

# Mobile Applications

## Lecture 1 Introduction



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## Module Activities & Grading

- Lecture every Tuesday at 8:30-10:30/ 12:30 AM
- Lab every Monday/ Wednesday.
  
- Total coursework= 50 (35 exam + 15 lab)
- Project at the end of the course
  
- **Study less... Study smart**



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## Why Study Mobile Computing?

- The area is strongly driven by innovation.
- Characterised by rapidly evolving use.
- Has enormous market potential and growth.



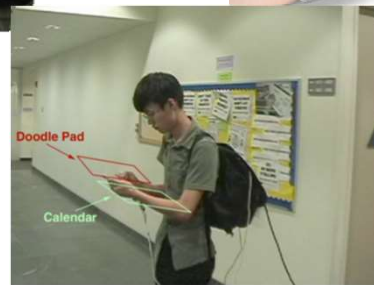
## What are mobile applications

- Mobile applications which are called mobile apps are consist of software/set of program that runs on a mobile device and perform certain tasks for the user.



## Mobile Apps vs. Desktop Apps

- Screen size
- The memory
- CPU efficiency
- Interaction
- Interruption



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## First Mobile Phone

- [Motorola DynaTAC 8000X](#) in 1983
- 33 x 4.44 x 8.89 cm.
- 0.79 Kg.
- 3,995 \$
- Made phone calls and...
- ...well, nothing much!



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## Varied Shapes, Sizes, Capabilities



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## Mobiles – Not Just Phones

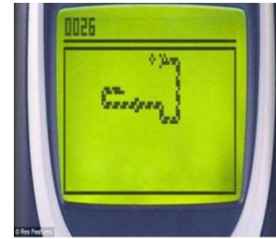


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## Mobile Apps Development History

- App provided very simple functions or performed one task.
- In 1997, Nokia launched the Nokia 6110. This device featured a simple arcade video game called Snake.
- Ring tone editor, calculator, calendar, and currency converter.



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## Mobile Apps Development

- Users demanded more functions, options, and customizations on mobile applications.
- Manufacturers used the internet WAP (Wireless Application Protocol) technology. **However?**
- Manufacturers incorporated pictures and reduced the prices.
- Started to use secure and affordable platforms like Windows and Linux.
- In 2002, RIM succeeded in building a popular e-mail application on BlackBerry smart phones.



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# Mobile Apps Development

2007 - 2008 were the revolutionary years.

- 2007, Apple launched its first iPhone cell phone, included preloaded apps, like maps and photos.
- 2008, App Store included 500 apps.
- A few months later, HTC launched the first Android phone and then Google Play Store.



# Examples of Mobile Apps

- **Communications:** Internet browsing, email IM client, Social Networking.
- **Games**
- **Multimedia:** Graphics /Image viewer, Presentations viewers, Video Players, Audio players.
- **Productive:** Calendars, Calculators, Diary, Notepad/Memo/Word Processors, Spread sheets.
- **Travel:** City guide, Currency converter, Translators, GPS/Maps, Itineraries / Schedules, Weather.
- **Utilities:** Profile manager, Idle screen/Screensaver, Address book, Task manager, Call Manager, File manager



## Activity



## Mobile App Paradigms

In mobile applications world there are four different mobile app paradigms

- 1- Mobile native applications
- 2- Mobile Web apps
- 3- Hybrid mobile apps
- 4- Mobile Widgets



## Mobile Native Applications

- Written for a specific platform using one of the programming languages.
- Run only on the platform or the device that have been built for and they cannot be used on another device unless they modify.
- Have the feature of using the device hardware and software like camera, compass and GPS (Global Positioning System).
- Do not need internet connection to work.
- However,
- They are expensive to develop and difficult to maintain. Why?



## Mobile Web Apps

- Look like native apps but they are websites. This means the user can get the functions of native apps in the browser.
- Require an internet connection to perform a function.
- As any other website, mobile web app has the feature of showing texts, images and videos.
- Development process of these apps is cheaper and easier than native apps.  
Why?





## Hybrid mobile apps

- Hybrid apps run on the device same as native apps but built with the web apps technologies.
- Hybrid apps the features of native and web apps.
- Maintaining and developing hybrid app is easier and faster than native with the possibility of changeable platforms.
- Hybrid apps do not need an internet connection to perform functions.



## Mobile Widgets

- Application gives the user a fast simple access to contents and services.
- Some provide information like weather and news while others can perform a task like on and off Wi-Fi turning.
- They are also already installed and embedded on the devices.



## Mobile Apps Platforms

### • Android OS

- Is an open source platform based on Linux kernel and designed by Google.
- Advantage of Android platform it gives the developers the flexibility to develop various apps with an open development and reuse its components.
- This platform is used in Samsung, HTC mobiles.
- The core of Android written in C and the user interface (UI) written in Java programming language.



## Mobile Apps Platforms

### • iPhone OS (iOS)

- It was launched 2007 by Apple.
- Originally it was developed for iPhone but now it is used in iPad, and iPod touch.
- This platform comes with many built-in apps like FaceTime, Safari Music and lots more.



## Mobile Apps Platforms

- **iPhone OS (iOS)**

- Requirements to build an iOS app:
  - Mac machine with an Intel-based Mac running Mac OS X Snow Leopard or later.
  - iPhone SDK 3.2 that contains XCode IDE and iPhone Emulator.
  - The knowledge of Objective C Programming.
  - The developer should have a membership in iPhone developer program which costs 99\$ per year



## Mobile apps platforms

- **Symbian OS**

- used in Nokia mobile devices.
- developed by Symbian Ltd Company using C++ programming language
- Was very popular till exploited by Android OS and iOS.
- To development with this platform:
  - development environments like Visual C++, Visual Studio, Borland C++.
  - SDK (software development kit) from the manufacture.

**symbian**  
OS



## Mobile apps platforms

- **BlackBerry OS**

- Developed by Canada firm Research in Motion (RIM).
- Runs only on the BlackBerry devices and the core was written in C++ programming language while the apps written in Java.
- To develop an app for BlackBerry the company (RIM) will provide you with the SDK which is called Blackberry Java Development Environment (Blackberry JDE)



**BlackBerry**



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## Mobile apps platforms

- **Windows Mobile OS**

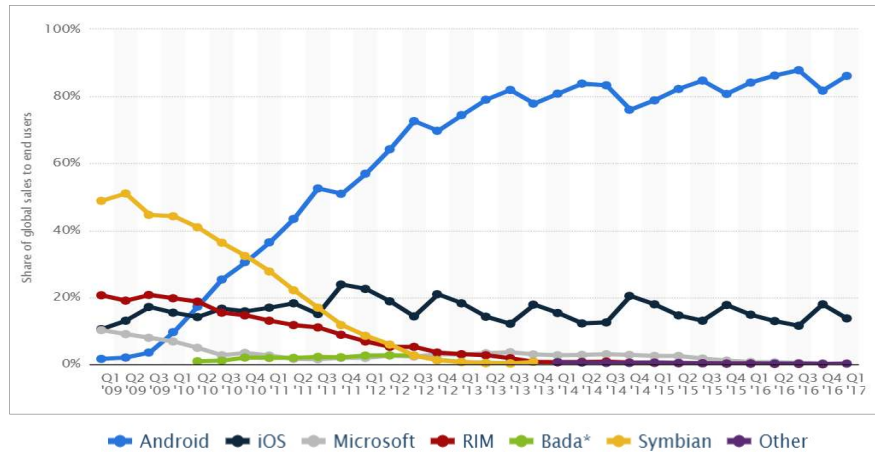
- developed by Microsoft and programmed in C++ language.
- Run on many mobile devices like Toshiba, HP, LG and Sony Ericson.
- developer needs:
  - Visual Studio 2005 or 2008.
  - Windows Mobile SDK will be provided by Microsoft.
  - Windows Mobile Device Centre to run their apps



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## Global Sales to end users



<http://www.statista.com>



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## Lab Work

- Android Studio installation



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