SYSTEMS SOFTWARE AND APPLICATIONS

HILLVIEW INTERNATIONAL HIGH SCHOOL – YEAR 7

LESSON OUTCOMES

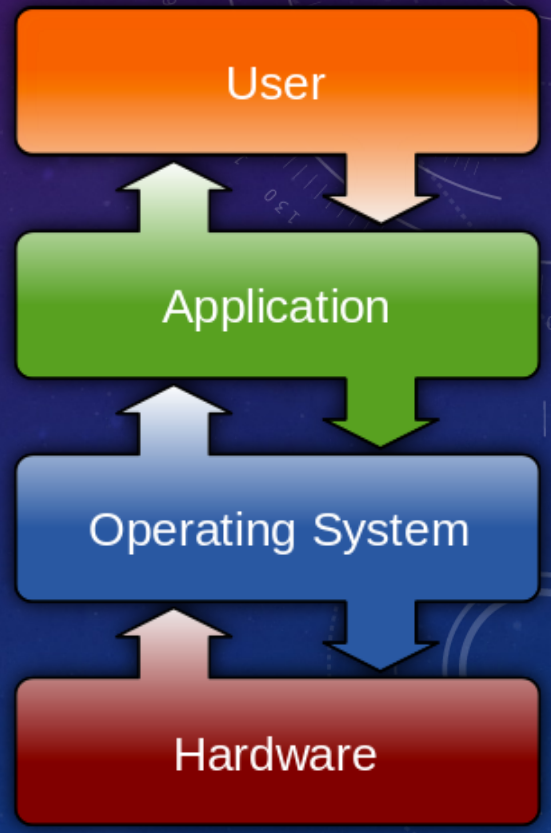
By the end of this lesson, you will be able to:

- Understand the difference between systems software and applications
- Understand what an operating system is and be able to give examples
- Understand what device drivers are
- Understand what utility software is and be able to give examples

SOFTWARE

- Tells hardware what to do – makes computers useful

- Two main types of software:
  - Applications (aka “apps” and “programs”)
    - Software to perform tasks
    - Includes games, word processors, web browsers, etc
  - Systems software
    - Software that interacts directly with computer hardware
    - Includes operating systems, device drivers and utility software

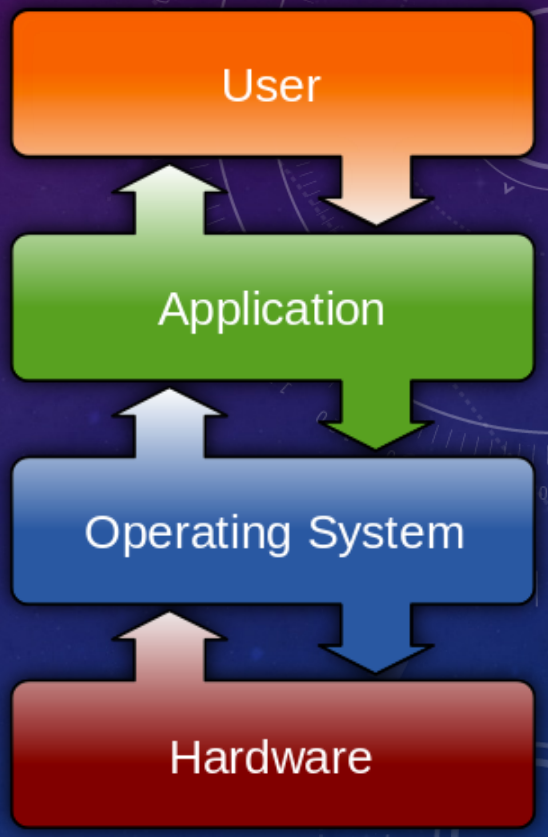


APPLICATIONS SOFTWARE

- Common applications include:
  - Microsoft Office (Word, Powerpoint, Excel)
  - Web Browsers (Chrome, Safari, Firefox, Edge)
  - Games
  - Media Players (Windows Media Player, iTunes, VLC)
  - Social Media Apps (Facebook, Instagram, WhatsApp)
  - Media Creation (Photoshop, GIMP, Windows Movie Maker, GarageBand)
  - Software Development (Scratch, Python IDLE)

OPERATING SYSTEMS

- All computers have an operating system
- Provides the user interface
- Provides common services for applications, eg:
  - File saving, file deletion and creation
- Manages hardware, including memory and storage, networking, security, and processor usage

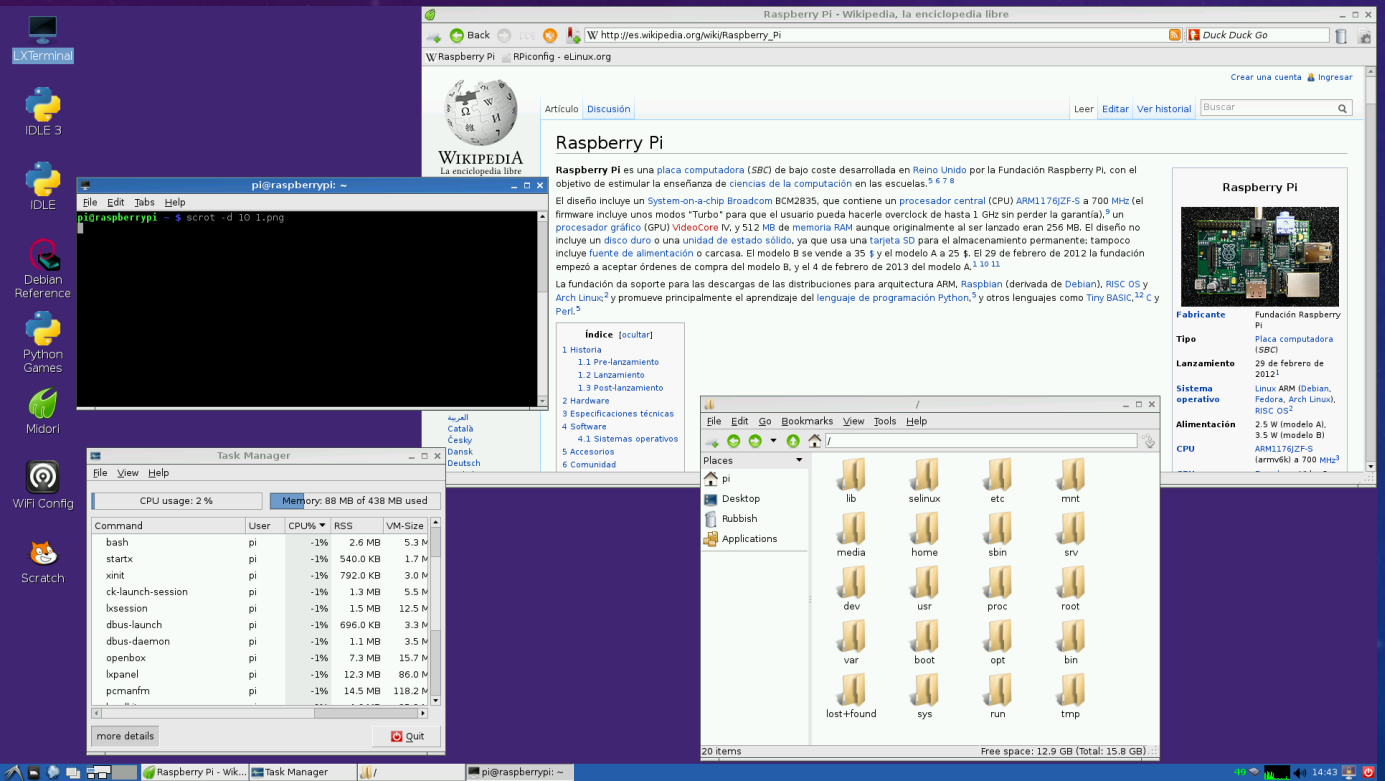


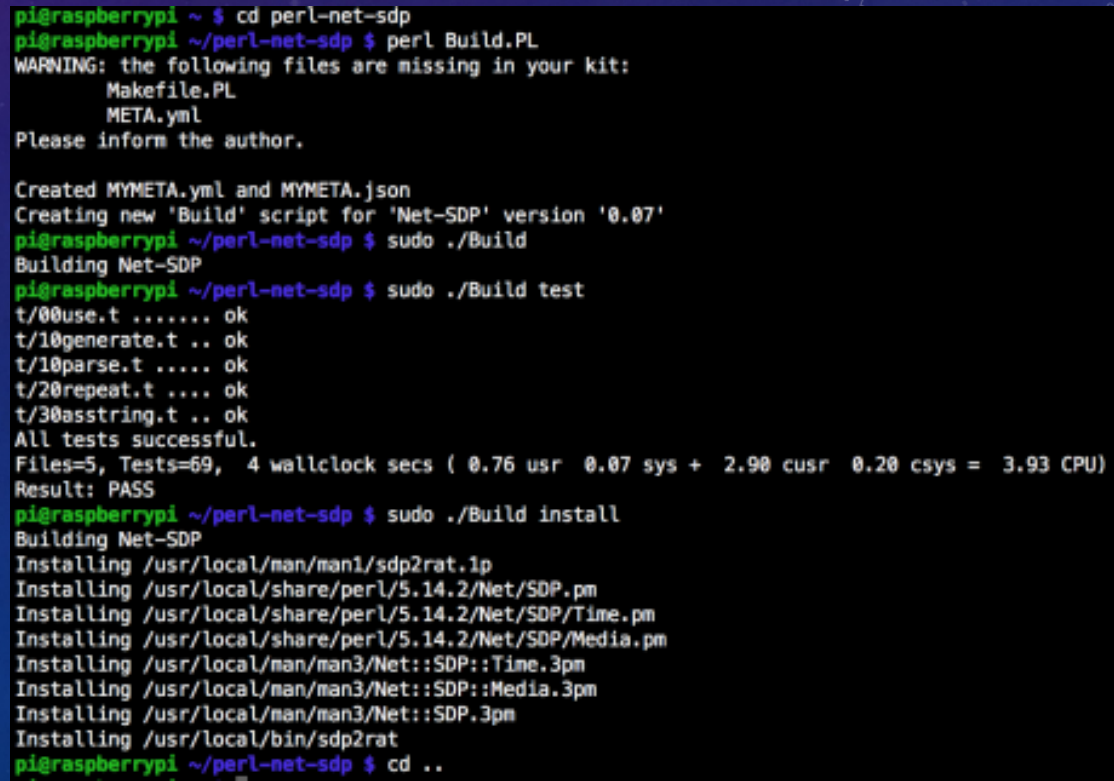
CLASSROOM CALLOUT

Can you name any operating systems?

OPERATING SYSTEMS - EXAMPLES

Family	Home computers	Servers	Mobile devices	Internet of Things (IoT)
Windows	10/8.1/8/7/Vista/XP	Windows Server / NT	Windows Phone	Windows 10 for IoT Core
Unix	macOS	Free BSD, Solaris	iOS	TinyOS
Linux	Chrome OS, Raspbian	Debian, Red Hat	Android	Raspbian, Android Things





GRAPHICAL USER INTERFACE (GUI) VS COMMAND LINE INTERFACE (CLI)

GUI

- Easier to use
  - Point and click
- Runs more slowly
  - Lots of time spent drawing to the screen
- Often used for home and office computers

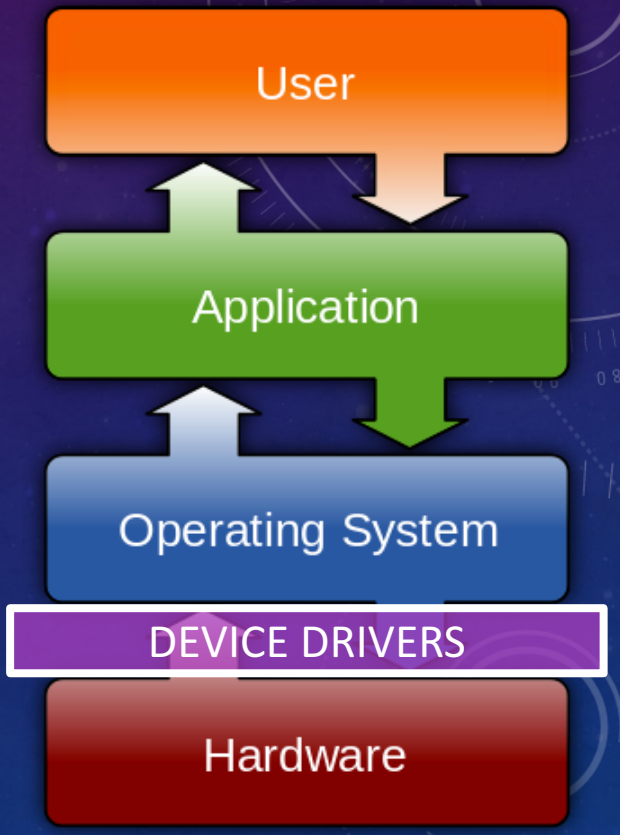
CLI

- Harder to use
  - Must remember typed commands
- Runs more quickly
  - Little time spent drawing to the screen
- Often used for servers

DEVICE DRIVERS

- Software that controls hardware
  - All peripherals require drivers
  - Some system components require drivers (such as graphics cards and DVD drives)

- Apps make requests to the operating system which uses drivers to control hardware

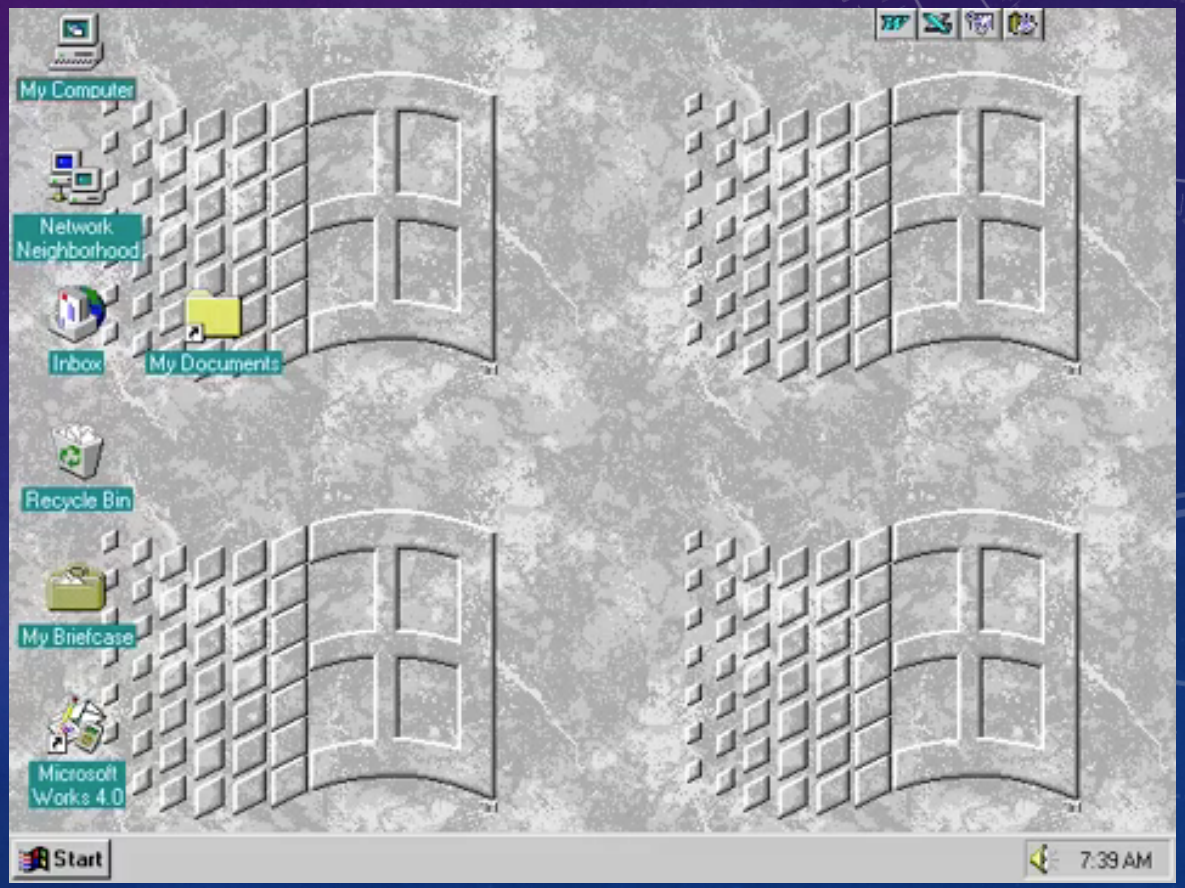


UTILITY SOFTWARE

- Examples:
  - Disk partitioning tools
  - Backup software
  - Antivirus and anti spyware (more detail in 2 weeks)
  - Compression and/or archiving software (more detail in 2 slides time)
  - File managers (more detail in 2 slides time)
  - Defragmentation tools (more detail on the next slide)

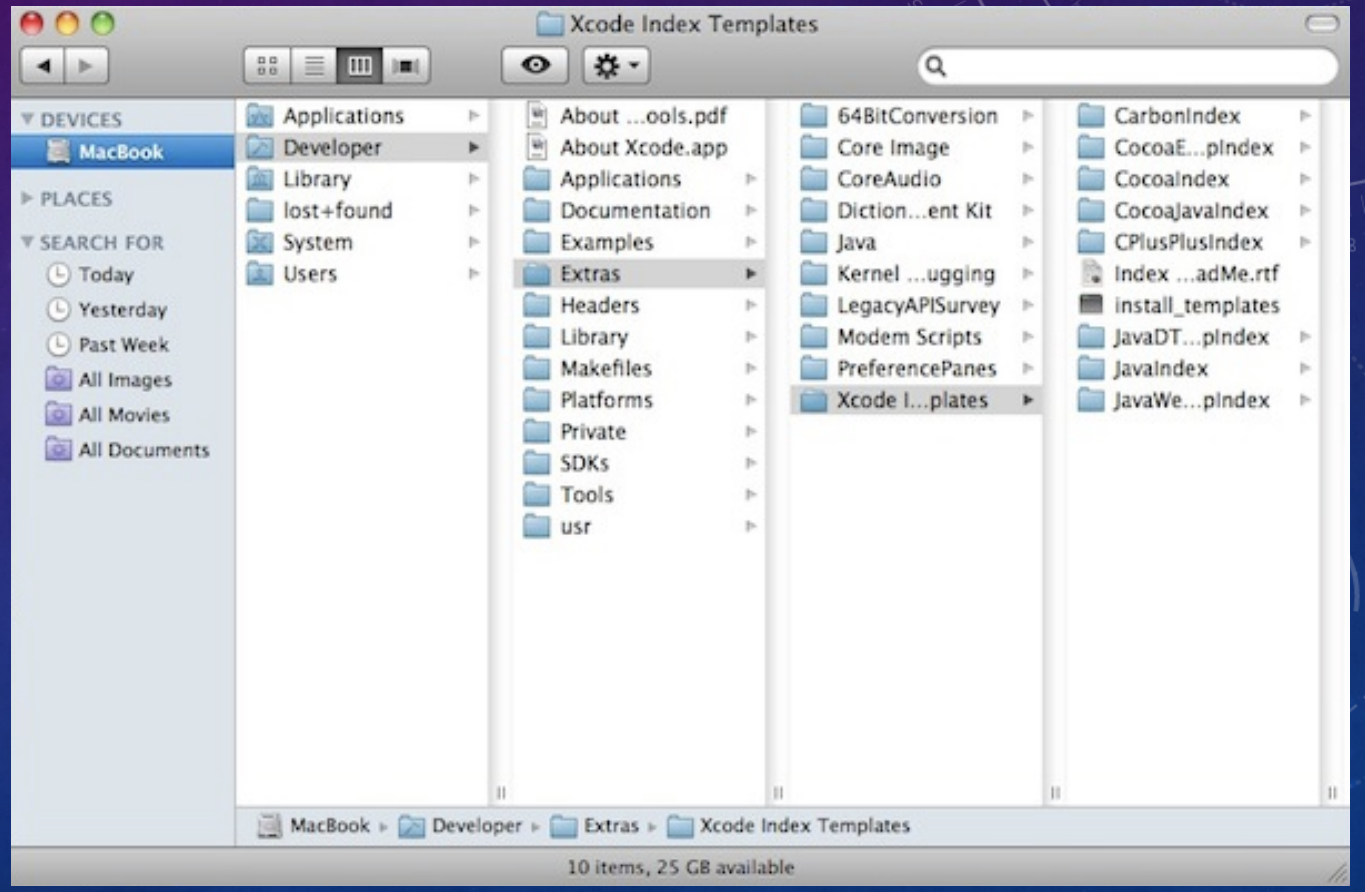
UTILITY SOFTWARE: DISK DEFRAGMENTERS

- Makes hard drives work faster by taking “fragments” of files and putting them back together
- Modern operating systems run this without you knowing
- Solid state drives (like USB keys, the drives in phones and the drives in some modern PCs) do not benefit from defragmentation



FILE MANAGERS AND COMPRESSION/ARCHIVING

- File managers are how you find files on computers.
- Windows:
  - Windows Explorer
- Mac:
  - Finder
- Compression/archiving tools group files into a compressed folder that can be shared as a single file.
  - Now built into Windows and Mac
  - Most popular 3rd party tools: WinZIP and WinRAR



WORKSHEET TASKS: SOFTWARE

- Complete the Worksheet Tasks
- ***You have 10 minutes!***

ANSWERS: TASK 1
OPERATING SYSTEMS:

Family	Home computers	Mobile devices
Windows	Windows 10	Windows Phone
Unix	macOS	iOS
Linux	ChromeOS, Raspbian, Ubuntu, Debian	Android

Name the two types of interface operating systems can use:

GUI (Graphical User Interface)

CLI (Command Line Interface)

ANSWERS: TASK 1 (CONTINUED)
OPERATING SYSTEMS

Describe 2 functions that all operating systems provide.

Any 2 of 3:

1. Provides the user interface
2. Provides common services for applications, eg:
   - File saving, file deletion and creation
3. Manages hardware, including memory and storage, networking, security, and processor usage

ANSWERS: TASK 2
APPLICATIONS AND SYSTEM SOFTWARE

Operating Systems are an example of System Software.
What other type of System Software do we know about?

Device Drivers

Name three popular software applications…

Which ones do you have?

ANSWERS: TASK 3
UTILITY SOFTWARE

Give two examples of utility software…

Any two of:

- Defragmentation tools
- Disk partitioning tools
- Antivirus
- Anti spyware
- Backup software
- Compression and/or archiving software
- File managers

LESSON SUMMARY

You should now be able to:

- Understand the difference between systems software and applications
- Understand what an operating system is and be able to give examples
- Understand what device drivers are
- Understand what utility software is and be able to give examples

NEXT WEEK

- The Fetch-Execute Cycle
- Assembly programming

ASSESSMENT – TEST AFTER HALF TERM

- Hardware
- Software
- Fetch-execute cycle
- Online safety