Sessional Assignment
Human Computer Interaction

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Submitted To: Respected Sir Shahab Ul Islam (*Lecturure*)

Final Assignment

Question 1: (10)
Consider the chair given below. Your Employees want to use it as a computer chair. Your task is to write any As HCI Specialist, your job is point out any Five issues in the design of this chair.

Ans: The above chair possess serious design issues in context of computer ergonomics. Repeated usage could lead to a temporary or permanent damage to human body.
The following are the 5 negative points of this chair:

1. No height and position adjustment:
           No Height and position adjustment make this chair a worse choice for office usage. Especially during longer periods of repeated office hours can damage both hands and spine. If the computer table is not in the right position to this chair or all the employees will not be of the same height so not everyone will be fixed in that chair in front of the computer screen a balanced height of a chair in front of computer screen is much necessary because if the height iss not correct it will damage our eye sight our neck joint and also our spine which will lead to a permanent issue for our health.

2. Having no arm rests:
           Correct arm positioning isn't just for preventing wrist problems. It is also an essential element of knowing how to sit in your chair. Typing without arm support for long periods can cause muscle strain and spasm in the upper back and neck. But this chair isn't having any arm rest so it may lead to a lot of serious health problems like wrist pain shoulder pain. Because of which one can't focus on the work and no one can do work for a longer time period of office hours.

3. Having no Lumbar support:
           Lumber support for office chair is very important. A lumber support helps promote good posture by filling the gap between the lumber spine and the seat through the

natural inward curve of the lower back is supported. This chair is not having the lumber support because of which it is much difficult to maintain the correct posture of the body because of which the lumber spine and large muscles of lower back has to work harder to support the proper curvature and alignment of the back because of which they get affected. the muscles holding the spine in such a position tend to become weak, and the head and upper back tend to lean forward to compensate the weakening of the lumbar muscles.

4. Tilting facility:

A tilting facility adjusts the angle of the seat. The front of the seat can be tilted up or down. This reduces the pressure on the lower back, ensures proper posture, and alleviates blood flow to the legs and feet. Tilting facility is very important in office chairs because one has to sit on that for a longer time period. A tilting facility can help enforce good posture. Using a chair with tilting facility can help with posture even after the work day is done. But the above chair isn't having tilting facility so at the end of day it can lead to light muscles also it can decrease the range of motion and can lead to slumping and poor balance, as well as poor posture, which can cause chronic pain and injuries.

5. No wheelbase:

Having wheels on the base of your chair is more important than it would seem. During the working day, you don't consider how often you move and reach to grab items from yours or a colleague's desk. Rolling is important for preventing strain when stretching for such items.

Question 2: (06)
What is Paradigm, and what do you mean by paradigm shift?

Ans: Paradigm:

Paradigm is a set of theories, assumptions and ideas that contribute to your worldview. And create the framework which we operate every day. Paradigm is also a distinct set of concepts or thought patterns, including theories, research methods, postulates, and standards for what constitutes legitimate contributions to a field. Paradigms originated from European philosophers like Karl Marx and Emile Durkheim. In short paradigm is the way of thinking about the world.

Paradigm Shift:

Paradigm shift is known as the successive transition from one paradigm to another paradigm via revolution. It is the usual development pattern of mature science. Like nowadays new computer technologies had arrived which have changed the way of

interaction between human and computer. They very often happen when new technology is introduced that radically alters the production process of a good or service.

Example:
Firstly we were using Batching Processing then the technology of time sharing has arrived after that networking has changed the perspective of computing after that graphical display has hit the market and that was covered by microprocessor and nowadays world wide web has taken the market place.

Question3: (06)
Explain Design Rationale. Write and explain the types of design rationale.

A design rationale is the explicit listing of decisions made during a design process, and the reasons why those decisions were made. It is to support designers by providing a mean to record and communicate the argumentation and reasoning behind the design process.
Types of design rationale
Rationale can be classified into several types. These types are not mutually exclusive and some systems may support multiple types of rationales.

•**Argumentation based -** the design rationale is primarily used to represent the arguments that define a design. These arguments consist of issues raised, alternative responses to these issues, and arguments for and against each alternative.

•**History-based** - the rationale consists of the design history – the sequence of events that occurred while performing the design. This information can be stored in many forms. It could be in the form of entries in a design notebook, an archive of e-mail messages, or other types of documents that capture actions taken over time.

•**Device-based -** a model of the device itself is used to both obtain and present rationale. The explanations of the design would be produced by using the model to simulate the behavior of the device. It would be possible for the user to view the model and ask questions about its design and behavior.

•**Process-based -** the DR capture is integrated into the design process itself which guides the format of the rationale, the design description is modified only by changes to and refinements of the design objectives, thus capturing the rationale as part of the design process.

•**Active document-based -** the DR is pre-generated and stored in the system. In these systems, the designer creates the design and the DR system generates the rationale for it based on the system's stored knowledge. For each decision made, the system compares the decision made by the user with the decision that it would have made based in its

knowledge. If the actions of the user conflict with the system recommendations, they are given the option of changing their decision or modifying some of the criteria.

Question 4: (10)
Find the web pages that illustrate the principle of consistency. You must provide on good and one bad example of consistency. You must provide the screen shot of web pages along with URL and the written explanation justifying your good and bad example in your answer. To provide the relevant examples browse the internet.

Ans: Principle of Consistency is an important factor to keep in mind, while designing and developing a website. It is always important to duly think the interactions that take between human cognition and the screen you're designing.

Sticking with principles of consistency Makes things easier for your user while using your services by not forcing him to learn and get used to new representations and toolsets for each task. Reducing the length of thinking process, eliminating user confusion also counts up to improving user experience.

Consistency should be kept in mind in two perspectives:

1. Principles, design features or interactive method you choose for your project should remain consistent throughout the project - this can be termed as internal consistency for instance Facebook.

2. Your methods, designs, UI and mode interactions should be consistent with normally accepted conventional methods. This is important because every user has built a certain level of memory when surfing internet, if he arrives all of a sudden to your inconsistent website there is a greater risk of loosing his interest the very first moment.

**Bad example**
Arngren.net

Justifications:

1. Inefficient, unplanned, use of grids in unconventional way makes it hard for user to. Adjust to the website for few hours.

2. Having no navigation at all also makes it quite hard for use to make effective use of the website in shortlisting the products.

3. Having no search bar for products.

Moreover,
Poor Typography
Random use of inconsistent colors worsens the design even more.

Good Example:
 Amazon.com
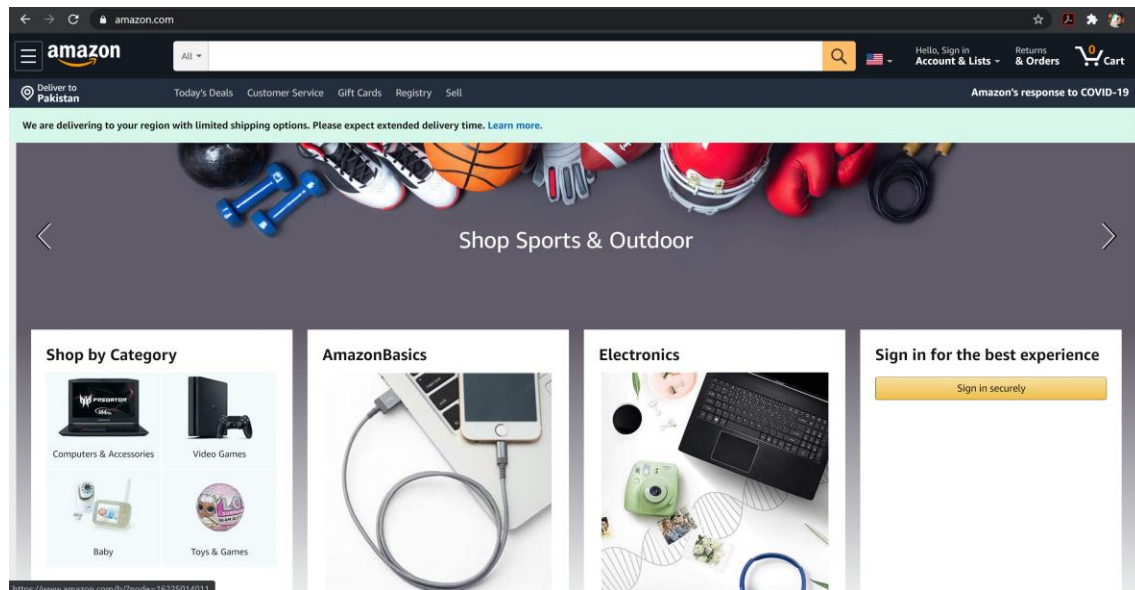
Justifications:
Arrival on landing page with
1. Search bar,
2. A menu bar
3. Slider
4. Language and sign in/ signup options

As expected by every user (unintentionally) makes it a pleasing experience first few moments.

Efficient listing of Products in grids

Question 5: (08)
Write the Shneiderman's 8 Golden Rules.

Ans: The Shneiderman,s 8 golden rules are as follow:

1. Strive for consistency: Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.

2. Enable frequent users to use shortcuts: As the frequency of use increases, so do the user's desires to reduce the number of interactions and to increase the pace of interaction. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

3. Offer informative feedback: For every operator action, there should be some system feedback. For frequent and minor actions, the response can be modest, while for infrequent and major actions, the response should be more substantial.

4. Design dialogs to yield closure: Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions gives the operators the satisfaction of accomplishment, a sense of relief, the signal to drop contingency plans and options from their minds, and an indication that the way is clear to prepare for the next group of actions.

5. Offer error prevention and simple error handling: As much as possible, design the system so the user cannot make a serious error. If an error is made, the system should be able to detect the error and offer simple, comprehensible mechanisms for handling the error.

6. Permit easy reversal of actions: This feature relieves anxiety, since the user knows that errors can be undone; it thus encourages exploration of unfamiliar options. The units of reversibility may be a single action, a data entry, or a complete group of actions.

7. Support internal locus of control: Experienced operators strongly desire the sense that they are in charge of the system and that the system responds to their actions. Design the system to make users the initiators of actions rather than the responders.

8. Reduce short-term memory load: The limitation of human information processing in short-term memory requires that displays be kept simple, multiple page displays be consolidated, window-motion frequency be reduced, and sufficient training time be allotted for codes, mnemonics, and sequences of actions.

Question 6: (10)
You are familiar with internet explorer. Explain any five usability goals in terms of internet explorer. Justify each goal with example

Ans:
Usability goals in my opinion:

- **Effectiveness:** Internet explorer supports me in completing my actions accurately.
  Example: when I search a query on internet explorer it gives me my desired result up to 70% which is more than enough for me.
- **Efficiency:** Internet explorer is efficient mean it perform my task very quickly with easiest processes.
  Example: It can give me my search result more quickly within mile seconds depends on my internet connection speed.
- **Security:** Internet Explorer keeps my data secure that no one else can process it without my permission.
  Example: Whenever I keep my data in internet explorer no one with out my permission can access that and can't do changes to that data. And also no one can hack my IP address.
- **Ease of Learning:** New users can accomplish goals easily and even more easily on future visits.
  Example: Every person can use internet explorer more easily if he is new he can access everything like a person who uses it from past time.
- **Traffic Handling:** Faster user experience in terms of internet traffic balancing.
  Example: If there are more users internet explorer doesn't crash and work properly.