College of Science and Technology

Royal University of Bhutan

Unit III:
iOS Application Development

CTE308- AS2025

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Outlines

- Introduction to iOS
- History
- Architecture

What is iOS?

- iOS stands for iPhone operating system.
- It is a proprietary mobile operating system of Apple for its handheld. It supports Objective-C, C, C++, Swift programming language.
- It is based on the Macintosh OS X.
- After Android, it is the world's second most popular mobile operating system.
- Many of Apple's mobile devices, including the iPhone, iPad, and iPod, run on this operating system.
- To control the device, iOS employs a multi-touch interface, such as sliding your finger across the screen to advance to the next page or pinching your fingers to zoom in or out of the screen.

Features of iOS

- ✓ Multitasking
- ✓ Social Media
- ✓ iCloud
- ✓ In-App Purchase
- ✓ Game Center
- ✓ Notification Center
- ✓ Accelerometer
- ✓ Gyroscope
- ✓ GPS
- ✓ Accessibility
- ✓ Bluetooth
- ✓ Orientations
- ✓ Camera integration
- ✓ Location services
- ✓ Maps

History

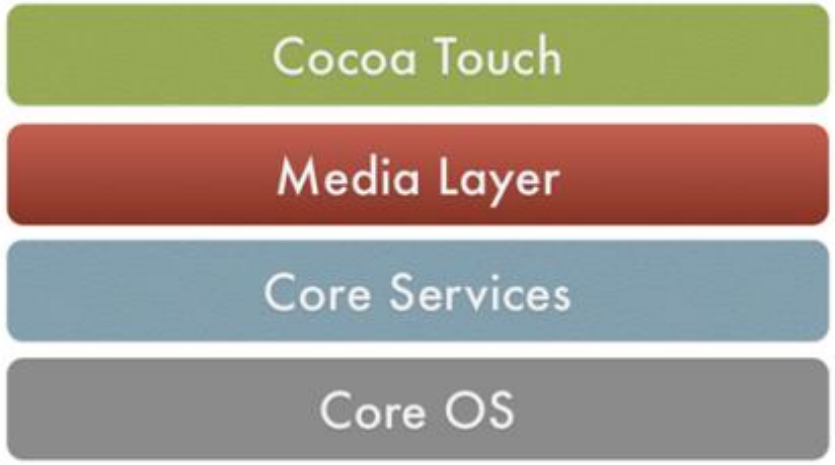
- The iPhone was first released in June 2007 and
- On September 5, 2007, Apple released the iPod Touch which had most of the non-phone abilities of the iPhone.
- In June 2010 Apple rebranded iPhone OS as iOS.
- iPad first generation iPad was released in April 2010 and the iPad Mini was released in November 2012.

iOS Installation

- To build an iOS app, following tools are necessary:
  - ✓ **MacOS** is must for the iOS development using Xcode.
  - ✓ To build an iPhone or iPad or iPod app you require to first getting a Mac with Intel or M based processor running on Mac OS X version 10.8 or later.
  - ✓ The cheapest option is to get the Mac Mini. The fundamental model of Mac mini has 2.3GHz dual core Intel Core i5 processor and 4GB memory.
  - ✓ Alternative:
    - ✓ VirtualBox
    - ✓ Rent Mac in the Cloud

Architecture of iOS

- Architecture of IOS is a layered architecture.
- At the uppermost level iOS works as an intermediary between the underlying hardware and the apps you make.
- Apps do not communicate to the underlying hardware directly.
- Apps talk with the hardware through a collection of well-defined system interfaces.



Architecture of iOS

- Lower layers gives the basic services which all application relies on and higher-level layer gives sophisticated graphics and interface related services.
- Apple provides most of its system interfaces in special packages called frameworks.
- A framework is a directory that holds a dynamic shared library that is files, related resources like as header files, images, and helper apps required to support that library. Every layer have a set of Framework which the developer use to construct the applications.

Architecture of iOS

1. **Core OS Layer:**
   - The Core OS layer holds the low-level features that most other technologies are built upon.
2. **Core Services Layer**
   - Important Frameworks available in the core services layers
3. **Media Layer:**
   - Graphics, Audio and Video technology is enabled using the Media Layer.
4. **Cocoa Touch Layer**
   - Interaction with user touchscreen

Basic Task

1. Building Basic iOS App
2. Simulator in Xcode
3. Layers of View and ViewController
4. Auto Layout

Resources

- Basic Building iOS App from Apple official site: https://developer.apple.com/tutorials/app-dev-training/

- Swift Programing Online Compiler: https://www.programiz.com/swift/online-compiler/

Thank you!