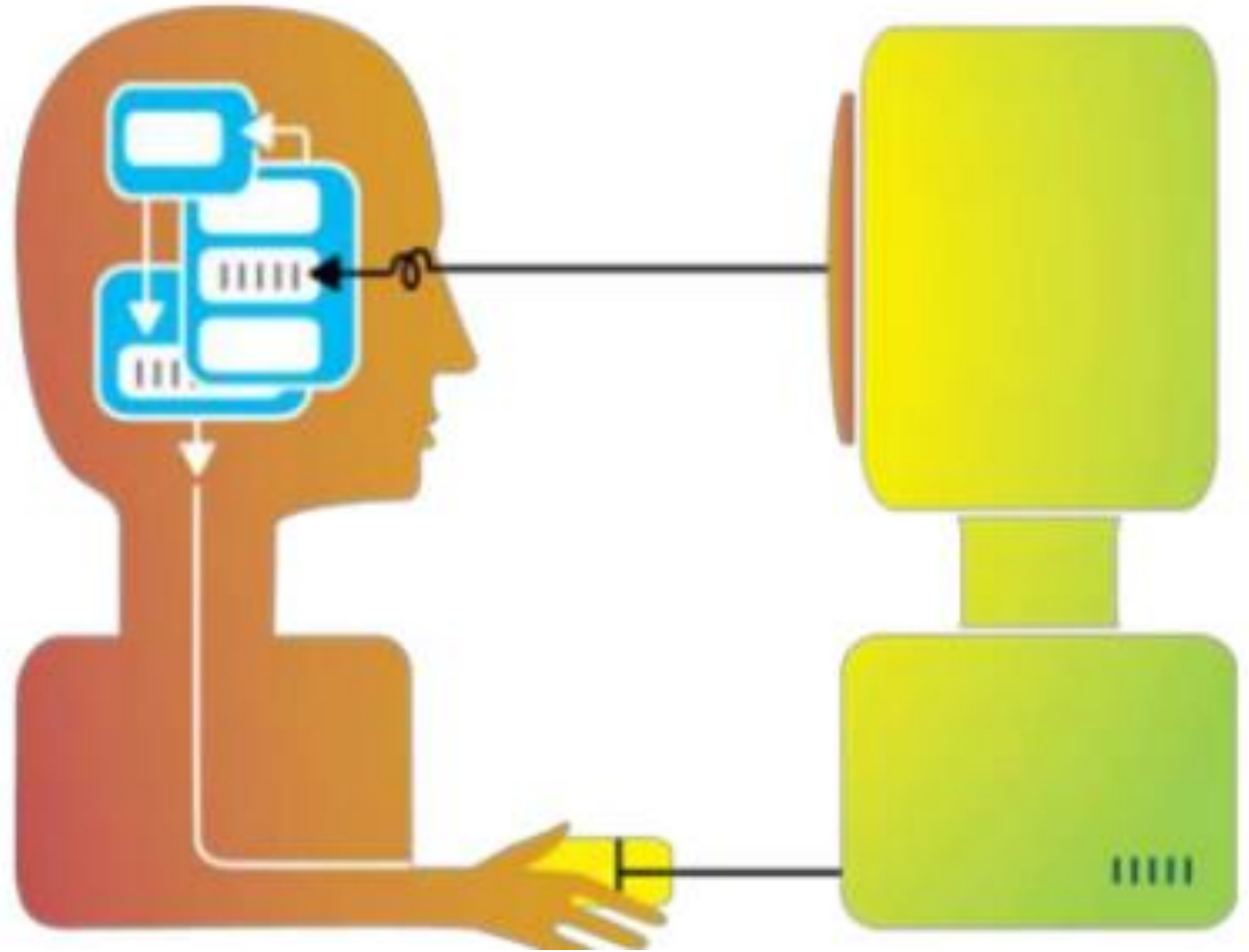




Human Computer Interaction

- What is HCI
- The Meteoric rise of HCI
- Entities in HCI
- Usage of HCI
- Objectives of HCI

What is HCI ?



Definitions

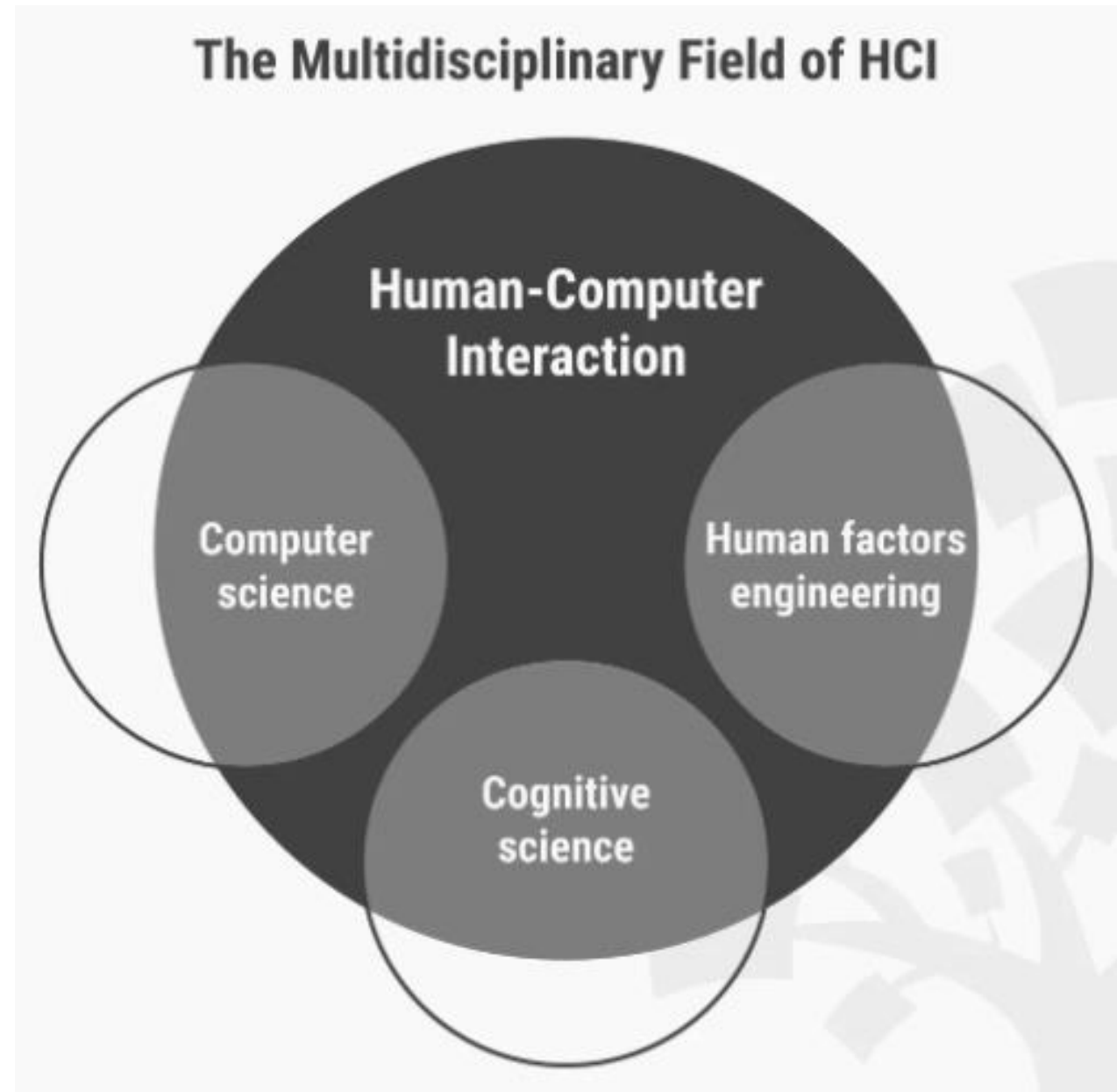
Human-computer interaction is research in the design and the use of computer technology, which focuses on the interfaces between people and computers. HCI researchers observe the ways humans interact with computers and design technologies that allow humans to interact with computers in novel ways.

Human-computer interaction (HCI) is a multidisciplinary field of study focusing on the design of computer technology and, in particular, the interaction between humans (the users) and computers. While initially concerned with computers, HCI has since expanded to cover almost all forms of information technology design.

The Meteoric Rise of HCI

- HCI surfaced in the 1980s with the advent of personal computing, just as machines such as the Apple Macintosh, IBM PC 5150 and Commodore 64 started turning up in homes and offices in society-changing numbers. For the first time, sophisticated electronic systems were available to general consumers for uses such as word processors, games units and accounting aids. Consequently, as computers were no longer room-sized, expensive tools exclusively built for experts in specialized environments, the need to create human-computer interaction that was also easy and efficient for less experienced users became increasingly vital.

From its origins, HCI would expand to incorporate multiple disciplines, such as computer science, cognitive science and human-factors engineering.



Entities in HCI

HUMAN

- Individual or Group of Users

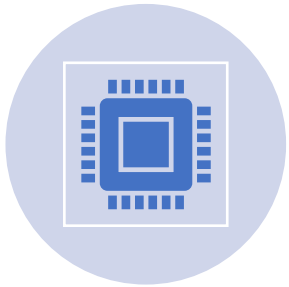
COMPUTER

- Desktop computers, Machines, Process control & embedded systems

INTERACTION

- Direct and Indirect Interaction

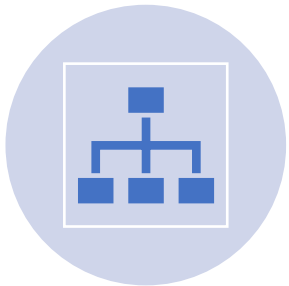
HCI can be used in all disciplines wherever there is a possibility of computer installation.



Computer Science – For application design and engineering.





Psychology – For application of theories and analytical purpose.



Sociology – For interaction between technology and organization.



Industrial Design – For interactive products like mobile phones, microwave oven, etc.

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- The world's leading organization in HCI is ACM – SIGCHI, which stands for *Association for Computer Machinery – Special Interest Group on Computer–Human Interaction*.
 - SIGCHI defines Computer Science to be the core discipline of HCI. In India, it emerged as an interaction proposal, mostly based in the field of Design.

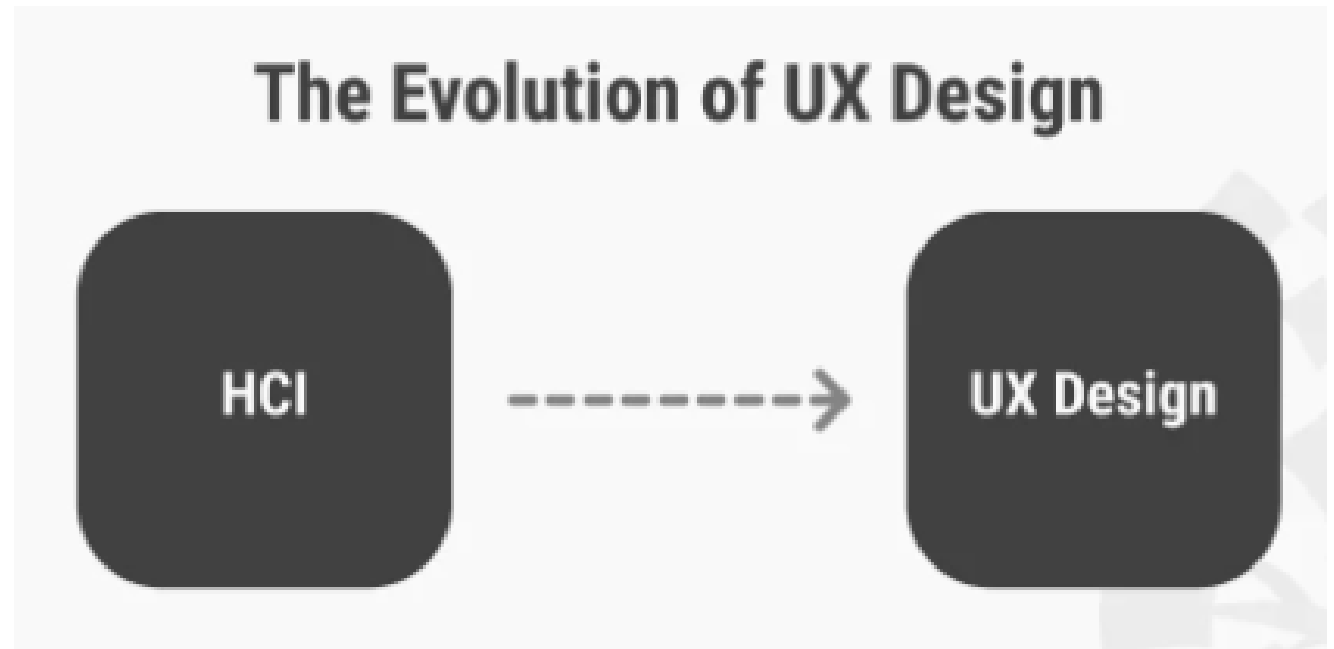
Objectives of HCI

- Design for people
- Design for tasks
- Design for environments in which users live and operate e.g. an organization
- Design easy, natural and intuitive computer systems to save time and reduce cost.
- Design Graphical User Interfaces(GUIs)[Learn, use, evaluate and compare]
- Explore new paradigms/ prototypes of interaction
- Develop models and theories of interaction

The UX Value of HCI and Its Related Realms

- HCI is a broad field which overlaps with areas such as
 - **User Centered Design (UCD)**
 - **User Interface (UI) Design**
 - **User Experience (UX) Design**

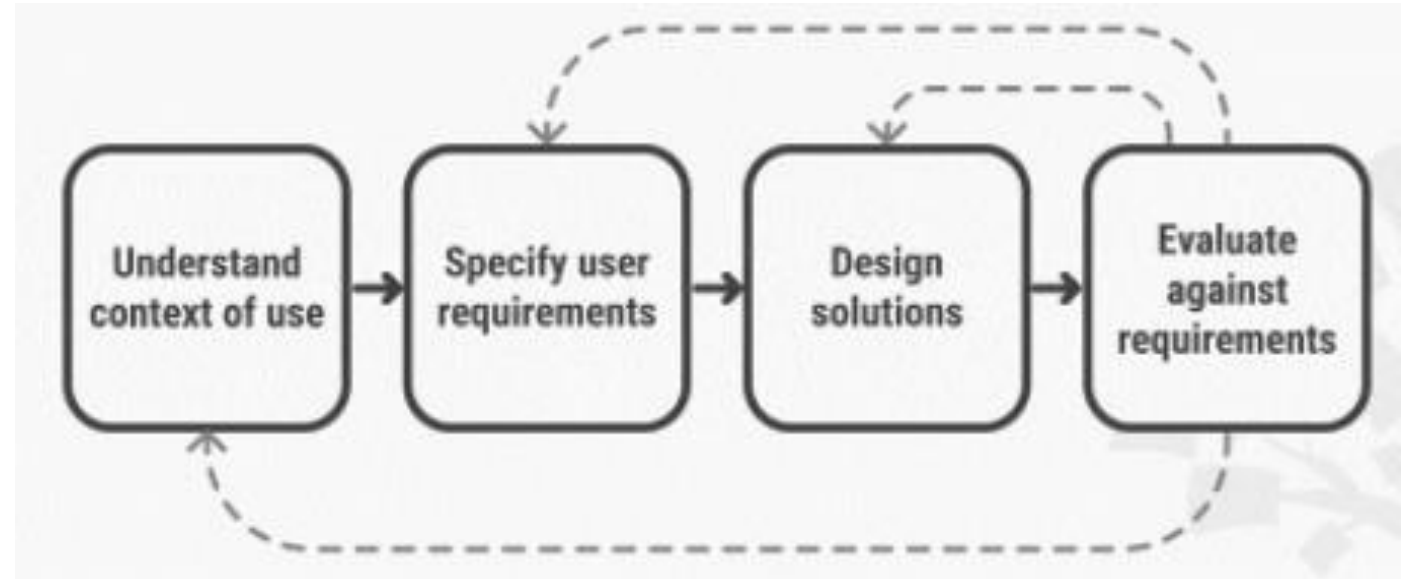
In many ways, HCI was the forerunner to UX design.



What is User Centered Design?

User-centered design (UCD) is an iterative design process in which designers focus on the users and their needs in each phase of the design process.

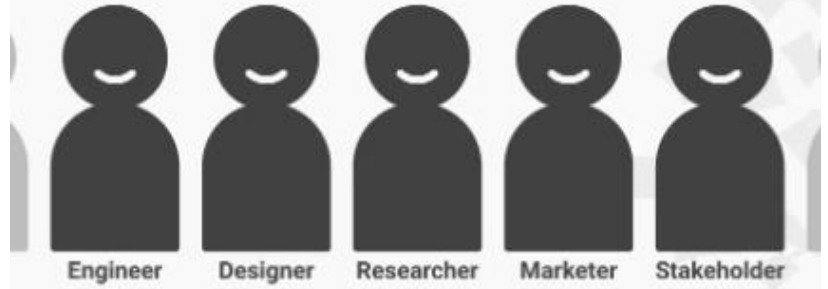
In UCD, design teams involve users throughout the design process via a variety of research and design techniques, to create highly usable and accessible products for them.

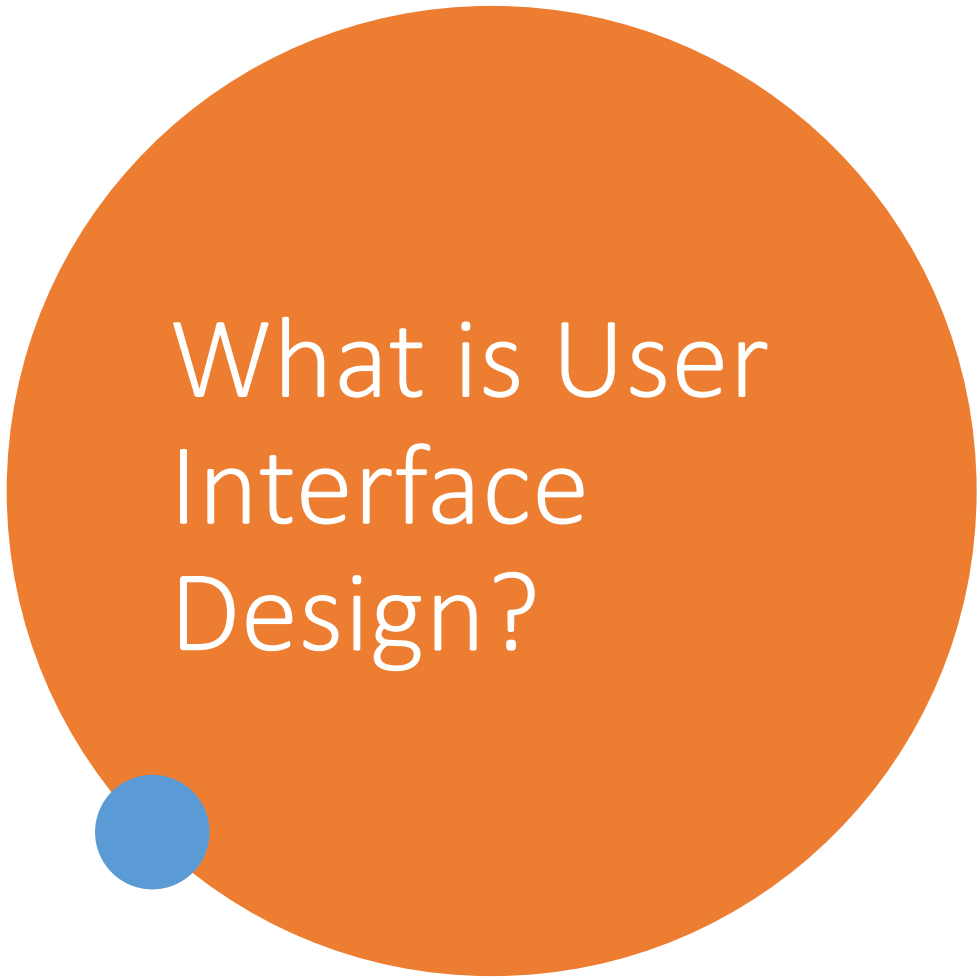


UCD Considers the Whole User Experience

- Design team should include professionals from across multiple disciplines (e.g., ethnographers, psychologists, software and hardware engineers), as well as domain experts, stakeholders and the users themselves.

Multidisciplinary Design Teams for User-Centered Design





What is User Interface Design?

- User interface (UI) design is the process designers use to build interfaces in software or computerized devices, focusing on looks or style. Designers aim to create interfaces which users find easy to use and pleasurable. UI design refers to graphical user interfaces and other forms—e.g., voice-controlled interfaces.

Designing User Interfaces for Users

User interfaces are the access points where users interact with designs. They come in three formats:

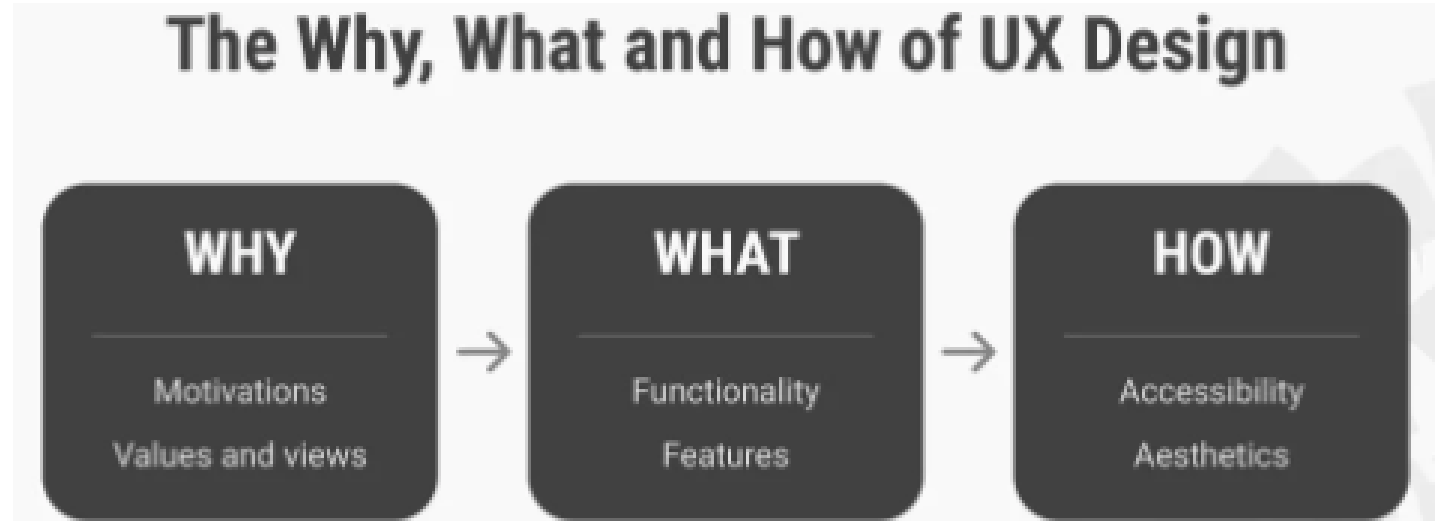
Graphical user interfaces (GUIs)—Users interact with visual representations on digital control panels. A computer's desktop is a GUI.

Voice-controlled interfaces (VUIs)—Users interact with these through their voices. Most smart assistants—e.g., Siri on iPhone and Alexa on Amazon devices—are VUIs.

Gesture-based interfaces—Users engage with 3D design spaces through bodily motions: e.g., in virtual reality (VR) games.

What is User Experience (UX) Design?

- User experience (UX) design is the process design teams use to create products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability and function.



UI vs. User Expérience (UX) Design

Often confused with UX design, UI design is more concerned with the surface and overall feel of a design.

UI design is a craft where you the designer build an essential part of the user experience.

UX design covers the entire spectrum of the user experience.

One analogy is to picture UX design as a car with UI design as the driving console.