Unit - 1

Unit 1:Topic-1

- What are UX and UX design:
    - Definition of UX –
    - UX design –
    - components of UX –
    - What UX is Not –
    - Kinds of interaction and UX

1. UBIQUITOUS INTERACTION

- Most businesses are, sometimes precariously, dependent on these well-established kinds of computing.
- For example, word processing, database management, storing and retrieving information, spreadsheet management.
- The Changing Concept of Computing :
  - Software are embedded within appliances, homes, offices, stereos and entertainment systems, vehicles, and roads.
  - Mobile computing elements are combined in different ways by short- distance wireless communication so that system behavior and functionality adapt to different user devices and different usage locations.
  - Example : software embedded in a shoe, they are called wearable computers.
  - Example of a smart railcar that can keep track of and report on its own location, state of repair, whether it is loaded or empty, and its routing, billing, and security status (including aspects affecting homeland security).
  - Proof-of-concept applications in research labs are making possible what was science fiction only a few years ago.
  - Robotic applications for healthcare rehabilitation, including systems to encourage severely disabled children to interact with their environment.
- The Changing Concept of Interaction
  - Mobile communications are perhaps the fastest growing area of ubiquitous computing with personal devices and also represent one of the most intense areas of designing for a quality user experience.
  - Ambient intelligence," the goal of considerable research and development aimed at the home living environment.
  - Interaction must be considered within a context or environment shared between system and user. User input, if accepted by the system, causes a change in the internal system state and both user and system can cause changes in the external world.
  - A high-temperature warning sensor, . It act to change its own internal state and, possibly, its external environment, for example, to adjust the temperature lower, without involving a user.
  - Another example of how our concept of interaction is intended to be very inclusive, consider road or highway signage.

2. EMERGING DESIRE FOR USABILITY

- The failure of voting machines in Florida was blamed by the press on improperly trained poll workers and confused voters. No one publicly asked the question why it takes so much training to operate a simple ballot machine or why citizens experienced with voting were confused with this system.

- For example, consider this "warranty," taken verbatim from a software product and typical of what we get with most software we buy:

    - This software is provided without warranty of any kind. The manufacturer does not warrant that the functions contained in the software will meet your requirements, or that the operation of the software will be uninterrupted or error-free, or that defects in the software will be corrected.

- Does this not seem to say: "We do not do a good job. We do not care. And you cannot do anything about it."? Who would buy any other kind of consumer product, a TV or a car, with this kind of "warranty"? So why have we put up with this in software products?

- Disastrous system development case studies give much more depth to motivating the need for usability and user experience.

3. FROM USABILITY TO USER EXPERIENCE

- Usability includes characteristics such as ease of use, productivity, efficiency, effectiveness, learnability, retainability, and user satisfaction (ISO 9241-11, 1997).

- Popular misconception about usability in terms of visual appeal.

- User experience : The field of interaction design has grown slowly, and our concept of what constitutes quality in our designs has expanded from an engineering focus on user performance under the aegis of usability into what is now widely known as user experience.

- Functionality Is Important, but a Quality User Experience Can Be Even More So :
  - Example :Blackberry; once a market leader in smartphones but now outclassed by the iPhone, a later entrant into the market with less functional capabilities.
  - There are many factors governing the relative market share of each product, but given comparably capable products, user experience is arguably the most important.

- Design beyond Just Technology

- Components of a User Experience : performance- and productivity, usability factors, such as ease of use and learnability, work done efficiently and effectively with minimum errors and frustration, joy of use, good ease of use, usability and usefulness, user experience is felt internally by the user,

- A user experience cannot be designed, only experienced

What are UX and UX design:

- Bridge between a product and its targeted audience

- Plays a crucial role in web and mobile application and also in all kind of marketing.

- New computing systems : embedded system, smart technology, wireless communication, mobile technology, IoT, smart devices, remote communication

- Interaction styles : GPS, user actions, automatic systems, pathways for travelling, ATM, etc.

- Apply processes for creating and refining basic computing applications and interaction styles.

- Bad design examples :
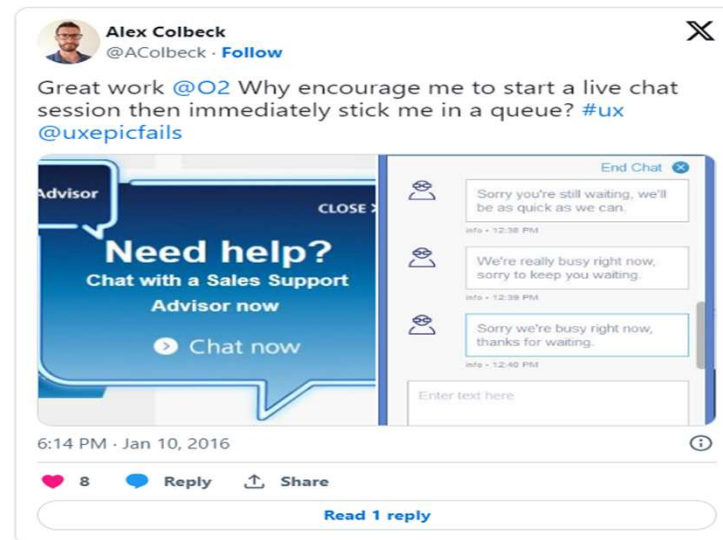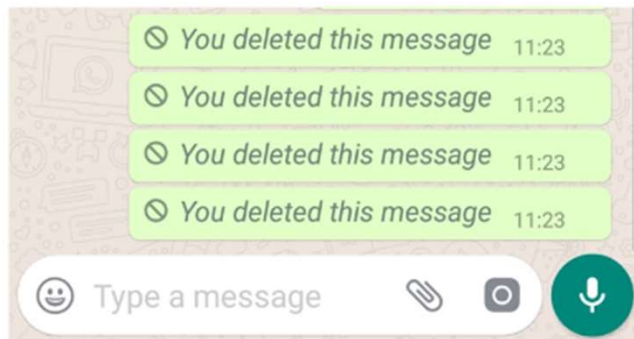
UX design

- User experience-oriented design
- User-centered approach to design
- Quality user experience
- Benefits - customers, users, UX practitioners, designers, marketing people, and the public.
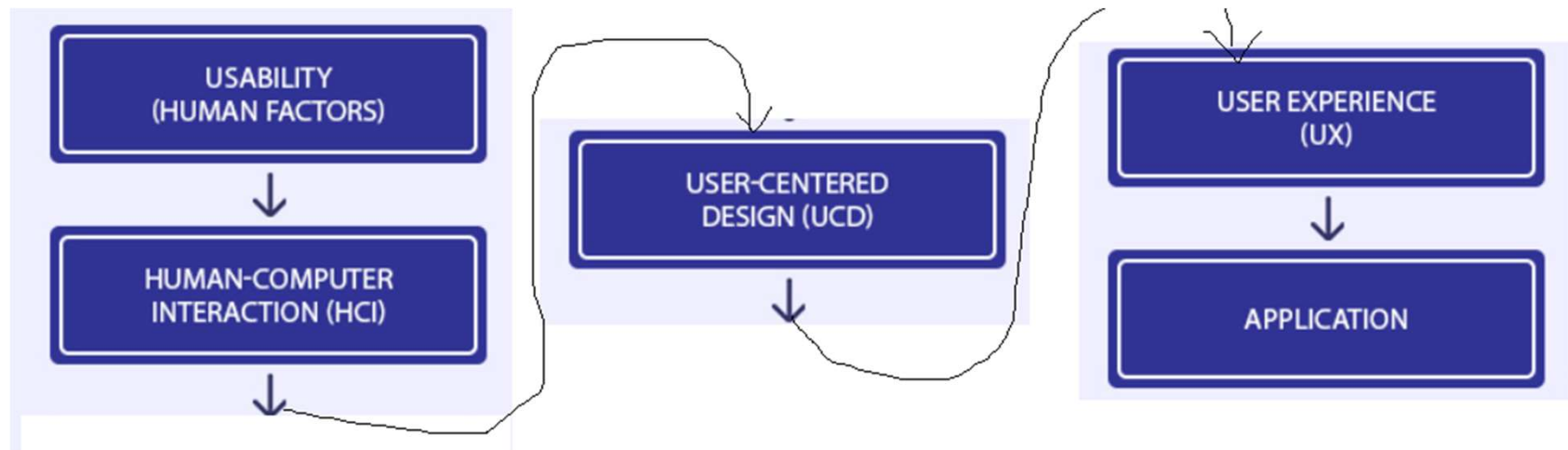
UX design

- Poor usability
- Example1, the failure of voting machines
- Example 2, warranty :

  - This software is provided without warranty of any kind. The manufacturer does not warrant that the functions contained in the software will meet your requirements, or that the operation of the software will be uninterrupted or error-free, or that defects in the software will be corrected.

- Motivating the need for usability and user experience

UX design

Poor usability:

Example 3:

> The interesting thing here is that Microsoft, Apple's competitor, had backup capabilities in their operating systems at least since Windows 95! However, because of poor usability, most users did not know it existed and those of us who did rarely used it. The effort software engineers spent to include the feature in the application functionality was wasted, another cost of poor usability.

UX design - Definition

- The International Organization for Standardization (ISO) defines user experience as:

- "A person's perceptions and responses that result from the use or anticipated use of a product, system or service."

- We can break this definition into two parts:

  - A person's perceptions and responses.

  - The use of a product, system or service.

UX design - Definition

- When using a physical device, such as a computer mouse, we can control some aspects of the product that influence whether the user enjoys looking at, feeling and holding it:
    - The way it fits in their hand. Is it snug? Is it too big and cumbersome?
    - The weight. Does it affect their ability to move it as they wish?
    - Its ease of use. Can they use it automatically, or do they have to think hard about it to achieve a goal?

UX design - Definition

- When a person uses a digital product, such as a computer application, a few aspects that we can influence include:
  - How intuitively they can navigate through the system.
  - The cues that help guide them to their goal.
  - The visibility of the essential aspects of a task at the appropriate time.

Components of UX

- performance- and productivity
- usability factors, such as ease of use and learnability
- work done efficiently and effectively with minimum errors and frustration
- joy of use
- good ease of use
- usability and usefulness
- user experience is felt internally by the user
- A user experience cannot be designed, only experienced.

Several notable types of smart devices

- Smartphones, smart speakers, smart cars, smart thermostats, smart doorbells, smart locks, smart refrigerators, phablets and tablets, smartwatches, smart bands, smart keychains, smart glasses, and many others.
- **UX Design for Smartwatch**

What UX is..

- **User Experience (UX) is the quality of** experience a person has when interacting with a specific design. This can range from a specific artifact such as a cup, toy or website, up to larger, integrated experiences such as a museum or an airport.

- **User Experience Design is the process of** enhancing user satisfaction by improving the usability, accessibility, and pleasure provided in the interaction between the user and the product

- **To create a valuable design.**

- **"User experience isn't a layer or component** of a product or service. It's really about the design of whole systems and their interconnections."

What UX is NOT…

- **User experience design is** NOT Expensive.
- **User experience design is** NOT Easy.
- **User experience design is** NOT The role of one person or department.
- **User experience design** is NOT A step in the process.
- **User experience design is** NOT Just about technology.
- **User experience design is** NOT A single discipline.

Journal paper reference User experience design

abstract = {The rapid deployment of digital technologies drives the conventional product service system (PSS) to shift into a new paradigm known as smart PSS. Empowered with smart capabilities, smart PSS has great potential in creating positive user experience (UX). The requirements analysis is an essential task for successful development of smart PSS with strong UX. Nevertheless, there is still a lack of research on the requirement analysis of smart PSS by incorporating smart-enabled UX perspective. Hence, this paper proposes a framework of user experience-oriented smart service requirement (UXO-SSR) analysis for smart PSS development. At first, the relevant factors (e.g., user personas and activity journey) are integrated to conceptualize the UX in smart PSS context. Second, a four-phase model is proposed for identifying UXO-SSR, which can provide an effective tool for acquiring UX requirements of smart PSS from holistic perspective. Third, a novel asymmetric trapezium cloud-based uncertain linguistic BWM approach is developed to evaluate the priority of the identified UXO-SSRs. The approach can appropriately handle the hybrid uncertainties (i.e., hesitancy, fuzziness and randomness) of linguistic evaluation information, thereby improving the accuracy of evaluation results. Finally, a case study of smart sleep service system is presented to demonstrate the feasibility and reliability of the proposed framework.}
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