

20CYS202 - User Interface Design

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CO1 - Understand the basics of World Wide Web Unit - 1 / Lecture - 1 / Class - 1 to 3

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```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.22000.675]
(c) Microsoft Corporation. All rights reserved.
C:\Users\admin>cd ..
':\llsers\dir
Volume in drive C is Windows
Volume Serial Number is EC07-C3DA
Directory of C:\Users
29-04-2022 09:40
                    <DIR>
09-05-2022 06:59
                    <DIR>
                                   admin
22-04-2022 10:59
                    <DIR>
                                   Administrator
22-04-2022 10:59
                                   CB.EN.P2CYS19018
22-04-2022 10:49
                                   cb.en.u4ece17252
22-04-2022 10:43
                                   cb.sc.i5mat17021
22-04-2022 10:59
                                   cb.sc.i5phy17048
22-04-2022 06:59
                                   Public
              0 File(s)
                                    0 bytes
              8 Dir(s) 61,827,743,744 bytes free
:\Users>ls
'ls' is not recognized as an internal or external command.
operable program or batch file.
C:\Users>ipfs pin add _
```

Figure: Windows 11 - Command Line Interface



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Figure: Windows 1.0 (1985)

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Figure: Mac OS System 7 (1991)

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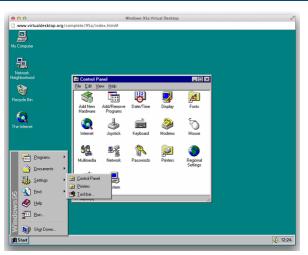


Figure: Windows 95



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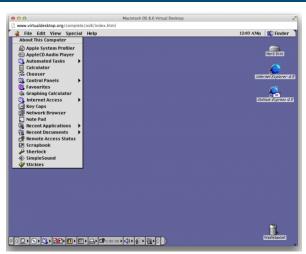


Figure: Mac OS 8.6 (1999)

UI Types



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Most commonly User Interfaces today can be classified as

- Graphical user interfaces (GUIs)
- Voice-controlled interfaces (VUIs)
- Gesture-based interfaces

Voice-controlled interfaces



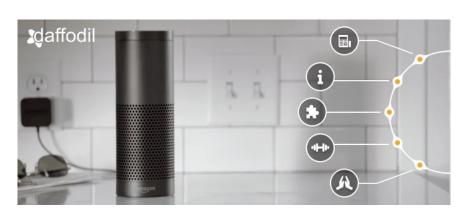


Figure: Amazon Alexa - VUI

Gesture-based interfaces



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Figure: Oculus Touch - Gesture

User Interface Design



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UI design is an iterative process involving close liaisons between users and designers. The 3 core activities in this process are

- User analysis: Understand what the users will do with the system
- **System prototyping:** Develop a series of prototypes for experiment
- Interface evaluation: Experiment with these prototypes with users

Human Factors in Interface Design



- Limited Short-term Memory
- Individuals (users) make mistakes
- Every individual is different
- Individuals (users) have different interaction styles/preferences

User Interface Design Principles



- User familiarity: Use terms and concepts familiar to the user
- Consistency: Comparable operations should be activated in the same way. Commands and menus should have the same format, etc.
- Minimal surprise: If a command operates in a known way, the user should be able to predict the operation of comparable commands
- Recoverability: mechanisms that allow user to recover from errors
- Feedback: Provide the user with visual and auditory feedback, maintaining two-way communication
- Diversity: appropriate facilities for different types of users

Shneiderman's Eight Golden Rules



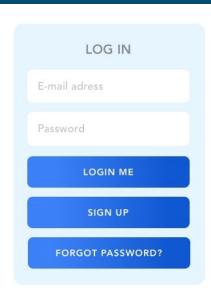
- Strive for consistency
- Enable frequent users to use shortcuts
- Offer informative feedback
- Design dialogue to yield closure
- Offer simple error handling
- Permit easy reversal of actions
- Support internal locus of control
- Reduce short-term memory load

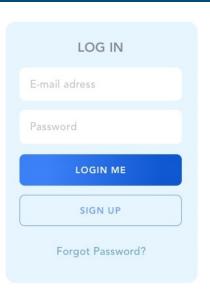
Interaction styles



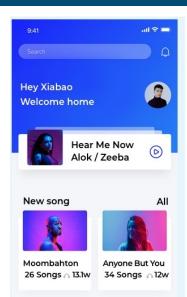
- Direct manipulation
- Menu selection
- Form fill-in
- Command language
- Natural language

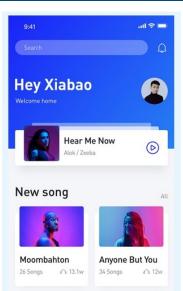


















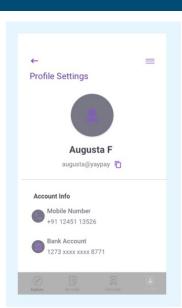
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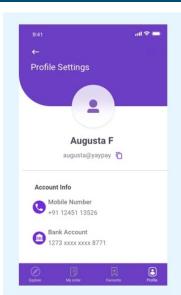
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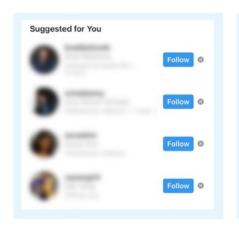


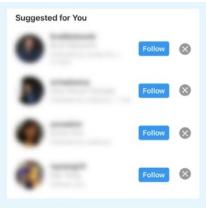




E-mail	E-mail
me@domain.com	me@domain.com
Password	Password
*****	****
Error!	Password incorrect. If you don't remember your password, reset it

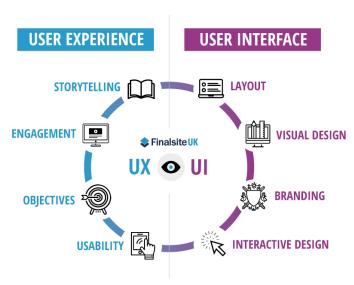






User Experience and User Interface





Credits



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Thanks to multiple sources, authors and text book presentations.