

COMPSCI 111 / 111G

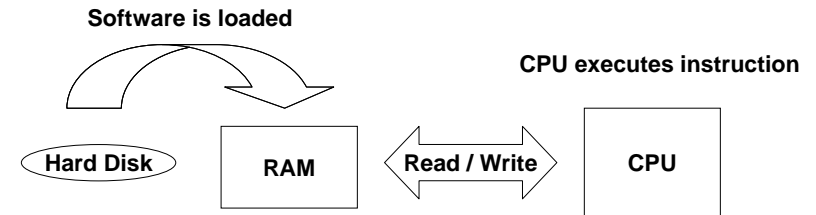
*Mastering Cyberspace:
An introduction to practical computing*

Software

What is software?

Instructions for the computer

- Loaded from Secondary Storage into Primary Memory
- Runs (executes) from RAM



<http://en.wikipedia.org/wiki/Software>

File Formats

All data is stored as numbers

- Method of encoding depends on the software

File Formats

- Defines the way that the numbers are interpreted

File Extensions

- A dot followed by letters at the end of a file name
- Windows OS uses the file extension to determine the file format
- Also used to decide which application to use to open the file

Standards

Open Standard

- Published publicly
- Free to use
- Maintained by a "non-profit" organisation

Proprietary Standard

- Intellectual property of an entity (individual / company)
- Use of the standard is usually through license

Kinds of Software

System Software

- Needed to run the computer system
- Operating System, Device Drivers, Diagnostic and maintenance tools

Application Software

- Helps the user complete a task
- Word Processor, Spreadsheet, Database, Web Browser, Games

Copyright and Patents

Software subject to normal legal copyright

- Creator retains the rights to their creations

Software Patents

- Retain control over ideas / inventions
- US recognises software Patents, Europe does not
- Hotly debated issue

Freeware

Software is distributed free of charge

- No agreement about distribution, access to source code

Types of Freeware

- Loss Leader
- Adware
- Donationware
- Postcardware

Abandonware

- Not legally recognised

Shareware

Trial period offered

- Purchase the license and upgrade to commercial version

Nagware

- Reminder messages to license software

Crippleware

- Software lacks the advanced features until licensed
- E.g. Word processor that cannot Save or Print

Proprietary Software

Software that has restrictions on using and copying

- All rights are retained by the owner.
- Owner enforces these restrictions

Can be:

- Commercial
- Shareware
- Semi-free (use for non-profit)



Open Source / Free Software

Free Software

- Freedom to use and study the work
- Freedom to copy and share the work with others
- Freedom to change the work
- Freedom to distribute changed and therefore derivative works

Copyright prevents these acts

- Explicit permission is required
- Free software license gives permission

Richard Stallman

- Free Software Foundation (FSF)
- GNU General Public License (GPL)
- Copyleft



<http://en.wikipedia.org/wiki/Copyleft>

Operating System

Low-level software that allows you to use the system

- Default interface when no application is running
- Manages the system, Schedules tasks, manages memory
- Interact with the hardware

Examples:

- Microsoft Windows
- Macintosh OS
- Linux

http://en.wikipedia.org/wiki/Operating_system

Command Line Interface

Text-based

- Powerful
- Hard to use
- Good for experts

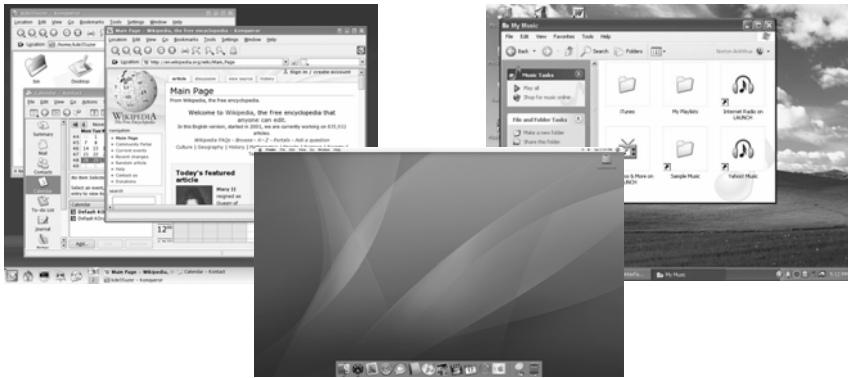
```
Digital UNIX (ruru.cs.auckland.ac.nz) (ttyg8)
login: andrew-l
Password:
Last login: Wed Feb 17 17:16:41 from andrew-l-pc.cs.a
36ruru # ls -l
total 5338
drwx----- 6 andrew-l staff      8192 Feb 29 1996 BUPscripts
-rw-r--r--  1 andrew-l staff    120320 Feb 24 16:14 Hardware and Software.doc
drwx----- 2 andrew-l staff      8192 Jun  9 1997 bin
-rw-----  1 andrew-l staff       78 Nov 17 14:06 echo
drwx----- 13 andrew-l staff     8192 Mar  1 11:38 mac
-rw-----  1 andrew-l staff    182566 Jan 11 16:08 netman.ps
-rw-----  1 andrew-l staff    1620608 Jan 11 16:00 phdthesis.ps
drwx----- 2 andrew-l staff      8192 Aug 15 1998 pictures
drwx----- 2 andrew-l staff     8192 Aug 15 1998 public.htm
drwxrwx--- 17 andrew-l grad6     8192 Mar  4 18:31 public.html
drwx----- 2 andrew-l staff      8192 Feb 27 1996 test
-rw-----  1 andrew-l staff    3252419 Jan 11 16:08 trainhw.ps
drwxrwxrwx 2 andrew-l staff      8192 Dec 17 1997 turf
-rw-r--r--  1 andrew-l staff      242 Jun 11 1997 update_char
37ruru #
```

http://en.wikipedia.org/wiki/Command_line_interface

Graphical User Interface (GUI)

Picture based

- Windows, Icons, Mouse, Pointer
- Easy to use
- Good for beginners



<http://en.wikipedia.org/wiki/GUI>