What is Human Computer Interaction? What are the goals of HCI?

HCI is a cross-disciplinary area (e.g., engineering, psychology, ergonomics, design) that deals with the theory, design, implementation and evaluation of the ways that humans use and interact with computing devices.

- Functional completeness
- High usability
- Aesthetic appeal
- Compelling user experience

Relate the terms Human-Computer Interaction (HCI) and User Interface (UI) Design.

● **Explanation**: HCI is the study of how people interact with computers, focusing on creating systems that are easy and pleasant to use. UI design, a part of HCI, specifically deals with the layout and visual elements on the screen, like buttons, menus, and icons, making sure they are intuitive and visually appealing.

● **Example**: HCI might explore how people use a smartphone in different environments, while UI design would focus on creating easy-to-tap buttons and clear icons for that smartphone.

What does good design mean?

Good Design: Good design means creating products or interfaces that are effective, efficient, and satisfying for the end-user. It should be intuitive, easy to use, and accessible, meeting both functional requirements and aesthetic appeal.

Key Attributes of Good Design:

      a) Meets User needs
      b) Provides Usability
      c) Enhance user experience
      d) Is Consistent?
      e) Prioritized Accessibility
      f) Encourage Efficiency

What are the principles of HCI?/ **What is the philosophy of User-Centered Design?**

Philosophy of User-Centered Design (UCD): UCD focuses on involving users in every stage of the design process. The goal is to understand users' needs, limitations, and preferences, designing products that prioritize user satisfaction and usability.

Principles of UCD:

1. Know Thy User
2. Understand the Task
3. Reduce Memory Load
4. Strive for Consistency

5. Remind Users and Refresh Their Memory
6. Prevent Errors/Reversal of Action
7. Naturalness

1. Know Thy User

- **Meaning:** Understand who your users are, including their needs, preferences, and skills.
- **Explanation:** People have different skill levels, expectations, and goals. For example, a tech-savvy developer and a non-technical user have different requirements. Knowing your user helps you create a design that feels intuitive to them.
- **Example:** A mobile app for seniors might use larger buttons and simplified navigation compared to an app aimed at teenagers

2. Understand the Task

- **Meaning:** Recognize what tasks the user wants to accomplish and design the interface to make these tasks easier.
- **Explanation:** People use software to achieve specific goals, like buying a product or sharing a photo. Designing around these tasks helps streamline the experience.
- **Example:** In an e-commerce app, if the main task is shopping, you might highlight product categories, a search bar, and a clear "Add to Cart" button.

3. Reduce Memory Load

- **Meaning:** Design the system so users don't have to remember information from one screen to another.

- **Explanation:** Keeping track of multiple pieces of information while using an app or website can be mentally taxing, especially if users are switching between screens.
- **Example:** Autofill forms reduce memory load by remembering the user's information, so they don't have to re-enter it each time.

Ex :-

A pizza app

→ user no need to remember
   thainfav orders / past address

→ app remembers user details
   no need to input everytime

4. Strive for Consistency

- **Meaning:** Make sure similar elements look and function in similar ways across the interface.
- **Explanation:** Consistency helps users learn and remember how to interact with an app. If similar actions, like "Save" or "Delete," always look the same, it's easier for users to understand what they'll do.
- **Example:** Using the same icons for "Edit" and "Delete" throughout a website ensures users don't get confused when switching pages.

5. Remind Users and Refresh Their Memory

- **Meaning:** Give users clues and reminders about what they've done or need to do next.
- **Explanation:** People might forget what step they're on or need confirmation of their actions. Helpful reminders and tooltips can guide them through.

- **Example:** When users sign up, a progress bar indicating "Step 1 of 3" keeps them informed about how many steps are left.

Pizzt APP → If user abandon their onder midway, app sends a notification to remind them to complete their purchase

us won → bring users back where they left last time

6. Prevent Errors/Reversal of Action

- **Meaning:** Help users avoid mistakes and make it easy to undo actions if they make one.
- **Explanation:** Mistakes can frustrate users, so guiding them to prevent errors and providing an "Undo" option makes the experience feel more forgiving.
- **Example:** Many apps have a confirmation pop-up when deleting an item, asking "Are you sure?" to prevent accidental deletions.

7. Naturalness

- **Meaning:** Make the design feel natural and intuitive by following real-world patterns.
- **Explanation:** A natural design feels familiar and comfortable, requiring less effort from the user to understand.
- **Example:** A digital bookshelf that looks like a real bookshelf, where users can "drag" books to arrange them, is a natural design.

Mention Universal Design Principle.

Explanation: The Universal Design Principle aims to create products and environments that are accessible to as many people as possible, regardless of their age, abilities, or other factors. It's about making things inclusive.

Example: Adding ramps to buildings helps both wheelchair users and people with strollers, following the Universal Design Principle.

What is UCD? What are the steps of user-centered design (UCD)?

User-centered design is an iterative process that focuses on an understanding of the users and their context in all stages of design and development.
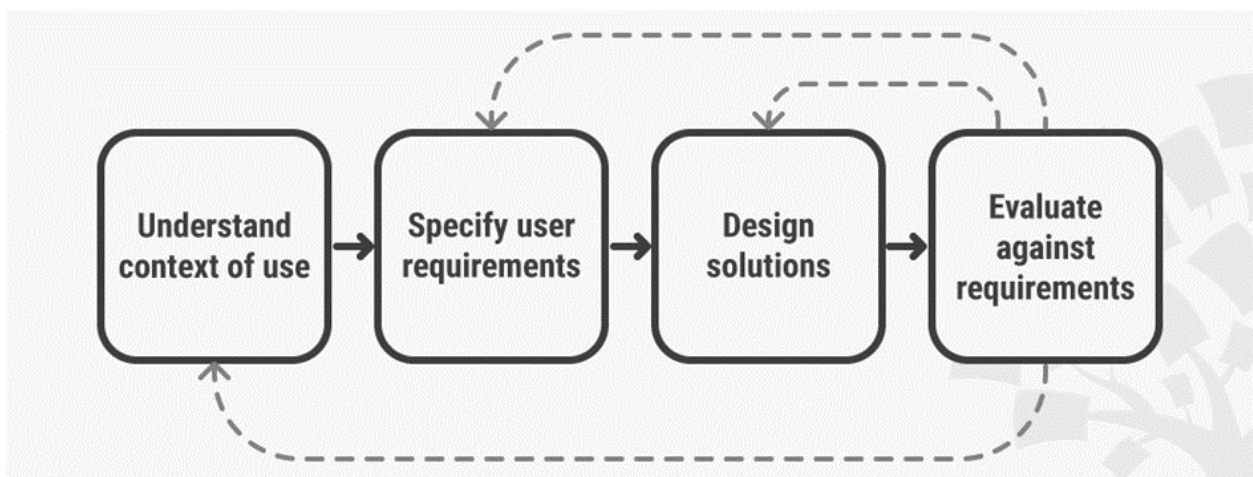
Steps of User-Centric Design in HCI

User-centric design is a process in HCI that focuses on understanding the users' needs and designing interfaces that meet those needs. Here are the typical steps:

1. User Research

- **Objective:** Understand who the users are, their goals, frustrations, and behaviors.
- **Activities:** Conduct interviews, surveys, focus groups, and observations to gather information about users.

2. Define Requirements

- **Objective:** Based on user research, define clear requirements for what the design needs to accomplish.
- **Activities:** Identify functional (what the product must do) and non-functional requirements (like usability, accessibility).

3. Ideation and Design

- **Objective:** Brainstorm and create potential design solutions.
- **Activities:** Sketch wireframes, create flow diagrams, and develop low-fidelity prototypes to explore different design concepts.

4. Prototyping

- **Objective:** Develop interactive, high-fidelity prototypes to represent the final design.
- **Activities:** Build digital prototypes with more detail to simulate the final user experience for feedback and testing.

5. User Testing

- **Objective:** Evaluate the design's usability and effectiveness through real-user testing.
- **Activities:** Conduct usability testing, A/B testing, and gather feedback on the prototype, observing where users face challenges or confusion.

6. Iteration

- **Objective:** Refine the design based on feedback from testing.
- **Activities:** Make adjustments to address pain points, improve usability, and enhance the user experience, often repeating testing and refinement multiple times.

7. Implementation and Launch

- **Objective:** Finalize the design and develop the product for launch.
- **Activities:** Collaborate with developers to ensure design fidelity, and release the product to users, making final usability checks.

8. Post-Launch Feedback and Improvement

- **Objective:** Continue improving the product based on user feedback and performance metrics.
- **Activities:** Collect ongoing feedback, monitor user behavior, and iterate as necessary to enhance the product over time.