Al Imam Mohammad Ibn Saud Islamic University

College of Computer and Information Sciences

Information Technology Department

Lab Worksheet 1

Course Title:	Human computer interaction.
Date:	8/2/2021
Week:	3
Course Code:	IT 300

Title: introduction to Human computer interaction.
Background: None.
Purpose: In this practical you will put into practice what you met in lectures 1 and 2 and the first chapter of your textbook.
Software / Tools:

None.

Procedure:

Discuss with student:

1. Some topics of HCI fields.
2. Good and bad design of the systems.

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Implementation:

Task1:

- Discuss the following topics:
  - Brain Computer Interaction

    Use case for BCI at work is can detect the mental state of a person and adjust nearby devices accordingly. For example, when tired, your phone will be set on “do not disturb” mode and your room’s light and temperature will be suitable for sleeping depending on your physical condition, health, and weather temperature.

  - Robotics.

    an example of fields of robotics is Manipulators and effectors, which is the part of the robot that interact with objects may touch things, pick them up, place them in containers, spray them with paints, and more. Ex, claws, fingers, pushers, mechanical arms.

  - 3D printer.

    The use of a 3D printer is to create product models, but they’re increasingly used to make final products, as well. Among the items made with 3D printer are car model, shoe designs, furniture, robots.

- Voice recognition.

  Is an interdisciplinary subfield of computer science and computational linguistics that develops methodologies and technologies that enable the recognition and translation of spoken language into text by computers ex. Siri, google assistant, etc.

- Google eyeglasses

  Google Glass displays information in a smartphone-like, hands-free format. You can communicate with the Internet by voice commands.

- Arduino

  is an open-source hardware and software company, project and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Things made with Arduino, robot car, remote control, alarm security system.

- Smart home

  Smart homes have advantages and disadvantages, some of its advantages are higher quality of life, time saving, suitable for disabled persons. Whereas the disadvantages are privacy concerns, not suitable for all houses, may become outdated, technological problems.

- Internet of things

  a system of interrelated, internet-connected objects that collect and transfer data over a wireless network without human intervention. Some of the applications of IoT are safety and security, product flow monitoring, inventory management, packaging optimization.

- UI/UX

  UI stands for user interface design, it is about creating interactive, intuitive interfaces. Whereas UX stands for user experience design, and it is about the overall feel of the experience and it is about identifying and solving user problems. Both must work closely together.

Task 2:

- Bring examples on how a bad design may lead to problems and maybe disasters

  The first example is, in 1992, Air Inter Flight 148 crashed while approaching an airport in Strasbourg, France. There were many factors involved in the crash, the main one being a mountain. After two-year investigation on the accident concluded that the most likely explanation for the crash was, small display screen. The pilot couldn't see what was written int the screen and he choose something he shouldn't, and this has led to the plane crash.

  The second example is, in 2016, the death of the 27-year-old actor was killed in an accident in his Los Angeles driveway. He was found crushed between his car, a 2015 Jeep Grand Cherokee, and the gate at the end of his driveway. It appears he had exited the car and walked behind it to close the gate, believing the transmission was in "Park". Instead, it was in "Reverse" or "Neutral", and the car rolled down his steep driveway, killing him.

Task 3:

- Based on what you have learned in the lecture, give an example for poor or good design (from the vision perspective) and define why.

  Examples of good designs are simple colors, simple and consistent layout, and descriptive buttons. The reason I choose these are that some people have color blindness, the second reason is to interact with a system, and take actions by making selection using buttons, and the last one is to be able to use the system easily.

  Examples of bad designs are bright contrasting colors. The reason why is color must be simple to avoid straining the user's eye and it becomes hard to keep their eyes on your page,