Intro to Android and iOS

Jestin James M
Assistant Professor, Dept of Computer Science
Little Flower College, Guruvayoor

The Players

- Android – Open source mobile OS developed ny the Open Handset Alliance led by Google. Based on Linux 2.6 kernel

- iOS – Apple's proprietary mobile OS, iPhone, iPod Touch, iPad. Derived from OS X, very UNIX like

- Symbian – acquired by Nokia 2008

- Windows Phone 7 – Microsoft – Kin, discontinued 6 weeks after initial launch

- Blackberry OS – RIM (Research in Motion), proprietary OS

The Smartphone Platform

- With the iPhone being the first to the marketplace it sets the configuration of the Smartphone Platform
    - 3G/4G connectivity
    - WiFi connectivity
    - Bluetooth connectivity
    - accelerometer w/compass
    - ambient light sensor
    - proximity sensor
    - GPS
    - gyroscope

What is Android

- Android is an open source operating system, created by Google specifically for use on mobile devices (cell phones and tablets)

- Linux based (2.6 kernel)

- Can be programmed in C/C++ but most app development is done in Java (Java access to C Libraries via JNI (Java Native Interface))

- Supports Bluetooth, Wi-Fi, and 3G and 4G networking

What is iOS

- Apple's mobile OS for phones (iPhone), tablets (iPad), handhelds (iPod),

- based on BSD Unix

- Application programming done in Objective C

- Supports Bluetooth, Wi-Fi, and 3G and 4G networking

Bluetooth

- Open wireless technology
  - Developed by Ericsson (1994)
  - Originally supposed to replace wired RS-232
  - Short distance via low power, short distance radio
  - Allows creation of personal area networks
    - Mostly to connect wireless peripheral devices to a host computer (mice, headsets, microphones, keyboards…)
  - Can also be used to communicate between two host computers wirelessly (replace serial cables)

Wi-Fi

- Used to brand certified products that belong to a class of wireless local area network based on IEEE Standard 802.11

- Currently there are 3 versions of 802.11 in common use:
  - B, about 150 feet indoors, 300 ft outdoors
  - G, 54 Mbits about 150 feet indoors, 300 ft outdoors
  - N, 600 Mbits, about 1.5 miles in open air, uses MIMO (multiple input and output antennas)

3G (3rd Generation Network)

- Must allow simultaneous use of speech and data servicesand provide peak data rate of 200 kbits/sec

4G

- Provides a comprehensive and secure IP based solution for IP based telephony, ultra broadband internet, gaming services and streamed multimedia.

- Peak data rate of 100 Mbit for high mobility devices and 1 Gbit for low mobility devices.
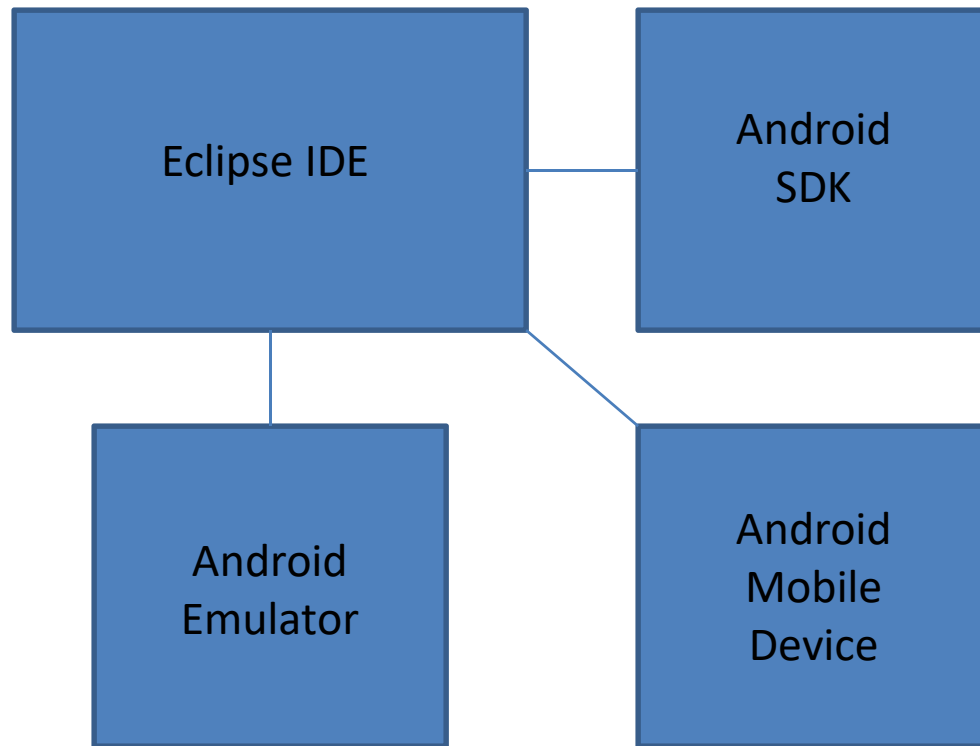
Commonly Used Packages

- User interface controls and widgets
- User interface layout
- Secure networking and web browsing
- Structured storage and relational databases (SQLite RDBMS)
- 2D and 3D Graphics SGL and OpenGL
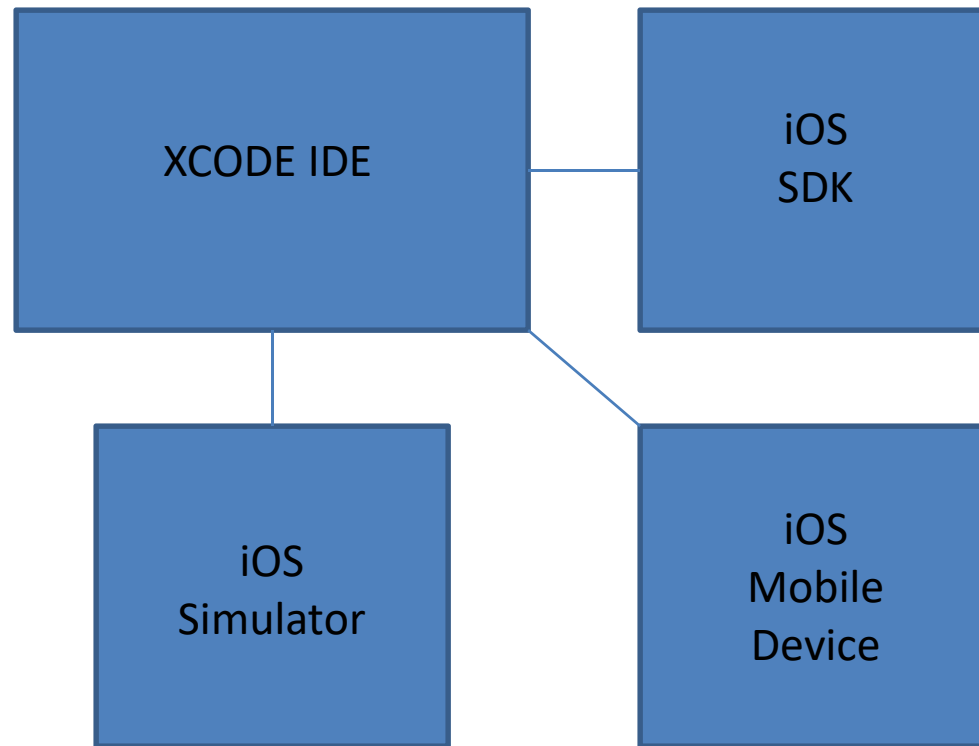- Audio and visual media support
- Access to optional hardware (GPS)
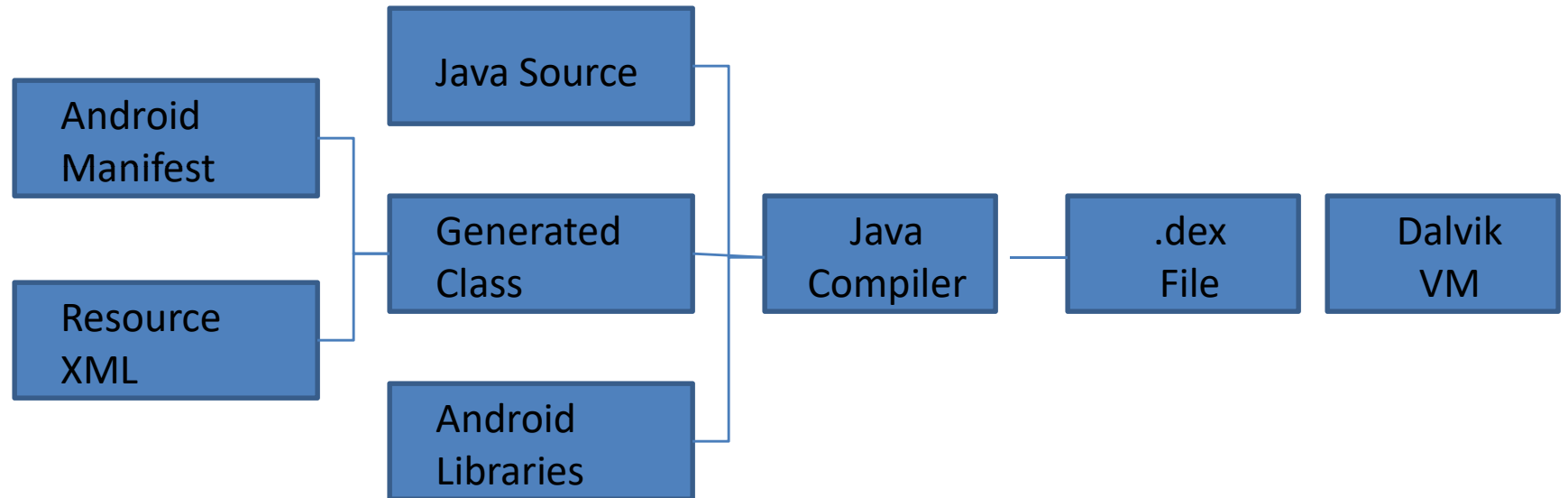
The Android Software Stack
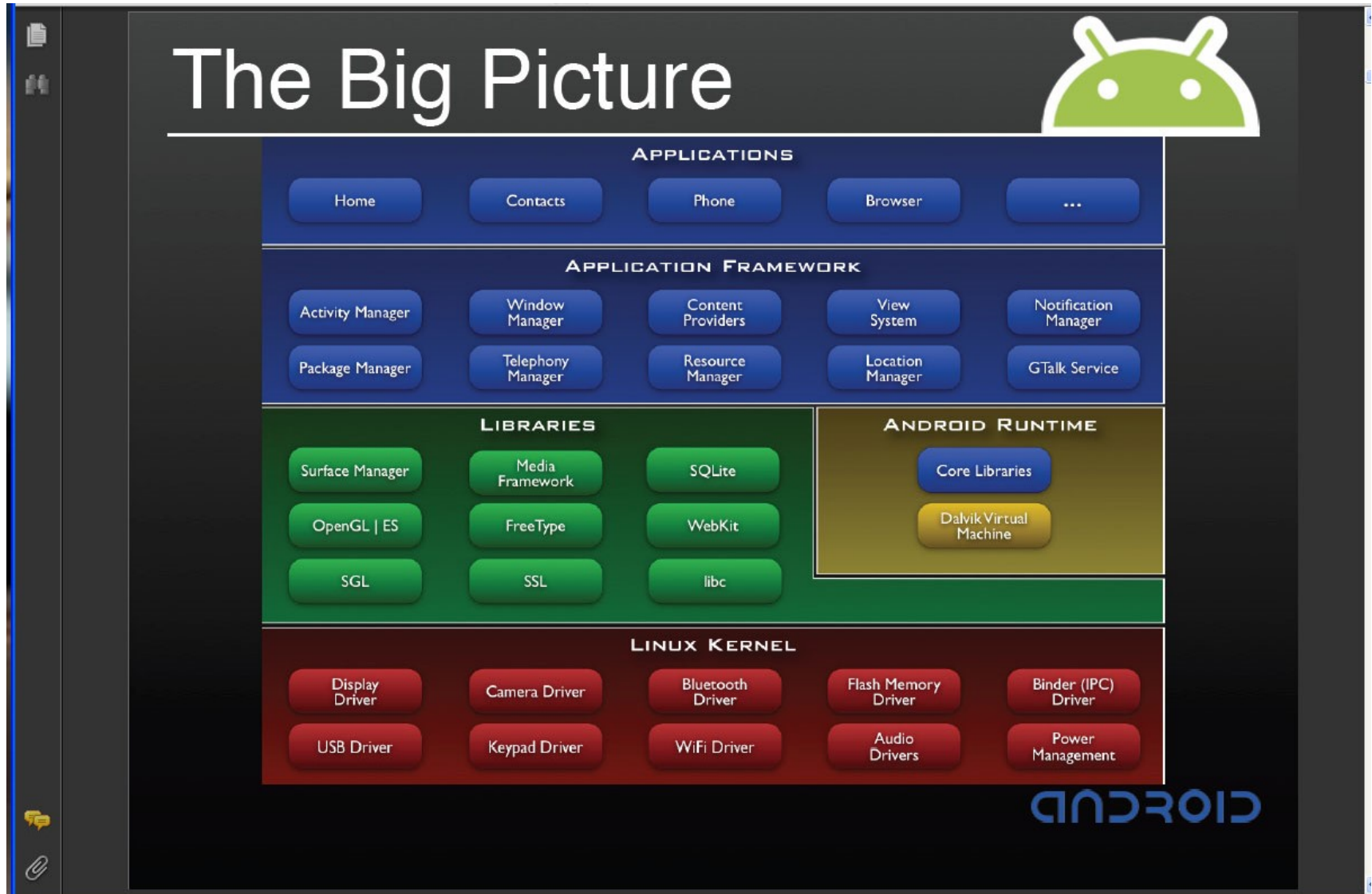
Android Application Development

iOS Application Development

Android development

iOS development

Xcode

Objective C
Source

Interface
Builder

.xib file

Objective C
Compiler

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Simulator
or Device

Foundation
Framework
Cocoa Libraries