Mobile Computing and Android
What is Android?

- Android is a (mobile) operating system developed by Google
- It is based on the Linux kernel
- It uses Kotlin and Java as its main development languages
How do you create Android applications?

• You write applications for Android using the SDK which is built in Java
  – Writing Android applications require knowledge of Kotlin and/or Java and an understanding of Object Oriented Development principles
  – There is also an NDK that allows you to write applications in C
  – Many parties are constantly exploring extending Android’s available development languages

• Java’s SDK is essentially a framework that packages the main facets of an Android application
  – You create apps by tying together and extending various components of the framework
The Android OS

APPLICATIONS:
- ALARM
- BROWSER
- CALCULATOR
- CALENDAR
- CAMERA
- CLOCK
- CONTACTS
- DIALER
- EMAIL
- HOME
- IM
- MEDIA PLAYER
- PHOTO ALBUM
- SMS/MMS
- VOICE DIAL

CONTENT PROVIDERS:
- MANAGERS
  - ACTIVITY
  - LOCATION
  - PACKAGE
  - NOTIFICATION
  - RESOURCE
  - TELEPHONY
  - WINDOW
- VIEW SYSTEM

ANDROID FRAMEWORK:
- CORE LIBRARIES
  - ART
  - DALVIK VM
- AUDIO
- BLUETOOTH
- CAMERA
- DRM
- EXTERNAL STORAGE
- GRAPHICS
- INPUT
- MEDIA
- SENSORS
- TV

ANDROID RUNTIME:
- DRIVERS
  - AUDIO
  - BINDER (IPC)
  - BLUETOOTH
  - CAMERA
  - DISPLAY
  - KEYPAD
  - SHARED MEMORY
  - USB
  - WIFI
- POWER MANAGEMENT

NATIVE LIBRARIES:
- AUDIO MANAGER
- FREETYPE
- LIBC
- MEDIA FRAMEWORK
- OPENGL/ES
- SQLITE
- SSL
- SURFACE MANAGER
- WEBKIT

HAL

LINUX KERNEL