DragonBoard 410c Components

eMMC: Embedded Multimedia Card
RAM: random Access Memory
WiFi: Brandin Term that beat out IEEE 802.11
GPS: Global Positioning System
ARM: Advanced RISC Machine
RISC: Reduced Instruction Set Computer

Embedded Systems

- **SoC**
- **SoM**
- **...**

Concepts

High and Low Level programming
Object oriented Programming
C Programming
Root/Superuser
Levels of Abstraction

High Level/ Low Level Programming

High Level	Low Level
Easier to user	Harder to use
Many abstractions	Fewer abstractions
Automated Processes	Closer to hardware
	Efficient

Unix Terminal Commands

ls- Lists the contents of the current directory
cd- Change directory
echo- Prints/calls something out to the terminal
cat- Outputs contents of a file to somewhere else
export- Creates a path variable
sudo- Executes a command as a superuser
(sudo) su- Enter superuser mode
chmod- Changes files permissions (Read, Write, Execute)
exit/quit- Exit/quit current mode
.- Current directory
:- Parent Directory
./- Executes Files
Other Commands

Unix Terminal Commands (cont)

mkdir- Create a new folder
mv- Move a file to another location
cp- Copy a file to another location
rm- Remove a file
clear- Clears the terminal
!!- Repeat a command

General Acronyms

IoT: Internet of Things
OS: Operating System
IDE: Integrated Development Environment
SDK: Software Development Kit
NDK: Native Development Kit
AVD: Android Virtual Device
ADB: Android Debug Bridge
APK: Android Application Package
API: Application Programming Interface

Object-Oriented Programming

Advantages	Disadvantages
Code Reuse/ recycling	Size (very large programs)
Encapsulation	Slower than other programs
Design Benefits	

Root / Super user

- Use "sudo su" or "su" to log in to superuser
- Uses "sudo" for every command
- Gives suer all rights/ permissions to all programs/ files
- Modify files that cannot be modified as a regular user
- Issue commands that cannot be used as a regular user
- Can be dangerous / make sure you know what you are doing

MS- DOS Commands

dir- Displays the contents of the directory/folder
cls- Clears the skin
copy- Copies one or more files to the specified destination
echo- Prints/ Calls something to the terminal
del- Deletes a file
undelete- Restores a deleted file
print- Prints the content of a text file
mkdir- Make a new folder

Frequent Terminology

Board: the DragonBoard 410c
Boot: starting your board
Terminal: A shell/command line
Android Studio: An IDE for developing Android applications
Dip Switches: Boot switches on back of board
Script: An executable file (automates a process)
Fastboot: A method to install an OS using a USB and a computer
Flashing: Overwriting existing OS or firmware

C Programming

Advantages	Disadvantages
Portable	No OOP
Extensive Libraries	Very loose type checking
Systems Programming	
Mid Level	

Levels of Abstraction

Scripting/ Interpreted Languages
High/ Middle Level Languages
Assembly Language
Machine Code
Binary Code