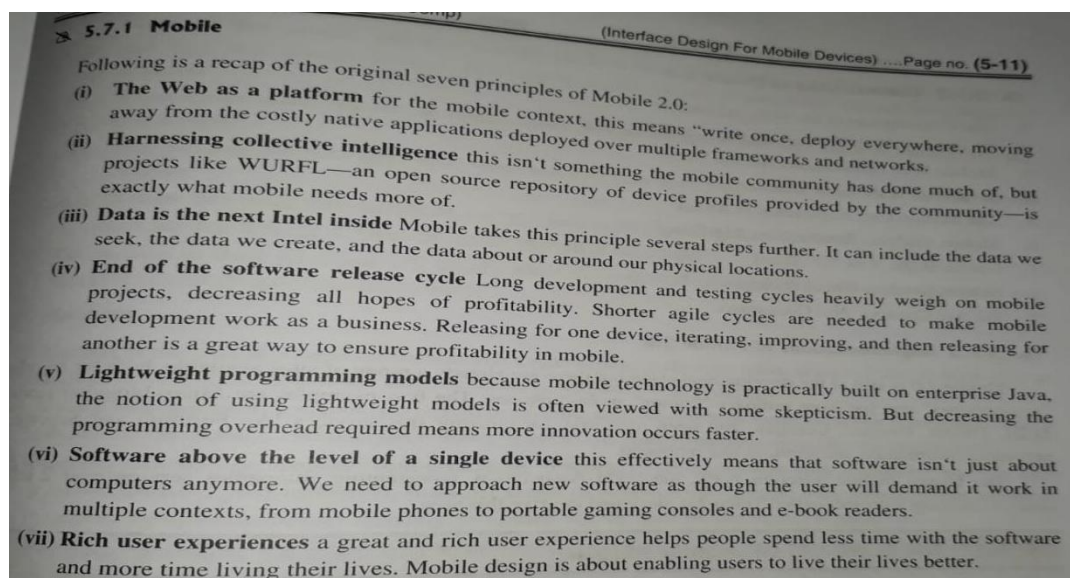
- Mobile 2.0, is the term derived, following the same principles of Web 2.0.
- Mobile 2.0 has made many things possible which were earlier not possible; users can not only connect by voice, but also control various devices online. Web is transformed into a more agile and user focused medium, which can very swiftly deliver information to masses, users can share personalized content on the mobile and web. Social media connectivity has become easier due to mobile 2.0, accesses have become easier, interlinked and just a touch away. Wireless connectivity has improved significantly, texting, sending, listening, capturing and viewing have become easier to access. All these multimedia features allow to convey rich multimedia content.

Enablers of Mobile 2.0

- Easy availability of high-speed mobile Broadband Access
- Open access, affordable access to various software platforms, tools and technologies.
- Monetization opportunities due to huge demand.

Characteristics of Mobile 2.0

- The social networking has become mobile.
- The users are the generator of content, the site is run by the content created by its users and contributors
- Syncing various platforms, applications and devices to supply a very immersive and rich user experience
- Its Personal, Always available, always connected.



3. What is statistical graphics? Explain different types of statistical graphics.

Answer:

STATISTICAL GRAPHS:

1. A statistical graphic is **data presented in a graphical format**.
2. A well-designed statistical graphic, also referred to as a chart or graph, consists of complex ideas communicated with clarity, precision, and efficiency.
3. It gives its viewer the greatest number of ideas, in the shortest time, and in the smallest space, and with least possible clutter.
4. It will also induce the viewer to think of substance, not techniques or methodology.
5. A well designed statistical graphic display also avoids distortions by telling the truth about the data.

USE OF STATISTICAL GRAPHICS:

1. Reserve for material that is rich, complex or difficult.
2. Data Presentation.
3. Emphasize the data.
4. Minimize non data elements.
5. Minimize redundant data.
6. Fill the graph's available area with data.
7. Show data variation.

TYPES:

I) Curve and Line Graphs:

- Curves and line graphs can be used to show relationships between sets of data defined by two continuous variables.
- They are especially useful showing data changes over time.
- With a curve, the data relations are summarized by a smoothed line.
- With a line, straight line segments connect the data plots.
- A line graph is illustrated in Figure 4.12.
- This kind of graph implies a continuous function.
- If the data point elements are discrete, it is better to use a bar graph.

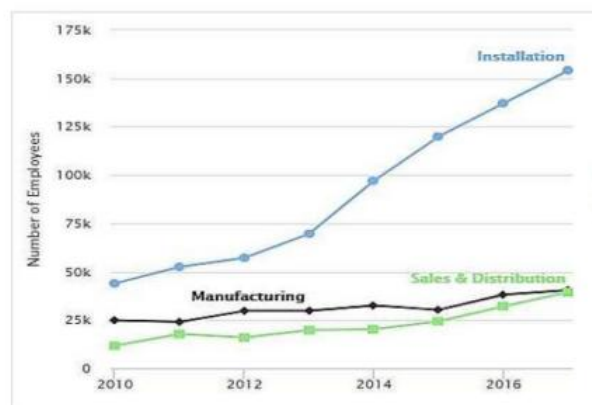


Figure 4.12: Line Graph

II) Surface Charts:

- A surface chart shows a three-dimensional surface that connects a set of data points.
- A surface chart is useful when you want to find optimum combinations between two sets of data.
- As in a topographic map, the colors and patterns in a surface chart indicate areas that contain the same range of values.
- Unlike other chart types, a surface chart does not use colors to distinguish the data series — colors are used to distinguish the values instead.
- To enhance a surface chart, you can change the colors and use transparency to display color bands that are obscured in the back of the chart.

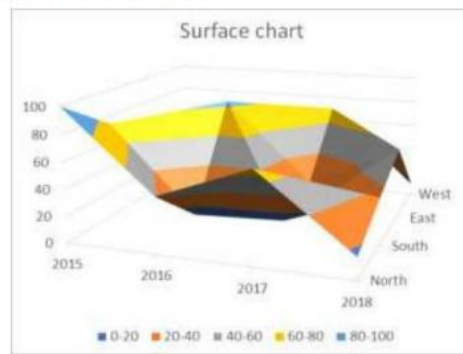


Figure 4.13: Surface Chart

III) Bar Graphs:

- A Bar Graph (also called Bar Chart) is a graphical display of data using bars of different heights.
- The bars can be plotted vertically or horizontally.
- A vertical bar chart is sometimes called a column bar chart.
- A bar graph is a chart that uses either horizontal or vertical bars to show comparisons among categories.
- One axis of the chart shows the specific categories being compared, and the other axis represents a discrete value.
- It is necessary to keep space between bars equal to one half the widths of the bars or less.

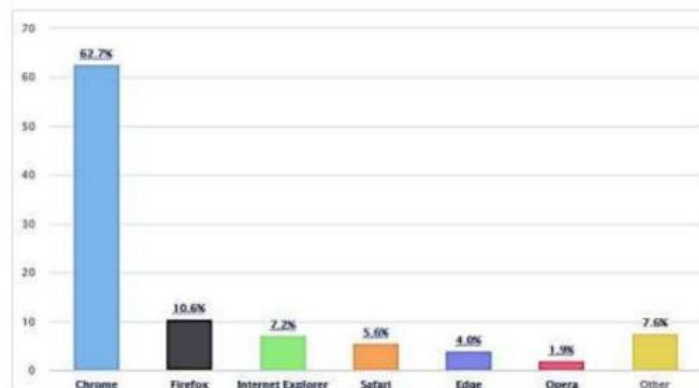


Figure 4.14: Bar Graph

IV) Segmented or Stacked Bars:

- Bar graph represents the frequencies of categories of one variable; a stacked (segmented) bar graph represents the frequencies of combinations of categories of two variables.
- In a stacked (or segmented) bar graph:
 - The horizontal axis still represents one variable, with each bar representing one of the categories of the variable.
 - Each bar is segmented according to the categories of the second variable.
- Alternatively, each bar can be seen as being made up of smaller bars stacked on top of each other.
- Always use different texture or coding schemes to differentiate the area within each bar.

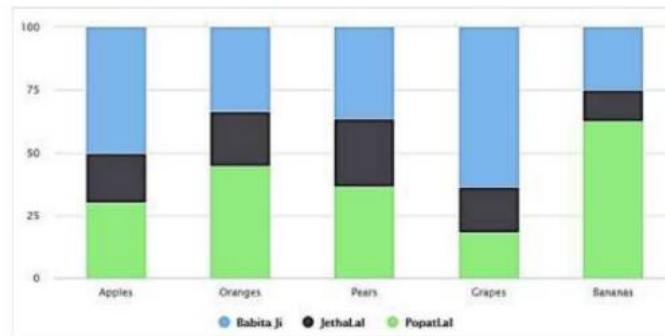


Figure 4.15: Stacked Bar Graph

V) Scatter Plots:

- A Scatter (XY) Plot has points that show the relationship between two sets of data.
- A scatter plot or scatter graph is a type of mathematical diagram using Cartesian coordinates to display values for two variables for a set of data.
- The data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis.
- This kind of plot is also called a scatter chart, scatter gram, scatter diagram or scatter graph.

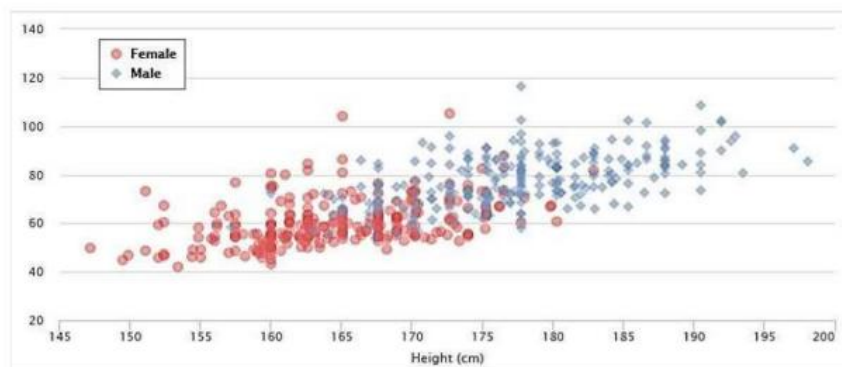


Figure 4.16: Scatter Plots

VI) Pie Charts:

- A pie chart (or a circle chart) is a circular statistical graphic.
- It is divided into slices to illustrate numerical proportion.
- In a pie chart, the arc length of each slice is proportional to the quantity it represents.
- Pie charts are very widely used in the business world and the mass media.
- Pie charts should be used with cautions.

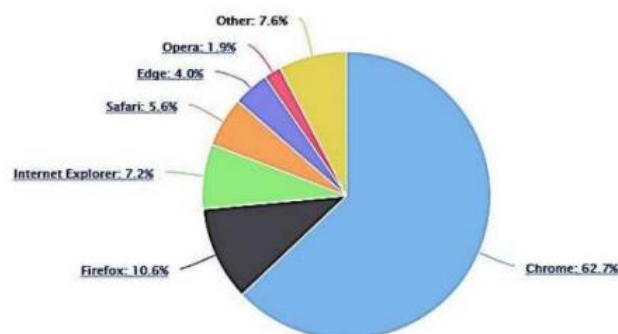


Figure 4.17: Pie Chart

4. Explain techniques of organizing screen elements, ordering of screen data and content.

Answer:

ORGANIZING SCREEN ELEMENTS:

1. Visual clarity is achieved when the display elements are organized and presented in meaningful and understandable ways.
2. A clear and clean organization makes it easier to recognize screen's essential elements.
3. Clarity is influenced by a multitude of factors: consistency in design, a visually pleasing composition, a logical and sequential ordering & groupings.
4. It includes consistency such as provide real world consistency & internal consistency.

ORDERING OF SCREEN DATA & CONTENT:

1. Ordering of screen can considered as dividing information into units that are logical, meaningful and sensible.
2. It should be organize by the degree of interrelationships between data or information.
3. It should provide an ordering of screen units of elements depending on priority.
4. It ensure that information is visible.
5. It consists of form groups that cover all possibilities.
6. Possible ordering schemes include:
 - a. Conventional.
 - b. Sequence of use.
 - c. Frequency of use.
 - d. Function.
 - e. Importance.
 - f. General to specific.

5. Explain the seven stages of action and three levels of processing.

Answer:

THREE LEVELS OF PROCESSING:

1. Three Levels of Processing is used in **Usability Design**.
2. Usability Design is a measure of the interactive user experience associated with a user interface.
3. User Interface can be a **website or software application**.
4. Three levels of processing was suggested by **Donald Norman**.
5. Figure 1.1 represents the three levels of processing.

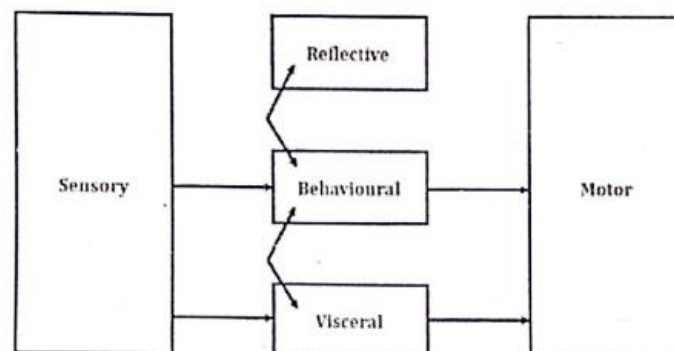


Figure 1.1: Three levels of processing.

Figure 10. Three levels of processing.

I) Level – 1 (Visceral Level):

1. It is initial level of processing.
2. In this step of processing, human **react to visual and other sensory aspects** of a product before they actually interact with it.
3. It helps to make rapid decisions about what is good, bad, safe or dangerous.
4. Visceral design often refers to **enhancing visual appearance**.

II) Level – 2 (Behavioral Level):

1. It is middle level of processing.
2. Behavioral Level is used to manage simple, everyday behaviors.
3. Behavioral design tells us how to "behave" or "respond" to messages the products give us.
4. That is how to use or interact with the product in a certain way.
5. For **Example**: A simple push plate on a glass door tells us that this door can be opened by pushing, not pulling.

III) Level – 3 (Reflective Level):

1. It is final level of processing.
2. In this step of processing, the **analysis and reflection of all experiences done** in past is stored.
3. It is stored in human brain.
4. Using this past experiences, the future requirements to plan for goal is done.
5. For **Example**: Reflective design can tell us about the owner's taste in products.
6. Since the products that people allow others to see themselves possessing can be a reflection of what he/she wants to be in life.

SEVEN STAGES OF ACTION:

1. Seven stages of action is a term coined by the usability consultant **Donald Norman**.
2. As per Norman, human actions will have two basic aspects:
 - a. Execution.
 - b. Evaluation.
3. The task which is performed by human is referred as action i.e. **execution**.
4. Once action is performed that must be analyze for improvement i.e. **evaluation**.
5. So the model is divided into an execution phase and a phase of the evaluation.

6. Figure 1.2 represents seven stages of action.

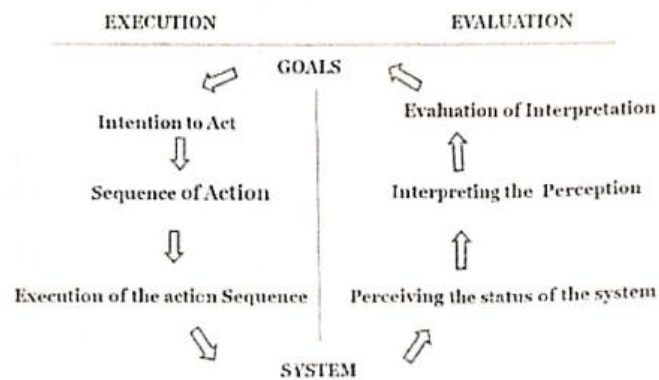


Figure 1.2: Seven Stage of Action.

7. The model belongs to one of the most famous Interaction theories that have been used to model user behavior, evaluation, and to set up policies like to create user-friendly interfaces.

Stage 1 (Goal) : Setting goal of action.

Execution

- a. Stage 2 (Plan) : Set up Plan of Action.
- b. Stage 3 (Specify) : Specifying an action to be performed.
- c. Stage 4 (Perform) : Performing the action.

Evaluation

- a. Stage 5 (Perceive) : Identify the state of the external world.
- b. Stage 6 (Reflect) : Interpreting the state of the external world.
- c. Stage 7 (Compare) : Evaluation of Action output by comparison with other actions.

Example → "I am reading a book and decide to need more light".

- ① My goal : get more light
- ② Intention: Push the switch button on the lamp
- ③ Action Sequence (still a mental event) to satisfy intention: move my body, stretch to reach the switch extend my finger.
- ④ Physical execution: action sequence executed.
- ⑤ Perceive whether there is more light in room.
- ⑥ Decide whether the lamp turned on
- ⑦ Decide whether the resulting amount of light is sufficient.

6. List and explain various types of windows with suitable example.

Answer:

TYPES OF WINDOWS:

I) Primary Window:

1. The primary window is the first window which appears on the screen when activity or action is started.
2. Primary window represents an independent function or application.
3. Primary window is used to present information that is continually updated for example: Date and time.
4. Figure 6.1 represents primary window

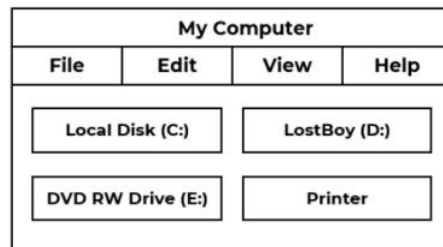


Figure 6.1: Primary Window

II) Secondary windows:

1. Secondary windows are **supplementary windows**.
2. Secondary windows may be dependent upon a primary window or displayed independently of the primary window.
3. Secondary windows are used for performing subordinate, supplementary or ancillary actions.

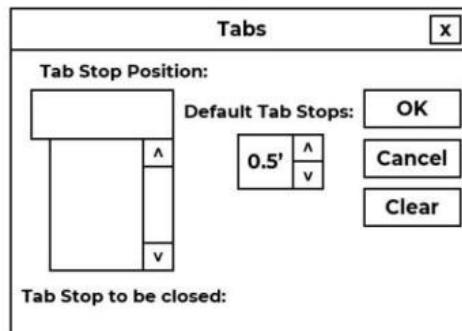


Figure 6.2: Secondary Window

III) Dialog Boxes:

1. It is used for **presenting brief messages**.
2. It includes command buttons such as OK, Cancel etc.
3. It is also used to perform actions that take short time to complete and are not frequently changed.
4. **Example** of dialog box is shown below in figure 6.3.

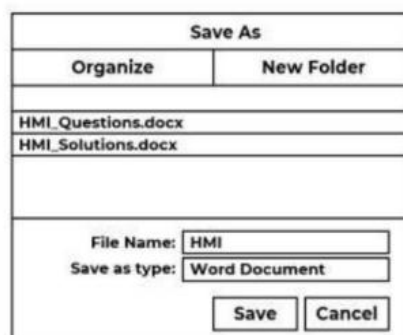


Figure 6.3: Dialog Boxes

IV) Property Sheets and Property Inspectors:

1. It is used for presenting complete set of properties for an object.
2. The recommended sizes for property sheets are:
 - a. 252 DLUs wide x 218 DLUs high.
 - b. 227DLUs wide x 215 DLUs high.
 - c. 212 DLUs wide x 188 DLUs high.
3. It includes the command buttons like Ok, Cancel, Apply, Reset etc.
4. Figure 6.4 represents Property Sheets and Property Inspectors

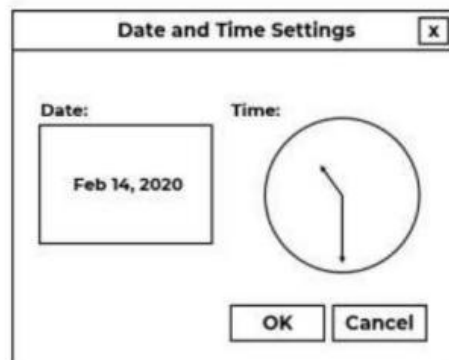


Figure 6.4: Property Sheets and Property Inspectors

V) Message Boxes:

1. It is used to display a message about a particular situation or condition.
2. It includes command buttons such as OK, Cancel, Help, Yes and No etc.
3. It is used to enable title bar close box only if the message includes a cancel button.
4. **Example** of message box is shown below in figure 6.5.



Figure 6.5: Message Boxes

VI) Palette Windows:

1. It is used to present a set of control.
2. It is design as resizable. Alternately, design them as fixed in size.
3. **Example** of palette window is shown below in figure 6.7.

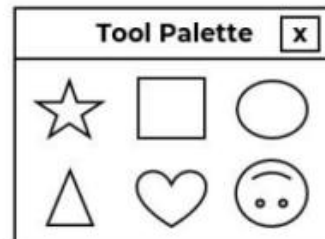


Figure 6.6: Palette Window

VII) Pop Up Windows:

1. It is used to display addition information.
2. It is also used to display **context sensitive help information**.
3. It displays textual labels for graphics controls.
4. **Example** of pop up window is shown below in figure 6.7.

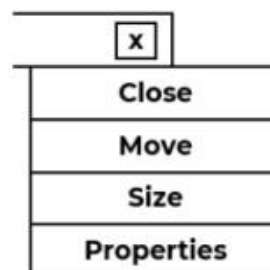


Figure 6.7: Pop Up Window

7. Differentiate between Graphical User Interface and Web User Interface.

Answer:

Table 3.1: Comparison between GUI & Web Page Design

Points	Graphical User Interface	Web Page Design
Definition	GUI is the type of interface which allows users to interact with electronic devices through	Web page designing is a process of creating a plan and originating the development of a specific web page.

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Chap – 3 | Graphical User Interface

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	graphical icons and visual indicators such as secondary notation.	
User focus	Data & applications.	Information & navigation.
Hardware variation	Limited.	Enormous.
User tasks	Install, configure, personalize, start, use and upgrade programs.	Link to a site, browse or read pages, fill out forms, register for services etc.
Presentation element	Windows, menus, control, data, message, toolbars etc.	Two components browse and pages.
Navigation	Through menus, lists, trees, dialogs and wizards.	Through links, bookmarks and typed URLs.
Interaction	Interactions such as clicking menu choices, pressing buttons, selecting list choices.	Basic interaction is single click.
Response time	Nearly instantaneous	Quite variable depending on transmission speeds, page content and so on.
Users conceptual space	Controlled and constrained by program.	Infinite and generally unorganized.
System capability	Unlimited capability proportional to sophistication of hardware and software.	Limited by constraints imposed by the hardware, browser, software and client support.

8. Discuss different presentation styles of Windows? State advantages and disadvantages of each style.

Answer:

WINDOW PRESENTATION STYLES:

1. The presentation style of a window refers to its spatial relationship to other windows.
2. There are two basic styles, commonly called **tilled or overlapping**.

I) Tiled Windows:

1. Tiled windows derive their name from common floor or wall tile.
2. Tiled windows appear in one plane on the screen and expand or contract to fill up the display surface, as needed.
3. Most systems provide two-dimensional tiled windows, adjustable in both height and width.
4. Figure 6.8 represents Tiled Windows.

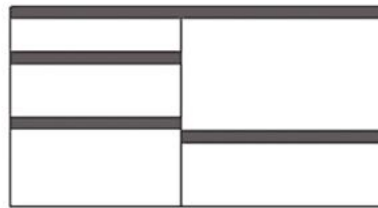


Figure 6.8: Tiled Windows.

Advantages:

1. Windows are positioned automatically, so there is no need for the user to decide on positioning.
2. Open windows are always visible, eliminating the possibility of them being lost and forgotten.
3. Every window is always completely visible, eliminating the possibility of information being hidden.
4. They are easier, according to studies, for novice or inexperienced people to learn and use.
5. They yield better user performance for tasks.

Disadvantages:

1. Only a limited number can be displayed in the screen area available.
2. As windows are opened or closed, existing windows change in size. This can be annoying.
3. As windows change in size or position, the movement can be disconcerting.
4. As the number of displayed windows increases, each window can get very tiny.
5. The changes in sizes and locations made by the system are difficult to predict.
6. They permit less user control because the system actively manages the windows.

II) Overlapping Windows:

1. Overlapping windows may be placed on top of one another like papers on a desk.
2. They possess a three-dimensional quality, appearing to lie on different planes.
3. Size of the overlapping window can be altered.
4. Location as well as the plane of the windows is user controlled.
5. Figure 6.9 represents overlapping windows.

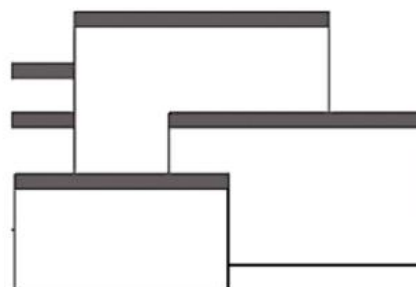


Figure 6.9: Overlapping Windows.

Advantages:

1. Visually, their look is three-dimensional, resembling the desktop that is familiar to the user.
2. Greater control allows the user to organize the windows to meet his or her needs.
3. Windows can maintain larger sizes.
4. Windows can maintain consistent sizes.
5. Windows can maintain consistent positions.
6. Screen space conservation is not a problem, because windows can be placed on top of one another.
7. They yield better user performance for tasks where the data requires much window manipulation to complete the task.

Disadvantages:

1. They are operationally much more complex than tiled windows.
2. More control functions require greater user attention and manipulation.
3. Information in windows can be obscured behind other windows.
4. Windows themselves can be lost behind other windows and be presumed not to exist.
5. That overlapping windows represent a three-dimensional space is not always realized by the user.
6. Control freedom increases the possibility for greater visual complexity and crowding.
7. Too many windows, or improper offsetting, can be visually overwhelming.

III) Cascading Windows:

1. It is a special type of overlapping window.
2. It has the windows automatically arranged in a regular progression.
3. Each window is slightly offset from others, as illustrated in Figure 6.10.

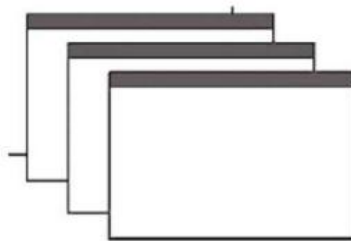


Figure 6.10: Cascading Windows.

Advantages:

1. No window is ever completely hidden.
2. Bringing any window to the front is easier.
3. It provides simplicity in visual presentation and cleanliness.

PICKING A PRESENTATION STYLE:**Use tiled windows for:**

1. Single-task activities.
2. Data that needs to be seen simultaneously.
3. Tasks requiring little window manipulation.
4. Novice or inexperienced users.

Use overlapping windows for:

1. Switching between tasks.
2. Tasks necessitating a greater amount of window manipulation.
3. Expert or experienced users.
4. Unpredictable display contents.

9. What are general design principles to be considered for User Interface Design?
Also give suitable example for the same. (CH3)

Answer:

USER INTERFACE DESIGN:

1. User Interface Design is also known as **User Interface Engineering**.
2. User Interface Design is the design of user interfaces for machines and software, such as computers, home appliances, mobile devices, and other electronic devices.
3. It basically focus on **maximizing usability and the user experience**.
4. The goal of user interface design is to make the user's interaction as simple and efficient as possible.

GENERAL PRINCIPLES OF USER INTERFACE DESIGN:

I) Clarity:

1. Clarity is the most important element of user interface design.
2. It means the information content is **conveyed accurately**.
3. Clarity must be reflected in the concepts, languages and vision including:
 - a. Visual Elements.
 - b. Functions.
 - c. Metaphors.
4. **Example:** Tooltip is used to explain the functionality of buttons.



II) Consistency:

1. Consistency means the design and behavior across every part of the system should be **similar**.
2. A system should look, act, and operate the same throughout.
3. Similar components should:
 - a. Have a similar look.
 - b. Have similar uses.
 - c. Operate similarly.
4. The same action should always yield same result.
5. Consistency enables users to **develop usage patterns**.
6. **Example:** The Microsoft Office user interface is consistent for all applications such as Word, Excel, PowerPoint etc.



III) Responsiveness:

1. Responsive means a couple of things, basically responsive means **fast**.
2. That is the system must quickly respond to the request made by the user.
3. Responsive also means the interface provides **some form of feedback**.
4. Knowledge of results, or feedback, increases confidence.
5. **Example:** Instead of gradually loading the page, Gmail shows a progress bar when you first go to your inbox. This allows for the whole page to be shown instantly once everything is ready.



IV) Efficiency:

1. Efficiency means achieving maximum productivity with minimum effort.
2. A good interface should allow user to perform functions faster and with less effort.
3. Efficiency minimize eye and hand movements and other control actions.
4. To achieve efficiency, real world metaphors must be provided.
5. **Example:** Providing buttons to accomplish each of some functions in the photo controls.



V) Forgiveness:

1. Users are bound to make mistakes when using your software or website.
2. A forgiving interface is one that can save your users from costly mistakes.
3. Human errors that are inevitable must be tolerated and forgiven.
4. Disastrous error must be provided strong protection.
5. Error must be supported with productive, effective and positive messages.
6. **Example:** Trashed the wrong email by mistake? Gmail lets you quickly undo your last action.

The conversation has been moved to the Trash. [Learn more](#) [Undo](#)

10. Draw and explain layers of mobile ecosystem. / Explain Mobile Ecosystem

Answer:

MOBILE ECOSYSTEM:

1. Mobile is an entirely unique ecosystem and like the Internet, it is made up of many different parts that must all work seamlessly together.
2. If the Internet is a cloud, then the mobile ecosystem would be the atmosphere, made up of many clouds.
3. Figure 5.1 shows layers of mobile ecosystems.
4. Each layer is reliant on the others to create a seamless, end-to-end experience.

Services
Applications
Application Frameworks
Operating Systems
Platforms
Devices
Aggregators
Network
Operators

Figure 5.1: Layers of Mobile Ecosystems

I) Operators:

1. The base layer in the mobile ecosystem is the operator.
2. Operators can be referred to as Mobile Network Operators (MNOs).
3. Operators are what essentially make the entire mobile ecosystem work.
4. They are the gatekeepers to the kingdom.
5. The operator's role in the ecosystem is to create and maintain a specific set of wireless services over a reliable cellular network.

II) Network:

1. Operators operate wireless networks.
2. Remember that cellular technology is just a radio that receives a signal from an antenna.
3. The type of radio and antenna determines the capability of the network and the services you can enable on it.
4. The vast majority of networks around the world use the GSM standard, using GPRS or GPRS EDGE for 2G data and UMTS or HSDPA for 3G.

III) Aggregators:

1. Aggregators are also known as Mobile Enablers.
2. Aggregators are third-party companies that bridge the gap between content owners, carriers/operators, and consumers.
3. They are a necessary middleman with untapped experience and knowledge that can't be overlooked or undervalued.

IV) Devices:

1. Devices in mobile industry are considered as handsets and terminals.
2. These are terms that are becoming outdated with the emergence of wireless devices that rely on operator networks, but do not make phone calls.
3. Example: Mobile Phones

V) Platforms:

1. A mobile platform's primary duty is to provide access to the devices.
2. To run software and services on each of these devices, you need a platform, or a core programming language in which all of your software is written.
3. Like all software platforms, these are split into three categories: **licensed, proprietary, and open source.**

VI) Operating Systems:

1. This is the important component of a Mobile, which controls/operates all applications that are residing on the mobile phone.
2. Android is open source and IOS is a closed source.
3. Example: IOS, Android, BlackBerry OS, Symbian, Bada etc.

VII) Application Frameworks:

1. Application frameworks often run on top of operating systems, sharing core services such as communications, messaging, graphics, location, security, authentication, and many others.
2. Application frameworks are used to create applications, such as a game, a web browser, a camera, or media player.
3. Although the frameworks are well standardized, the devices are not.

VIII) Applications:

1. Applications are usually refers to a computer program that runs on a website (Google Apps), a small computing devices (iPad App) or a cell phone (Android App).
2. Application is a point of interaction between device and the user.
3. Example: Games, Web Browser, Camera or Media Player.

IX) Services:

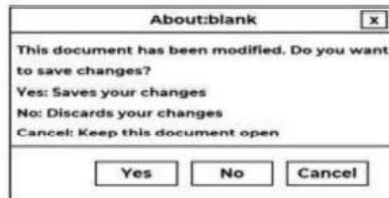
1. Services are everything the user is trying to do.
2. They are often available at different levels such as Application, Application Framework and Operating System.
3. Example of services may include:
 - a. Internet.
 - b. Sending a text message.

11. Explain importance of Text messages with respect to communication with users.

Answer:

TEXT MESSAGE:

1. Text based communication is a dominant form of direct communication.
2. Text message are the form of text based communication.
3. Text message are communication provided on the screen to the user or viewer.
4. Screen messages fall into two broad categories:
 - a. **Instructional messages (prompting message):** Tell the user how to work with, or complete the screen displayed.

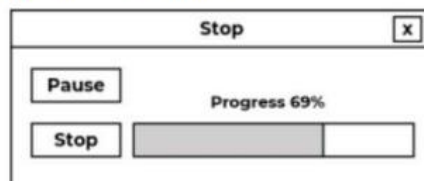


- b. **System messages:** Generated by the system to keep the user informed of the system's state and activities.

TYPES OF SYSTEM MESSAGES:

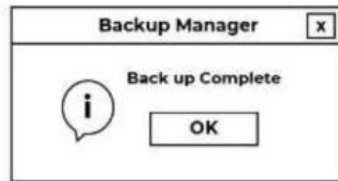
I) Status messages:

1. It provides information concerning the progress of a lengthy operation.
2. It usually contains a progress indicator and a short message.
3. It contain a cancel button to stop the operation being performed.
4. Pause and resume buttons may also be included.



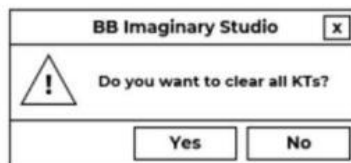
II) Informational messages:

1. It is also known as notification messages.
2. This kind of message is usually identified by an "i" icon to the left of the message.
3. It is used to provide the information about the state of system.



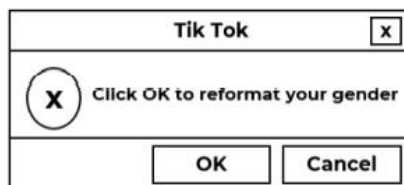
III) Warning messages:

1. They are usually identified by an "!"
2. The user must determine whether the situation is in fact a problem and may be asked to advise the system whether or not to proceed.
3. A deletion request by a user is any action that commonly generates a warning message.



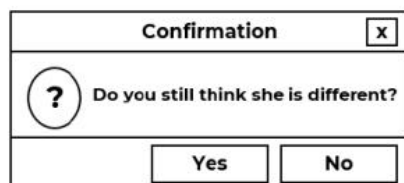
IV) Critical messages:

1. They are also known as Action Messages.
2. A message describing an erroneous situation is usually presented as a critical message.
3. Some products use a "Do Not" symbol while others use a "Stop" sign. An X in a circle used by Microsoft Windows.
4. Critical messages require user action to continue.



V) Question Messages:

1. A question message asks a question and offers a choice of options for selection.
2. It is designated by a "?" icon preceding the message text.
3. This type of message is used when there is a question to be asked.



IMPORTANCE OF TEXT MESSAGE:

1. Wording of the interface and its screens is the basic form of communication with the user.
2. Clear and meaningfully crafted words, messages, and text lead to greatly enhanced system usability.
3. Clear Text Message minimize the user confusion that leads to errors.

Words:

1. Do not use technical words, made-up words or terms such as filespec,abend, or spool, Ungroup or de-archive.
2. Do not use abbreviations or acronyms.

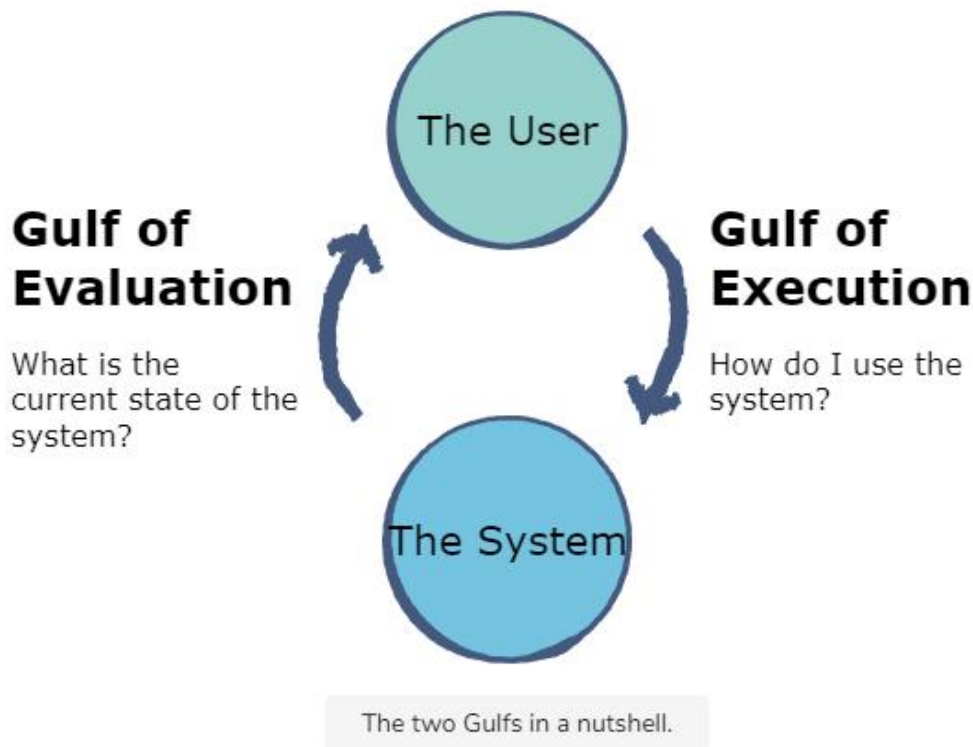
Sentences & message:

1. Brief and simple.
2. Directly and immediately usable.

12. Explain the gulf of execution and gulf of evaluation.

Answer:

The terms **gulf of execution** and **gulf of evaluation** were introduced by usability researcher Donald Norman. They are concepts that are essential to understanding the interaction between humans and computers. The two gulfs are closely related to Norman's Seven Stages of Action; the first four stages make up the gulf of execution, while the next three stages make up the gulf of evaluation. Consider the diagram below:



Gulf of execution

Gulf of execution is the degree of ease with which a user can understand the current state of a system. It is the difference between the intentions of the users and what the system allows them to do.

For example, a person can look at a light switch and easily tell what the current state of the system is (i.e., whether the light is on or off) and how to operate the switch. This means that the gulf of execution is small. Norman states that, in order to design the best interfaces, the gulf must be kept as small as possible.

Gulf of evaluation

Gulf of evaluation is the degree of ease with which a user can perceive and interpret whether or not the action they performed was successful. This gulf is small when the system provides information about its state in a form that is easy to receive, interpret, and matches the way the person thinks of the system.

Consider the same light switch example; if a person looks at a light switch, the gulf of evaluation is very small since, with one switch, the user will immediately know if their action was successful. An example of a large gulf of evaluation is when an application has a spinning wheel to show a “loading” state after the user performs an action. The wheel alone is not enough for the user to interpret the progress that the system is making in response to their action. The gulf can be shortened by having a loading bar instead.

13. Write short note on Icons.

Answer:

ICONS:

1. Icons is picture that represents an **object or program**.
2. An icon is a graphical representation of a program or file that, when clicked on, will be run or opened.
3. Icons are used with **Graphical User Interface (GUI) operating systems**.
4. GUI operating systems includes Microsoft Windows and the Apple MAC-OS etc.
5. **Example:** My Computer icons in Microsoft Windows.

Advantages:

1. It helps to add a creative touch to the website or application.
2. Icons can communicate an idea in seconds.

INFLUENCE OF ICONS:

Provide icons that are

I) Familiar:

- It reduces the learning time.
- Experience often makes words and number more familiar to a person than symbols.
- Graphic symbols may be more visually similar to each other.

II) Clarity:

- The resolution and pixel shapes for screen differ from one another.
- Icons must appear correctly and consistently no matter what kind of screen is used.
- If color is used then it must be contrast well with the background.
- Poor clarity will lead to low performance.

III) Simple:

- Designed icon should be simple.
- Too many parts will confuse the screen viewer.

IV) Consistent:

- Icons displayed on different screen should be consistent in structure & shape.
- Icons displayed on different sizes should be consistent in structure & shape.

V) Directness of the meaning:

- Icons should convey its intended meaning directly.
- For concrete objects and actions, direct links are more easily established.

VI) Efficient:

- In some case, graphical, screen is less efficient, consuming more screen display space than a word.
- Icons strength lies in a situation where small area of space is required to communicate the concept.

VII) Discriminable from others:

- Symbols chosen must be visually discriminable from other symbols.
- Person's ability to discriminate alphabetic information is much more potent.

14. Explain the guidelines for color selection for web pages.

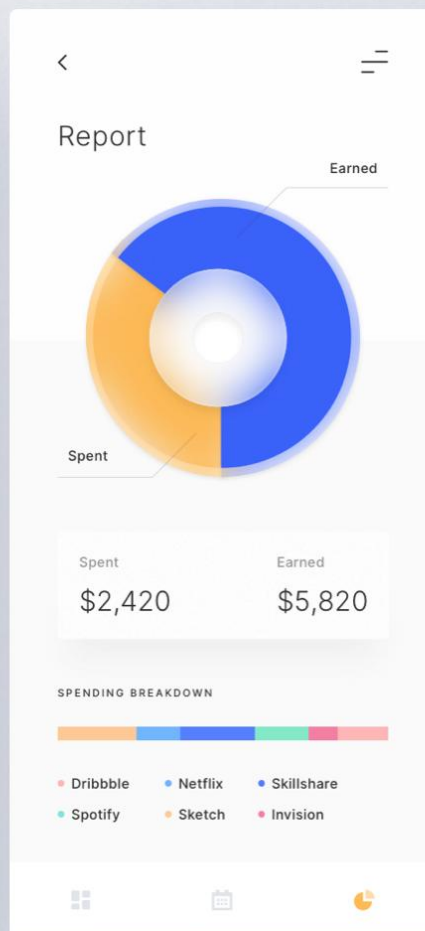
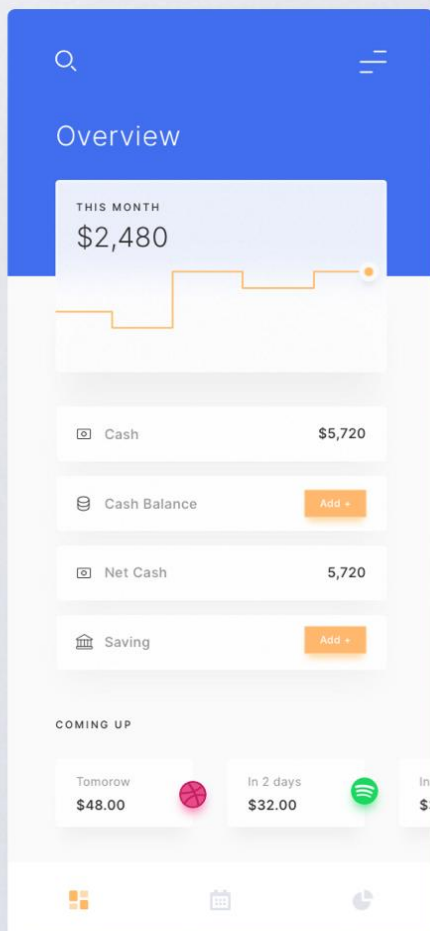
Answer:

Choosing color for web pages

- Always use minimum colors minimize for faster downloading
- Always consider color in overall context and never in isolation
- Using a similar or same color schemes throughout a Website help the user maintain a sense of place
- Background and Foreground colors should be a different as possible.
- Black color is the most recommended foreground text color, a light-colored background of low intensity (off white or light gray)
- Dark backgrounds are used when establishing contrast between an area of the screen and the main screen body
- High intensity colors used as back-ground such as red, magenta and bright green must be avoided
- Contrasting combinations must be selected while choosing foreground and background colors
- Uniform color should be used in large screen areas
- Large areas of the same color can download faster
- Contrast can be used for smaller element
- Use of flat Web-safe colors is recommended
- Select easily reproducible color while converting to black and white

Design Questions

15. Design a user interface for a 'Save Girl Child' awareness campaign. Assume appropriate data required for it.
16. Design the web user interface of a monthly expense tracker. Assume suitable data and draw interfaces neatly.



The 'Add a bill' screen has a white header with a back arrow and a menu icon. It contains a form with the following fields:

- NAME:** A text input field with a Netflix icon and a 'Clear' button.
- NEXT BILL DUE:** A text input field.
- FREQUENCY:** A dropdown menu showing 'Every Month' with a 'Change' button.
- AMOUNT:** A text input field showing '\$64.00'.

At the bottom of the form is a large orange 'Add Bill' button.

17. State Electricity Distribution Company wants to provide self help portal for its customers. The portal consists of online meter logging facility, Bill Payments, VDS i.e. Voluntary Deposit Scheme for Bill. Complaint and other Facilities. Being a Subject Matter Expert (SME) provide the detailed analysis along with interface that will be used by people in all Districts.

(Similar question)

Q6] In the state of Maharashtra, Water Distribution Company want to provide self - help portal for its customers. The portal consists of online meter logging facility, Bill Payments, VDS i.e. Voluntary Deposit Scheme for Bill. Complaints and other facilities. Being a Subject Matter Expert (SME) provide the detailed analysis and for the same provide the Interface that will be used by people in all Districts of Maharashtra.

[10M | Dec16]

Ans:

SYSTEMATIC DESIGN ANALYSIS:

1. Systematic Design Analysis is detailed analysis about the system in systematic way.
2. It is used to identify and develop the design requirements.
3. It is based on principle of **divergence and convergence**.
4. Systematic design analysis includes following steps as shown in figure 7.12.

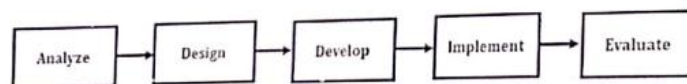


Figure 7.12: Systematic Design Analysis.

DETAILED DESIGN ANALYSIS FOR WATER DISTRIBUTION SELF-HELP PORTAL:

I) Analyze:

1. In this phase, **system goal** is identified.
2. All the requirement for the water distribution company is collected and analyzed.
3. All the information about online meter logging facility, Bill Payments, VDS i.e. Voluntary Deposit Scheme for Bill. Complaints and other facilities etc. are identified and analyzed.

II) Design:

1. In this phase, the **user persona** is design.
2. Persona is defined based on literacy levels and technological competence.

III) Develop:

1. According to the persona, design is developed

2. Self-help portal for Water Distribution Company is developed by considering all the requirements which were analyzed.

iv) **Implement:**

1. Final web portal is implemented using various coding languages like .NET, PHP or Java.
2. It has **low learn ability curve**.

v) **Evaluate:**


1. Once the system is developed, it is then evaluated.
2. All quality check for the self-help portal is performed.

SYSTEM DESIGN:

1. Some of the Interface Design for Water Distribution Company self-help portal is shown below.
2. It includes information about online meter logging facility, Bill Payments, VDS i.e. Voluntary Deposit Scheme for Bill. Complaints and other facilities etc.

HOME PAGE OF SELF-HELP PORTAL:

Home Page of Self-Help Portal is shown below.

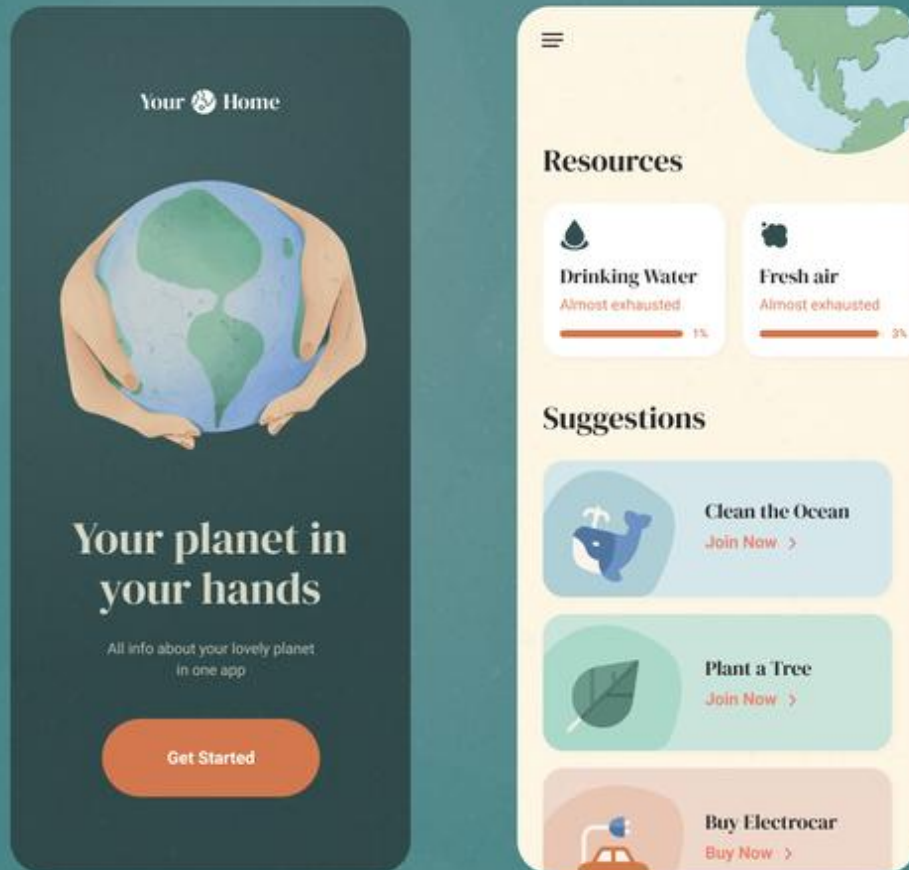
E - Water Distribution Self-Help Portal				
Home	Scheme ▼	Right to Information	Citizen's Charter	Contact Persons
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; width: 30%;"> <div style="text-align: center; margin-bottom: 5px;"><input type="button" value="Meter Logging"/></div> <div style="text-align: center; margin-bottom: 5px;"><input type="button" value="Bill Payment"/></div> <div style="text-align: center; margin-bottom: 5px;"><input type="button" value="VDS"/></div> <div style="text-align: center; margin-bottom: 5px;"><input type="button" value="Help"/></div> <div style="text-align: center;"><input type="button" value="Complaints"/></div> </div> <div style="text-align: center; width: 20%;">  <small>सत्यमेव जयते</small> </div> <div style="width: 30%;"> <p style="text-align: center; margin-bottom: 10px;">User Login</p> <div style="margin-bottom: 5px;"><input type="text" value="Username"/></div> <div style="margin-bottom: 5px;"><input type="text" value="Password"/></div> <div style="text-align: center;"><input type="button" value="Login"/></div> <p style="text-align: center; font-size: small;">Don't Have Account? Click Here to sign up</p> </div> </div>				

Online Bill Payment:

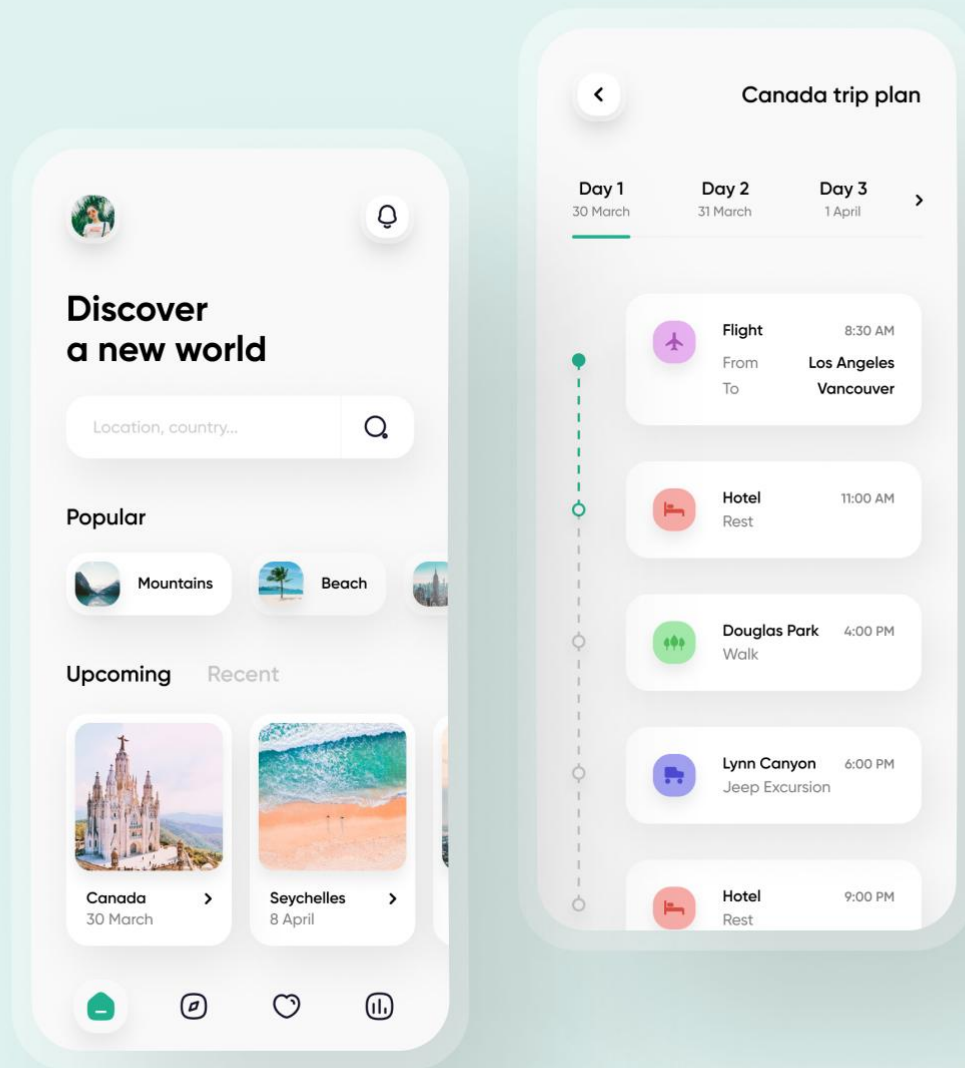
Online Bill Payment Screen is shown below.

E - Water Distribution Self-Help Portal	
Home	Scheme ▼
<div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> Right to Information Citizen's Charter Contact Persons </div>	
<p>View / Pay Bill</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 40%;"> <p>Consumer Type: <input type="text"/></p> <p>Consumer No: <input type="text"/></p> <p>Billing Unit: <input type="text"/></p> </div> <div style="width: 10%; text-align: center;"> ▼ ▼ </div> </div> <div style="display: flex; justify-content: center; margin-top: 10px;"> <input type="button" value="Submit"/> <input type="button" value="Clear"/> </div>	

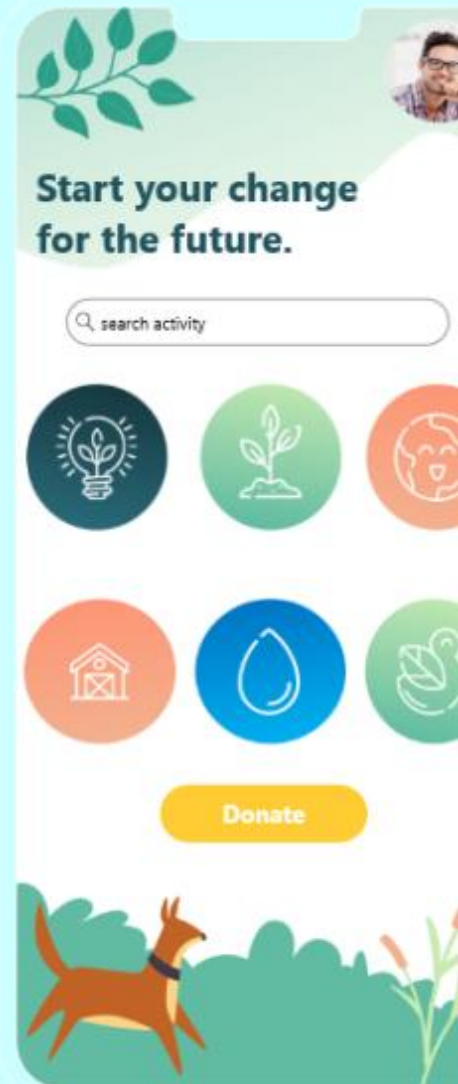
18. Design a user interface for a 'Save Earth' awareness campaign. Assume appropriate data required for it.



19. Design the web user interface of a vacation planner. Assume suitable data and draw interfaces neatly. (Draw it as a web interface)




20. Design a user interface to spread awareness about 'Clean India....Green India'



21. Design a user interface for a 'Save Water' campaign. Assume appropriate data required for it.

22. Design a user interface of Career Guidance for 12th standard students. It should give information about various fields available, eligibility criteria, future scope, fees etc.

9:41






Let's Sign Up


Create Account

Already have an account? [Log in](#)

Sign up with

9:41



Darlene Robertson

Speciality :


Career Guidance Mentor Advisor Consultant

Fees : Free demo counselling

(45 Mins) | 27 mar 2021



9:41



Kathryn Murphy

4.6

8 AM to 9AM | 27 Mar 2021

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