

WEEK-4

Mobile Design: Graphical User Interface

(Understanding Design approaches in Mobile App development)

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Outline

1. Design- The Human Computer Interaction (HCI) approach
2. Design- Algorithm (Flowchart & Pseudocode, Google Mind mapping)
3. Design- User Interface tools
4. Design- Reference Guide

Design- The HCI Approach

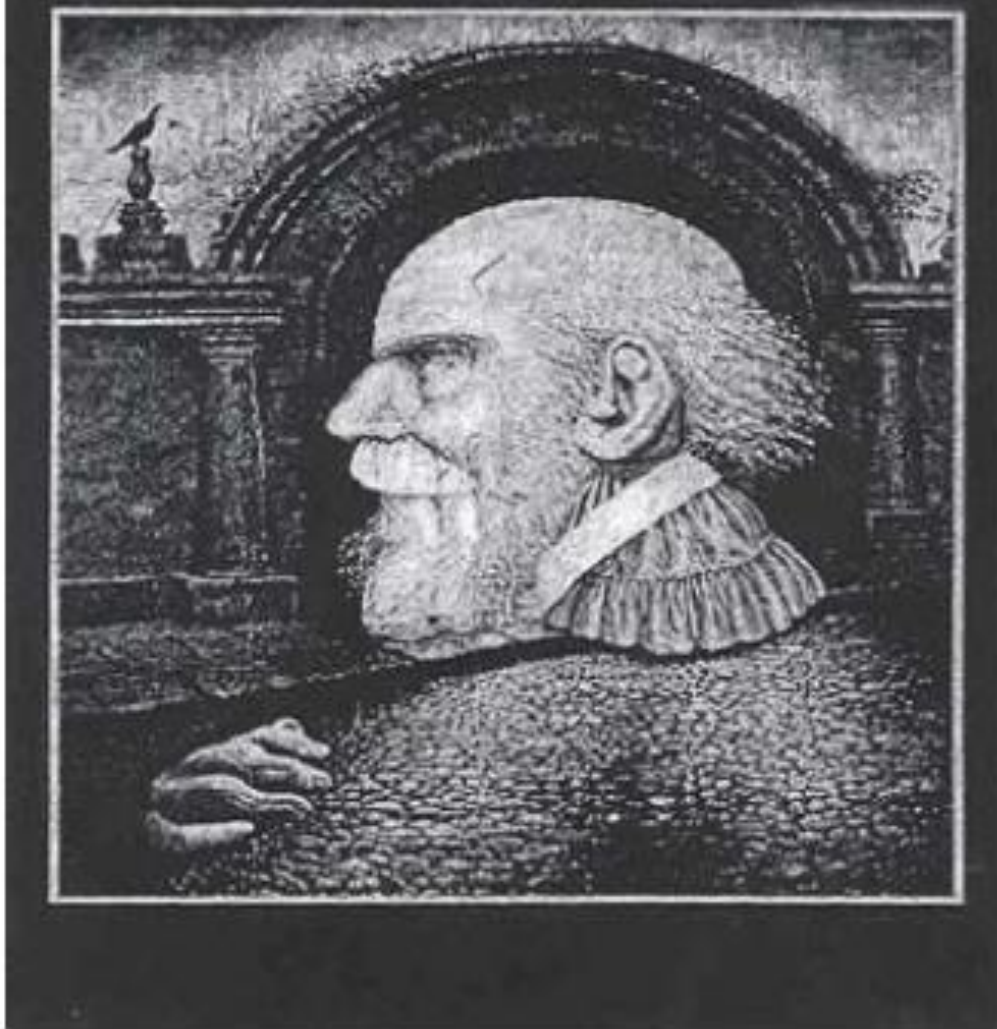


Figure 2.1: A visual perception picture

Now, to test your observatory skills, try looking at the picture in Figure 2.1.

How many person(s) can you see in this graphical interface design?

Human Visualization Perceptions and Influence in Design

Perception is the basics of interaction between computers and users. It is the initial notion of users about particular software upon seeing its display on the computer. Thus, users should be able to determine the type of information needed upon viewing. This initial notion is very crucial, as it can determine the interest or disinterest of a user in this software.

For instance, imagine yourself as a software developer who is interested in selling your product. In an exhibition, a customer visits your kiosk. During the demonstration session, you would be able to determine if this customer were interested or disinterested in your software, just by looking at his facial expressions.

If the customer were interested, he/she would definitely seek additional information about your software. As an interface designer, you must be able to understand how the perception theory can influence the design of an interface.

Human Computer Interaction Framework

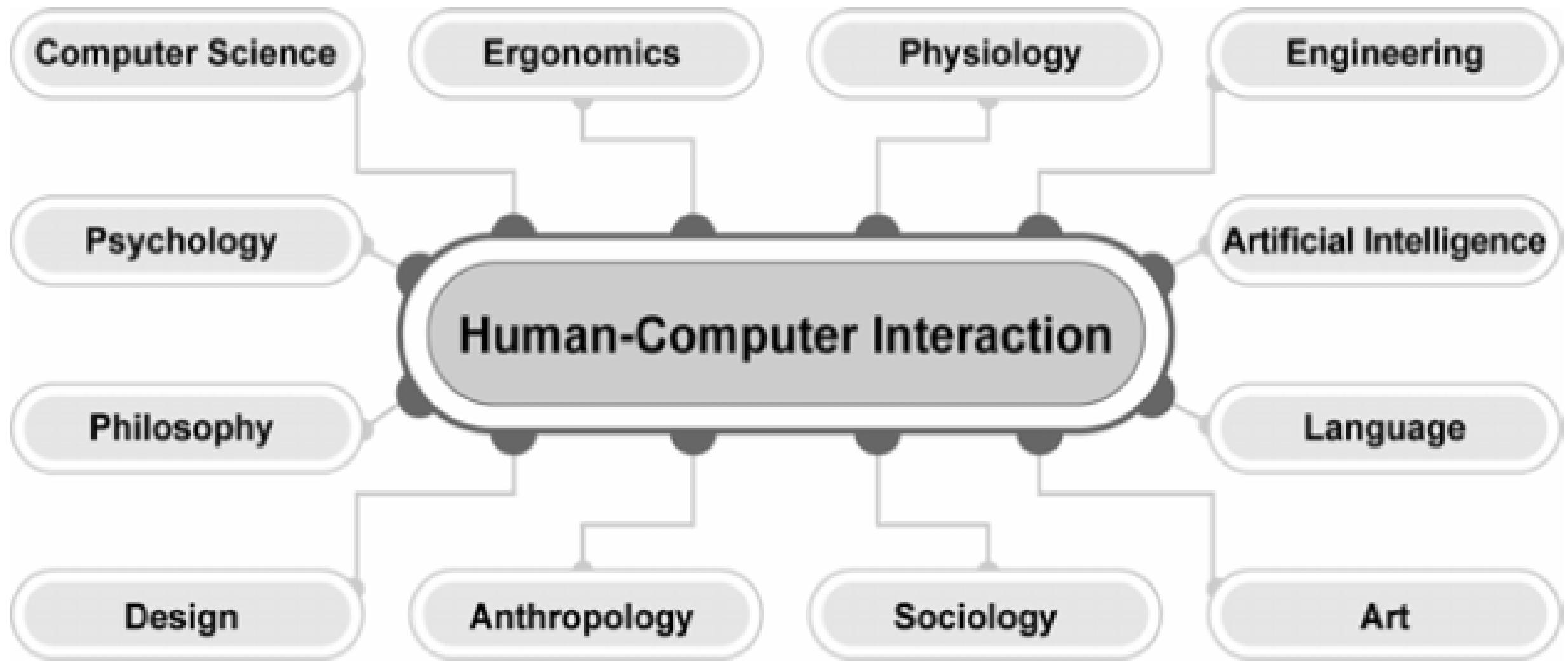


Figure 1.3: Relationship between HCI and Other Disciplines

Computer Science

Although an interface design is attractive due to its graphical decorations and animations, it can never function well if the processing time is slow. This case also applies to researchers who look for techniques to sketch graphical drawings that are able to reduce the usage of computer memory. These are all contributions of the computer science discipline towards HCI technology.

Ergonomics

HCI always takes into consideration the users opinions and views, as it emphasizes on the comfort of users. Ergonomics is the field of research pertaining to the relationship between humans and their work environments. Its contributions are important during the design of different tools and hardware that are used for varying reasons & functions. For example, the design of chairs used in the lecture hall differs from that of sofas at home. This also applies to normal users and disabled users, such as blind users and users with auditory disabilities.

Psychology

The psychology discipline focuses on the research of social structures and how computers can influence the work habits of an individual.

Engineering

The field of engineering contributes creative skills and knowledge to the process of producing hardware and tools that are both suitable and technologically advanced. As mentioned earlier, an effective interface does not merely depend on its design, but also on the processing speed. This is the contribution of engineering when combined with computer science.

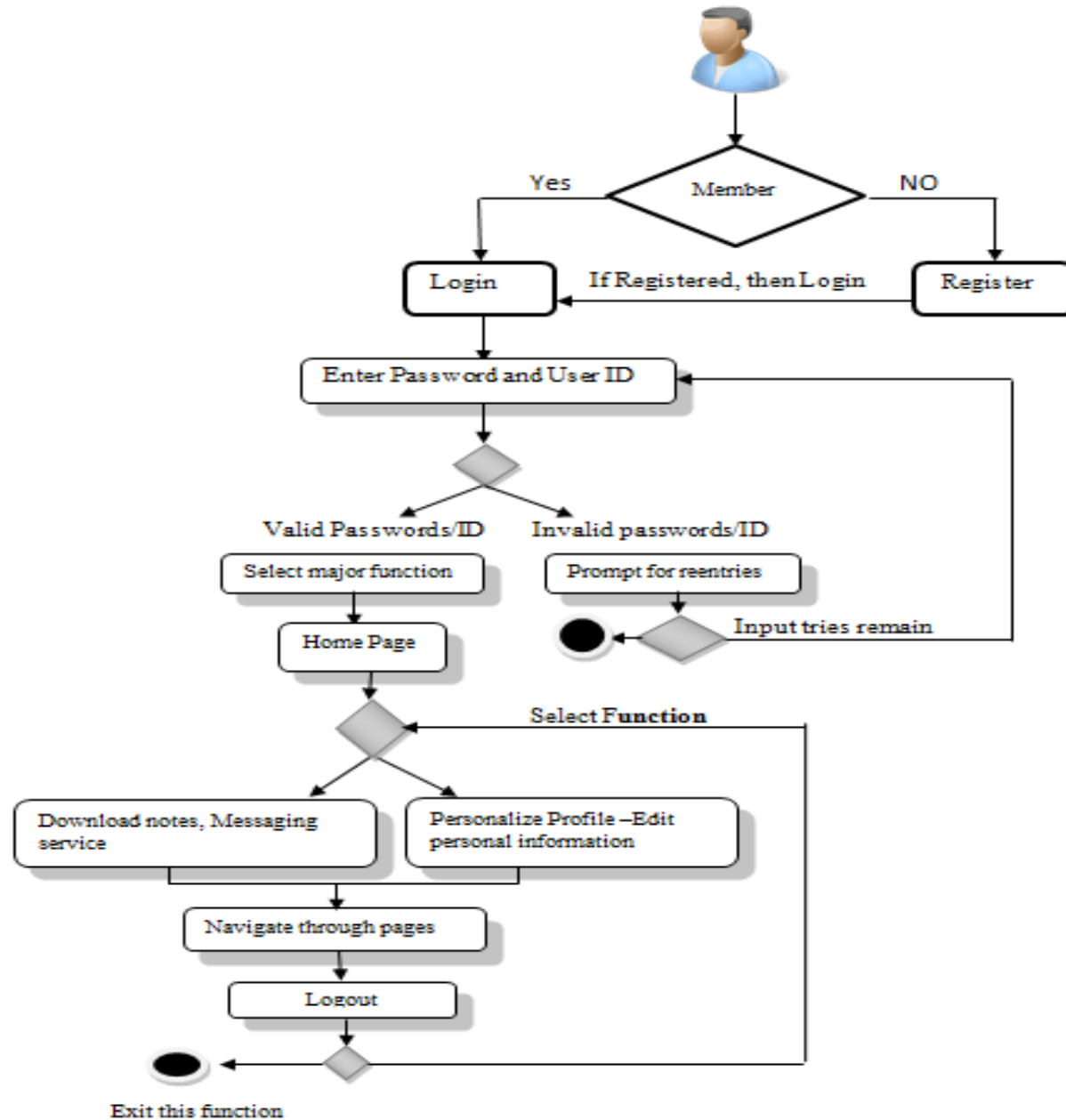
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Design-Flowchart & Google Mind-mapping Tool



Design-User Interface tools

- Interface in android:** Interface acts as a bridge between class and the outside world.
- A splash screen:** Initial screen of an application
- View group:** A collection of views and other child views, It is the base class for layouts.
- A service:** An activity to do background functionalities without UI interaction.

Notification Design:

- Toast notification:** Show a pop up message on the surface of the window.
- Dialogue Notification:** An activity related notification
- AlertDialog:** to display the dialog message with OK and Cancel buttons for user
- ProgressDialog:** A modal dialogue, which prevents the user from interacting with the app.
Use progressbar which can be embedded in your apps' UI

Xml files: Layout files in android are mostly.

Java and XML: For creating user interface in android

Widgets: supporting home screen customisation

Background Services: Playing music background while the user is in a different application

Views: User interface elements that are drawn on-screen including buttons, lists forms

Reference book

-E-TEXTBOOK-GUI DESIGN ESSENTIALS

1. GUI Design for Android Apps, Part 1: General Overview

This chapter introduces the general GUI design method for desktop systems and then shows how designing the UI and UX for embedded systems is different. Next, it discusses general methods and principles of GUI design for Android applications and how to develop user interfaces suitable for typical user interaction on Android smartphone and tablets.

2. GUI Design for Android Apps, Part 2: The Android-Specific GUI

This chapter introduces Android interface design by having you create a simple application called GuiExam. You learn about the state transitions of activities, the Context class, intents, and the relationship between applications and activities. Finally, the chapter shows how to use the layout as an interface by changing the layout file `activity_main.xml`, and how the button, event, and inner event listeners work.

3. GUI Design for Android Apps, Part 3: Designing Complex Applications

In this chapter, you learn how to create an application with multiple activities. This application is used to introduce the explicit and implicit trigger mechanisms of activities. Next, you see an example of an application with parameters triggered by an activity in a different application, which will help you understand of the exchange mechanism for the activity's parameters.

4. GUI Design for Android Apps, Part 4: Graphic Interface and Touchscreen Input

This chapter introduces the basic framework of drawing in the view, how the drawing framework responds to touchscreen input, and how to control the display of the view as well as the multi-touch code framework. Examples illustrate the multi-touch programming framework and keyboard-input responses. You also learn how to respond to hardware buttons on Android devices, such as Volume +, Volume -, Power, Home, Menu, Back, and Search. After that, you see the three different dialog boxes for Android, including the activity dialog theme, specific dialog classes, and toast reminders. Finally, you learn how to change application property settings.

THANK YOU