MOBILE COMPUTING
INTRODUCTION

Like any other embedded device, mobiles also need an Operating System.

The most popular platforms are Symbian, J2ME and Windows Mobile.
MARKET SHARE OF OSS IN 2007

smartphone sales by OS vendor by region

- Symbian
- Linux
- Access
- Microsoft
- RIM
- Apple
- Others

EMEA | Japan | China | N. AM. | ROW
**Introduction To Symbian**

- **Symbian OS** is an open operating system, designed for mobile devices, with associated libraries, user interface frameworks and reference implementations of common tools, produced by Symbian Ltd. It is a descendant of Psion's EPOC and runs exclusively on ARM processors.

- Symbian was formed in 1998 by a consortium of telecom companies lead by Nokia. Ten years later, Nokia purchased the company and turned it into a non-profit foundation.
Symbian OS, with its roots in Psion Software's EPOC, is structured like many desktop operating systems with pre-emptive multitasking and memory protection.

Symbian OS was built to follow three design rules:
- The integrity and security of user data is paramount;
- User time must not be wasted; and
- All resources are scarce
The Symbian OS System Model contains the following layers, from top to bottom:

- UI Framework layer
- Application Services Layer
  - Java ME
- OS Services Layer
  - Generic OS services
  - Communication services
  - Graphics and multimedia services
  - Connectivity services
- Base services layer
- Kernel services and Hardware Interface Layer
● Location-based services
● Freeway
● Screenplay
● Symmetric multiprocessing
● Demand paging
INTRODUCTION

- The **Java 2 Platform, Micro Edition** or **J2ME** is a specification of a subset of the Java platform aimed at providing a certified collection of Java APIs for the development of software for tiny, small and resource-constrained devices based on microcontrollers such as ARM7, ARM9, AVR32.

- Java ME was designed by Sun Microsystems and is a replacement for a similar technology, PersonalJava. Originally developed under the Java Community Process as JSR 68, the different flavours of Java ME have evolved in separate JSRs.
Java ME has become a popular option for creating games for cell phones, as they can be emulated on a PC during the development stage and easily uploaded to phones.

Java ME devices implement a profile. The most common of these are the Mobile Information Device Profile aimed at mobile devices, such as cell phones, and the Personal Profile aimed at consumer products and embedded devices like Set-top boxes and PDAs.
The CLDC contains a strict subset of the Java-class libraries, and is the minimal amount needed for a Java virtual machine to operate. CLDC is basically used to classify myriad devices into a fixed configuration.

**Mobile Information Device Profile**

Designed for cell phones, the MIDP includes a GUI API, and MIDP 2.0 includes a basic 2D gaming API. Applications written for this profile are called MIDlets. Almost all new cell phones come with a MIDP implementation, and it is now the de facto standard for downloadable cell phone games.
• **Windows Mobile** is a compact operating system combined with a suite of basic applications for mobile devices based on the Microsoft Win32 API.

• It is designed to be somewhat similar to desktop versions of Windows, feature-wise and aesthetically. Additionally, third-party software development is available for Windows Mobile.

• Windows Mobile 6 is powered by Windows CE 5.0 and is strongly linked to Windows Live and Exchange 2007 products. Aesthetically, Windows Mobile 6 was meant to be similar in design to the then newly released Windows Vista.
BlackBerry OS is the proprietary software platform made by Research In Motion for their BlackBerry line of handhelds. It provides multi-tasking, and makes heavy use of the device's specialized input devices, particularly the thumbwheel.

The current version is OS 4, which provides a subset of MIDP 2.0, and allows complete wireless activation and synchronization with Exchange's e-mail, calendar, tasks, notes and contacts, and adds support for Novell GroupWise and Lotus Notes.
iPhone OS or OS X iPhone is the operating system developed by Apple for the iPhone and iPod touch. Like Mac OS X, from which it was derived, it uses the Darwin foundation. iPhone OS has four abstraction layers: the Core OS layer, the Core Services layer, the Media layer, and the Cocoa Touch layer. The operating system takes less than half a gigabyte (GB) of the device's total memory storage.

The iPhone OS's user interface is based on the concept of direct manipulation, using multi-touch gestures. Interface control elements consist of sliders, switches, and buttons.

The central processing unit used in the iPhone and iPod touch is an ARM-based processor.
Android is a software platform and operating system for mobile devices, based on the Linux operating system, developed by Google and later the Open Handset Alliance.

It allows developers to write managed code in a Java-like language that utilizes Google-developed Java libraries, but does not support programs developed in native code.
FEATURES AND SPECIFICATIONS

- Handset Layout
- Storage
- Connectivity
- Messaging
- Web Browser
- Java Virtual Machine
- Media Support
- Additional Hardware Support