Marwadi University
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NAAC A+

UI AND UX DESIGN

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Unit 2

The Design Challenge

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What is User Interface

the layout of the visual elements that enable users to interact with a system is called user interface.

Mainly 2 types of user inter faces are available

1. Graphical User Interface (GUI)
2. Commandline User Interface (CLI)

What is User Interface

sub types of interfaces

Graphical user interface (GUI)
Command line interface.
Menu-driven UI
Touch UI.
Voice UI.
Form-based UI.
Natural language UI.
Mobile UI.

Components of GUI

Pointers: The pointer appears on the user's screen as a marking symbol. The pointer moves on to choose instructions and objects as per requirement.

Icons: Icons allude to tiny visual representations of windows, documents, actions, and other things on the display screen to simplify. A pointer and pointing device can be used by the user to carry out the initial tasks for the overall processes.

Pointing tool: At the initial stages, the pointing tool enables the user to select and move the required pointer items on the screen, including a trackball or mouse. It is the most beneficial tool in GUI.

Desktop: The desktop is the screen that is contained within the icons and user beneficial.

Features of GUI

The graphical user interface (GUI) is very easy to use and the user can modify and simplify the requirements.

The required software, documents, or a few relevant programs are reflected in the icons on the user interface to control the overall processes properly.

A graphical user interface (GUI) has several features as per requirement, such as tabs, a menu, pointers, and various other types of things to simplify and process smoothly.
Advantages of GUI

A graphical user interface (GUI) is basically seen as more intuitive for users than a text-based command-line interface as per requirement, such MS-DOS or the Unix-like operating system shell process.

It is incredibly user-friendly and readily available to all and for novices, the user interface is rather easy to understand and uncomplicated as per requirement.
GUI represents the now-hidden lines of command with the required graphic elements.

The end users must commit required instructions to memory for the software to function properly.

The Benefits Of Good Design

It allows you to make a positive first impression on potential customers. It has been shown that human beings form an initial impression within a couple of seconds, but it can take a lot longer than this to alter that perception once a first impression has been made.

Making a site/app incredibly user friendly
Conveying clear understanding of product, use, or intention
Simplifying navigation and accessibility
Setting your brand apart
Increasing sales
Simplifying complex concepts

Ultimately, good design increases your company's value, boosts sales, and puts your business in a better financial situation.

Through building trust, making strong first impressions, building customer relationships, and even executing successful campaigns, good design helps make your business more profitable.

Advantages / Disadvantages of GUI

Advantages

User-friendliness: GUIs are more intuitive to most of us than text-based interfaces, enough that even those with very limited knowledge of computers can use them without learning a coding language or computer commands.

Efficiency: GUIs let users complete tasks more quickly and easily. A task that would take multiple typed commands in a CUI can be achieved with just a couple of mouse clicks in a GUI.

Clarity: GUIs make it clear what each visual element does and provide users with visual feedback to indicate whether their actions are successful or not.

Aesthetic: GUIs are more visually attractive and engaging to us than plain text, and developers have much more control over their visual customization to create a pleasing user experience.

Accessibility: In many cases, GUIs are more accessible to users with disabilities, impairments, and limitations.

Advantages / Dis advantages of GUI

Dis advantages

Graphical user interfaces are ubiquitous in personal computing, but they're not universal. Some users prefer text-based interfaces, like executing actions via the command line. Here are some minor drawbacks to GUIs when compared to other interfaces:

Speed: GUIs are slower and require more power than text-based interfaces.

Memory usage: GUIs require more computer memory than text-based interfaces.

Lack of flexibility: Usually, a user has to work within the restrictions of a GUI and can't change its functionality. With text-based interfaces, it's easy to install packages with powerful custom commands.

Inefficiency: Yes, efficiency is a major advantage of GUIs for most. But, many tech-savvy users find it more efficient to execute commands in a CUI. Plus, CUI commands can be automated.

Build: GUIs need to be built by a design and development team, which takes additional time and resources.

Characteristics of the (GUI).

Sophisticated Visual Presentation

Visual presentation is the visual aspect of the interface. It is what people see on the screen. The sophistication of a graphical system permits displaying lines, including drawings and icons. It also permits the displaying of a variety of character fonts, including different sizes and styles.

The meaningful interface elements visually presented to the user in agraphical system include windows (primary, secondary, or dialog boxes), menus (menu bar, pull down, pop-up, cascading), icons to represent objects such as programs or files, assorted screen-based controls (text boxes, list boxes, combination boxes, settings, scroll bars, and buttons), and a mouse pointer and cursor. The objective is to reflect visually on the screen the real world of the user as realistically, meaningfully, simply, and clearly as possible.

Characteristics of the (GUI).

Pick-and-Click Interaction

To identify a proposed action is commonly referred to as pick, the signal to perform an action as click.
The primary mechanism for performing this pick-and-click is most often the mouse and its buttons and the secondary mechanism for performing these selection actions is the keyboard.

Restricted Set of Interface Options

The array of alternatives available to the user is what is presented on the screen or what may be retrieved through what is presented on the screen, nothing less, and nothing more. This concept fostered the acronym WYSIWYG.

Characteristics of the (GUI).

Visualization

Visualization is a cognitive process that allows people to understand information that is difficult to perceive, because it is either too voluminous or too abstract.

The goal is not necessarily to reproduce a realistic graphical image, but to produce one that conveys the most relevant information. Effective visualizations can facilitate mental insights, increase productivity, and foster faster and more accurate use of data.

Characteristics of the (GUI).

Object Orientation

A graphical system consists of objects and actions. Objects are what people see on the screen as a single unit. Objects can be composed of sub objects. For example, an object may be a document and its sub objects may be a paragraph, sentence, word, and letter.

Objects are divided into three meaningful classes as Data objects, which present information, container objects to hold other objects and Device objects represent physical objects in the real world.
Objects can exist within the context of other objects, and one object may affect the way another object appears or behaves. These relationships are called collections, constraints, composites, and containers.
Properties or Attributes of Objects : Properties are the unique characteristics of an object. Properties help to describe an object and can be changed by users.

Actions: People take actions on objects. They manipulate objects in specific ways (commands) or modify the properties of objects (property or attribute specification).
The following is a typical property/attribute specification sequence:
The user selects an object—for example, several words of text.
The user then selects an action to apply to that object, such as the action BOLD.
The selected words are made bold and will remain bold until selected and changed again.

Characteristics of the (GUI).

Use of Recognition Memory

Continuous visibility of objects and actions encourages to eliminate — out of sight, out of mind | problem.

Concurrent Performance of Functions

Graphic systems may do two or more things at one time. Multiple programs may run simultaneously.
It may process background tasks (cooperative multitasking) or preemptive multitasking.
Data may also be transferred between programs. It may be temporarily stored on a clipboard for later transfer or be automatically swapped between programs.

What is a Website ?

A website is a collection of many web pages, and web pages are digital files that are written using HTML(HyperText Markup Language). To make your website available to every person in the world, it must be stored or hosted on a computer connected to the Internet round a clock. Such computers are known as a Web Server.

What is Responsive Web Design?

Responsive Web Design is about using HTML and CSS to automatically resize, hide, shrink, or enlarge, a website, to make it look good on all devices (desktops, tablets, and phones)

Characteristics of the WEB UI

1. Simplicity and Clarity

Minimalism: Use minimal elements to avoid clutter and confusion.
Clear Navigation: Ensure that menus and buttons are intuitive and easy to find.
Readability: Use legible fonts, appropriate font sizes, and sufficient contrast.

2. Responsiveness

Adaptive Design: Ensure the UI works well on different devices and screen sizes.
Fast Loading: Optimize performance to reduce load times.
Interactive Feedback: Provide immediate feedback for user actions (e.g., button presses).

3. Consistency

Visual Consistency: Maintain uniform styles (colors, fonts, buttons) across the site.
Functional Consistency: Ensure similar functions behave in the same way throughout the site.

Characteristics of the WEB UI

4. User-Centric Design

User Research: Conduct user research to understand the needs and behaviors of your target audience.
Accessibility: Make sure the UI is accessible to users with disabilities, following guidelines like WCAG.
Personalization: Provide options to personalize the experience based on user preferences.

5. Intuitive Navigation

Logical Structure: Organize content in a way that makes sense to the user.
Search Functionality: Provide robust search options to help users find information quickly.
Breadcrumbs: Use breadcrumb navigation to help users understand their location within the site.

6. Visual Hierarchy

Prominent Call-to-Actions (CTAs): Highlight primary actions to guide users towards desired outcomes.
Content Organization: Arrange content in a way that guides the user's eye through the page logically.
Contrast and Color: Use contrast and color to differentiate between elements and highlight important information.

Characteristics of the WEB UI

7. Feedback and Error Handling

Error Messages: Provide clear, concise, and helpful error messages.
Confirmation Messages: Offer confirmations for critical actions (e.g., submitting a form).
Loading Indicators: Use indicators to show when the system is processing a request.

8. Aesthetic and Minimal Design

Clean Design: Avoid unnecessary elements that do not add value to the user experience.
Whitespace: Use whitespace effectively to create a clean and uncluttered interface.
Brand Alignment: Ensure the design reflects the brand's identity and values.

Characteristics of the WEB UI

9. Engaging and Interactive

Interactive Elements: Include interactive elements that engage users (e.g., animations, hover effects).
User Engagement: Encourage user interaction through gamification, rewards, or social sharing.

10. Content-Driven Design

Relevant Content: Ensure the content is relevant, valuable, and easily digestible.
Multimedia: Use images, videos, and infographics to complement text and engage users.
SEO-Friendly: Optimize content for search engines to improve discoverability.

Principles of User Interface Design

Minimize actions − Minimize action means steps per screen. The tasks and actions are streamlined so that they can be done in as few steps as possible. The interface should be designed keeping in mind to maintain the steps as few as possible for performing any tasks.

Simplicity − The user interface should not be complex. It should always be designed simple and elegant.

Consistent − The user interface should be consistent. The design should be consistent. Increasing consistency increases the familiarity, and hence increases the usability.

Proving useful feedback − The user should be provided with feedback for every action. This keeps the user informed and helps them to know whether some action was successful or not.

Clarity − Content should provide the user with clarity. There should not be anything which confuses the user, as it becomes an obstacle for the user in interacting with the product.

THANK YOU