

## Interface

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## History

1. Early computers were large and required controlled environments.
2. Miniaturization, resulting from the introduction of the transistor, allowed the construction of small devices that did not require specialized environments.
3. Home computers introduced in 1977
4. Personal computers introduced by IBM in 1981.

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## System

- Layers of a computer system

Software (applications)
Operating System
Hardware

(from the most general and basic components to the most specialized)

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## Operating System

- interface between the hardware and the software
- interface between the hardware and the user

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## Problem

- Make computing technology available to non-technical people.

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## Early Interaction

- Command Line Interface
  - Modality: Remember and type
  - Command Names and Abbreviations were determined by programmers.
  - Usage dependent on user's knowledge of the technology.

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### Example

- MS-DOS
  - MS-DOS and command line overview

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### Contrast

- MS-DOS
- Windows XP

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### Windows XP

- Desktop Metaphor
- Icons
- Windows
- Pointing
  
- WIMP interface

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### Design Principles

- Modality: Recognition and Recall
- Maxims:
  - Forgiveness
  - Informative

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### Compare - Copy File

- Command
  - Type copy  
MyFile.txt /110/110b/
- Desktop
  - Click Folders
  - Mouse over  
MyFile.txt
  - Left-Click and hold  
the mouse button
  - Drag file to new  
location and release  
mouse button

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### Compare - Move File

- Command
  - Type Move  
MyFile.txt /110/110b/
- Desktop
  - Click Folders
  - Mouse over  
MyFile.txt
  - Right-Click and copy
  - Navigate to new  
folder
  - Right-Click and  
paste

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### Directory Views

- Tiles
- Icons
- List
- Details

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### Directory Navigation

- Open Folder - One folder at a time
- Folders - Hierarchical menu of folder structure

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### Actions on Desktop Objects

- Left-Click
- Right-Click
  
- Contextual Menus

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**Windows Application**

- Menus
  - Width versus depth
  - Recognition versus Recall
  - Words derived from task domain
  - Abbreviations/Shortcuts

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**Menus**

- Pull Down
- Pop Up
- Drop down
- Hierarchical

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**Current Systems**

- Computer systems use consistent interfaces, standard metaphors, and common operations
  - Reduce learning time
- Computer systems always give feedback while they are working
  - Reduce the mysteries
- Making mistakes does not break the computer or cause lost work
  - Forgiveness

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### Consistent?

- Rationale

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### Software Design Today

- Focus on users
- Focus on tasks
- Continuous evaluation of attitudes of users toward interface

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