

# Mobile Application Development with Android

Felix Naumann  
Alexander Albrecht

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# MAD with Android



- **MAD Seminar**
- Application Development
- Android Demo

# Motivation



internet users for all countries



cellular phone users for all countries



Input interpretation:

*Mathematica form*

all countries internet users

Summary:

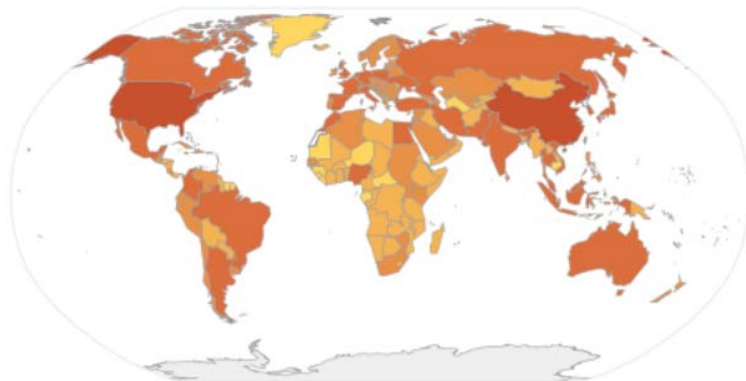
Show details

total	1.56 billion people
highest	253 million people (China)
lowest	93 people (Vatican City)

(2000, 2001, 2002, 2003, 2005 and 2008 estimates)

(based on 226 values; 12 unavailable)

Internet users map:



(no data available)  
  1000 to 10000  
  1 million to 10 million  
 10 to 100  
  10000 to 100000  
  10 million to 100 million  
 100 to 1000  
  100000 to 1 million  
  100 million to 1 billion

Input interpretation:

*Mathematica form*

all countries cellular phones

Summary:

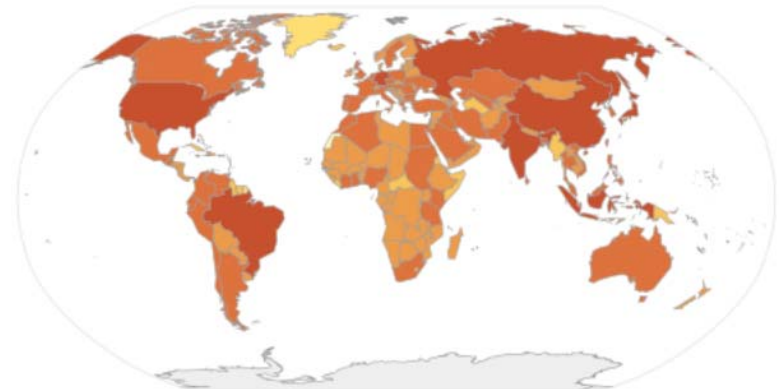
Show details

total	4.023 billion
highest	547.3 million (China)
lowest	0 (4 countries)

(1992 to 2009)

(based on 229 values; 9 unavailable)

Cellular phones map:



(no data available)  
  10000 to 100000  
  10 million to 100 million  
 0 to 1000  
  100000 to 1 million  
  100 million to 1 billion  
 1000 to 10000  
  1 million to 10 million

# Motivation



- Open Handset Alliance



[Android: Building a Mobile Platform to Change the Industry](#), Richard Miner, Co-founder of Android

# Seminar



- Each team (2 students) develops a novel application for Android
- Android Dev Phones are provided by HPI
- Monday, 11:00, A-1.1
- **25.04.10** Seminar application deadline, please email Alexander



# Timetable



- Team presentations
  - 31.05.2010 project ideas
  - 12.07. & 19.07.2010 final presentations
- Workshop
  - 26.04.2010 Application development - walkthrough
  - 03.05.2010 Storage, persistence, communication
  - 10.05.2010 Android best practices
  - 17.05.2010 Cross platform development
- Info
  - 26.05. & 27.05.2010 [droidcon 2010](#), Berlin

# Requirements



- Experience?
  - Android
  - Java
  - Mobile
  - Web

# MAD with Android



- MAD Seminar
- **Application Development**
- Android Demo



# Android Stack



**Applications**

**Application Framework**

**Libraries**

**Runtime** (Dalvik Virtual Machine)

**Linux Kernel** (Hardware Abstraction Layer)

# Android SDK Features



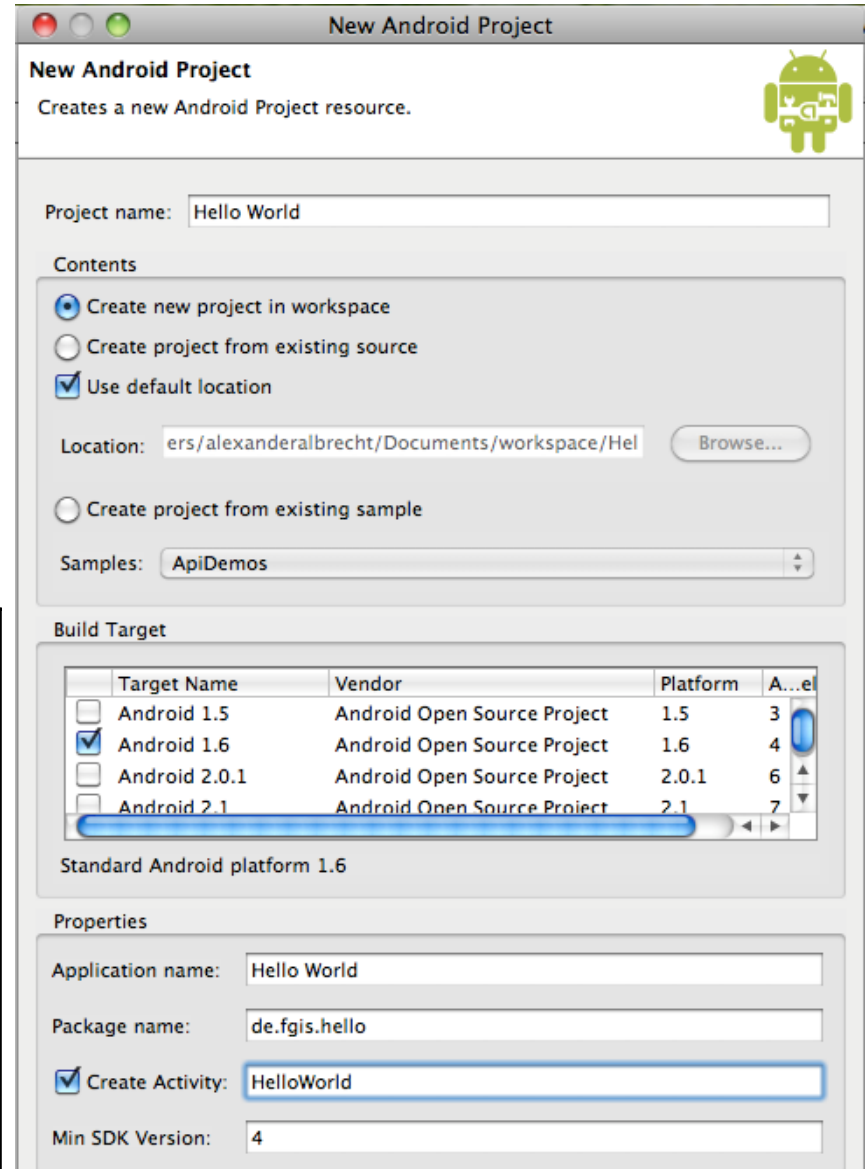
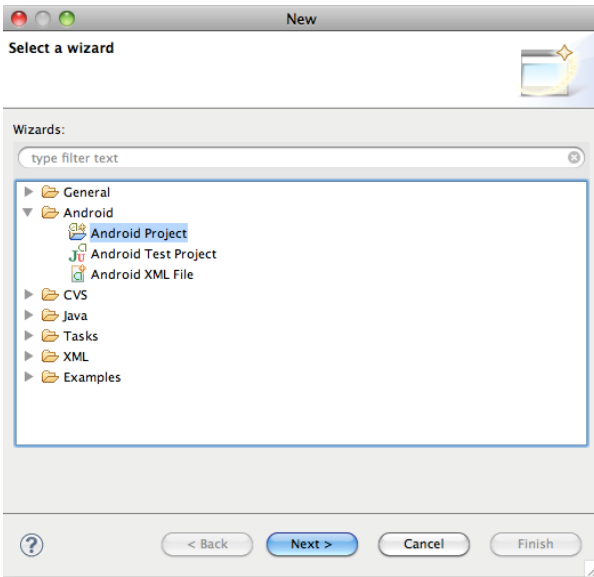
- Storage and persistence
- Maps and location-based services
- Media and graphic support
- Hardware access
- Communication
- Background services
- ...

# Setting Up Android SDK



- Installing the Android SDK and setting up
  - <http://developer.android.com/sdk/installing.html>
  - Install SDK starter package
  - Install ADT (Android Development Tools) Plugin
  - Add Android platforms to SDK

# Create Android Project



Project name	Hello World
Build Target	Android 1.6
Application name	Hello World
Package name	de.fgis.hello
Create Activity	HelloWorld
Min SDK Version	4 (API level)

# Create AVD (Emulator)



The screenshot shows the Eclipse IDE interface. The main editor displays the `HelloWorldApplication.java` file with the following code:

```
package de.fgis.hello;

import android.app.Activity;

public class HelloWorldApplication extends Activity {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
    }
}
```

The `Android Studio` window is open, showing the `Virtual Devices` tab. The `List of existing Android Virtual Devices` table is empty:

AVD Name	Target Name
--	No AVD

The `Create new AVD` dialog box is open, with the following settings:

- Name: G1
- Target: Android 1.6 - API Level 4
- SD Card:
  - Size: 1024 MiB
  - File: (empty)
- Skin:
  - Built-in: Default (HVGA)
  - Resolution: (empty) x (empty)
- Hardware:

Property	Value
Abstracted LCD density	160

The `Force create` checkbox is unchecked. The `Cancel` and `Create AVD` buttons are visible at the bottom.

# DEMO



# Useful Links



- Developer Resources
  - <http://developer.android.com/resources/>
- Google I/O
  - <http://code.google.com/events/io/2009/sessions.html>
  - <http://sites.google.com/site/io/>
- Question
  - <http://stackoverflow.com/>