Publishing, Analytics and Ads

CE881: Mobile and Social Application Programming

Simon Lucas & Spyros Samothrakis

March 17, 2015

Publishing on Google Play

- Need a developer account
  - Easy when you have a gmail account
  - But costs $25 USD to register
- Need a launcher icon
  - Including a 512 x 512 version
  - Plus four smaller ones for various device resolutions (auto-created by Eclipse/IDEA)
  - At least two screenshots
  - Some descriptive text
- Category
  - E.g. Multi-arm bandit is Cards & Casino

Signing the App

- Need to use keytool in order to create a private key to sign the app with
  - This is often accessible from within the IDE
- Caution
  - Keep track of this somewhere safe
  - If you need to upgrade the App you MUST SIGN IT WITH THE SAME KEY!!!
- Create the Signed APK file
- This can be done from within the IDE
- Upload it via the developer dashboard
- Upgrading existing apps can be done quickly
- After clicking “Publish” it can take a few hours to appear on Google Play!

A good icon is also important . . .

- `http://developer.android.com/guide/practices/ui_guidelines/icon_design.html`
- Which are your favourites? Read up on the style guidelines (see link above)

Google Analytics API for Android

- `https://developers.google.com/analytics/devguides/collection/android/v2/`
- Monitor app installs
  - The number of active users using an app
  - Where in the world they are using it
- Monitor within app
  - Adoption and usage of specific features
  - In-app purchases and transactions
  - The number and type of application crashes
- Many other useful metrics ..

Before using

- Need a Google Analytics Account
- Takes a couple of minutes to set up if you already have a gmail account
- And the .jar file for Google Analytics in the libs directory of your app
- The API is straightforward

Examples will use two tracker classes

- EasyTracker
  - Monitor app start up and shutdown
  - Good for tracking number of active users
- Tracker
  - More flexible
  - Need to get an analytics instance first
  - Then get the tracker
  - Can now track specific events
    - And how long they take

Enable Tracking of Active Users

- Add EasyTracker calls to onStart() and onStop()

```
@Override
public void onStart() {
    super.onStart();
    EasyTracker.getInstance().activityStart(this);
}

@Override
public void onStop() {
    super.onStop();
    EasyTracker.getInstance().activityStop(this);
}
```

Button Presses

- Can go in to any code
- This example is in onClick
- Uses myTracker.sendEvent(String category, String action, String label, Long value)
- Use these values to encode something that can be usefully analysed later

```
public void onClick(View v) {
    //Where myTracker is an instance of Tracker
    myTracker.sendEvent("ui_action",
                        "button_press",
                        "play_button",
                        opt_value);

    ... // Your other click handling code.
}
```

Timing events

- Example – loading a resource
- Measure the time taken (e.g. using System.currentTimeMillis())

```
public void onLoad(long loadTime) {
  // Where myTracker is an instance of Tracker.
  myTracker.sendTiming(loadTime, "resources", "high_scores", null);
  ... // The rest of your onLoad code.
}
```

Social Interactions

- Monitor usage of social widgets from within an app
- E.g. suppose you've added a Tweet button
- Can then track its usage

```
// Get tracker object.
Tracker tracker = EasyTracker.getTracker();
// now tweet e.g. using an intent
// now send social interaction to Goolge Analytics
tracker.sendSocial("Twitter", "Tweet",
    "https://developers.google.com/analytics");
```

Marketing Campaign Measurement

- `https://developers.google.com/analytics/devguides/collection/android/v2/campaigns`
- Google Play Store Campaign Measurement See which campaigns, websites, and apps referred a user to your app's Google Play Store page to download your app
- Measuring referrals
- See which referring traffic source, such as websites or other apps, launched your app after it was installed.

Main Idea

- When launching a marketing campaign use some specific keywords
- When launching the app (i.e. in onCreate())
  - Make an EasyTracker
  - Request the URL of the referring App
  - Send an event to Google Analytics

Google Play Store Campaign Measurement works

- A user clicks on a link, from an ad, website, or app, that takes them to your app's Google Play Store page. The link is tagged with Campaign Parameters.
- After the user downloads and installs your app, the Google Play Store will broadcast an INSTALL_REFERRER intent on the device that includes those same campaign parameters.
- Your app will then respond to that intent, using a BroadcastReceiver object
- App reads the campaign parameters and using them to update the Google Analytics campaign information.

Monetization: Making Money from Your App

- Need a Google merchant account
  - Get this using your gmail account, plus Company Info or credit card
- Three options
- IAP: In App Purchase – buy tokens, level up etc
  - Involves a financial transaction API from Google
- Sell the game: simply fix the price when submitting to Google Play
  - An initially free app (identified by name) can never be changed to a paid one
  - Instead release two version, one “Free” and on “Paid” in the title
- In App Advertising
  - Use the Google AdMob API

AdMob Advertising API

- `https://developers.google.com/mobile-ads-sdk/docs/admob/fundamentals`
- Straightforward to use
- But need an AdMob account
- Requires providing some financial information such as VAT code, Tax Code
- Here we'll just consider the sample Banner app (.zip file from above URL)
- However, more sophisticated adverts are possible, such as Interstitials

Main Steps: in onCreate

- Find a place in your layout for a banner add
  - Often at top or bottom of the app
- Create an AdView (a subclass of View)
- Add an event listener to it
  - Listen for advertising events
- Add it to the layout
- Create an AdRequest
  - If testing, then add test devices to adRequest
- Add adRequest to adView

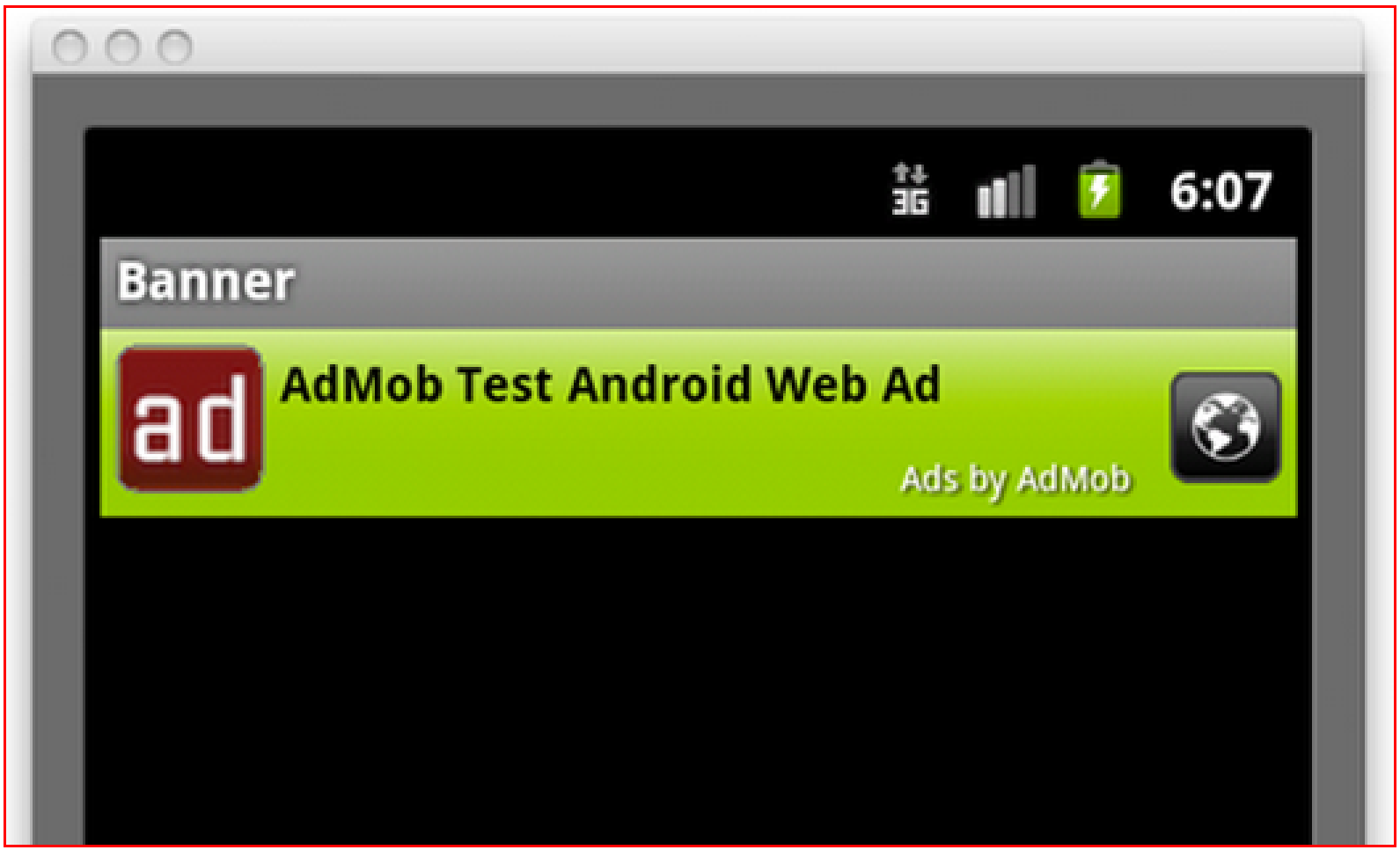
Requesting Test Ads

- Useful for checking correct use of the API before publishing

```
AdRequest adRequest = new AdRequest();
// Emulator
adRequest.addTestDevice(AdRequest.TEST_EMULATOR);
adRequest.addTestDevice("TEST_DEVICE_ID");
```

Sample Banner App

- May need an AdMob id in order to run properly



onFailedtoReceiveAd()

```
/**
 * Called when an ad was not received.
 */
@Override
public void onFailedToReceiveAd(Ad ad,
                                AdRequest.ErrorCode error) {
    String message = "onFailedToReceiveAd (" + error + ")";
    Log.d(LOG_TAG, message);
    Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
}
```

onReceiveAd()

```
/**
 * Called when an ad is received.
 */
@Override
public void onReceiveAd(Ad ad) {
    Log.d(LOG_TAG, "onReceiveAd");
    Toast.makeText(this, "onReceiveAd",
            Toast.LENGTH_SHORT).show();
}
```

onLeaveApplication()

```
/**
 * Called when an ad is clicked and going
 * to start a new Activity that will
 * leave the application (e.g. breaking out
 * to the Browser or Maps
 * application).
 */
@Override
public void onLeaveApplication(Ad ad) {
    Log.d(LOG_TAG, "onLeaveApplication");
    Toast.makeText(this, "onLeaveApplication",
            Toast.LENGTH_SHORT).show();
}
```

onPresentScreen()

```
/**
 * Called when an Activity is created in
 * front of the app (e.g. an
 * interstitial is shown, or an ad is
 * clicked and launches a new Activity).
 */
@Override
public void onPresentScreen(Ad ad) {
    Log.d(LOG_TAG, "onPresentScreen");
    Toast.makeText(this, "onPresentScreen",
            Toast.LENGTH_SHORT).show();
}
```

Events to listen for: onDismissScreen

```
/**
 * Called when an ad is clicked and
 * about to return to the application.
 */
@Override
public void onDismissScreen(Ad ad) {
    Log.d(LOG_TAG, "onDismissScreen");
    Toast.makeText(this, "onDismissScreen",
            Toast.LENGTH_SHORT).show();
}
```

Summary

- Easy to publish apps – takes an hour or two (or much more if you have to design an icon!!!
- "Analytics" can be used to track the behaviour of an app as it interacts with a user
- Can use it to check that App works properly, including automatic bug reports
- Even more interesting
- Use it to analyse user choices
  - Use of levels etc.
- User demographics
- Alternative ways of doing this
- Google Analytics API
- Can also roll your own – need a own web server
- Also note Campaign Management and AdMob API

Clash of Titans

- `http://www.gamasutra.com/blogs/WolfgangGraebner/20140402/214504/Clash_of_Clans__Time_Monetization_Formulas_Demistifyed.php`
- Monetise time
  - Players get bored of waiting for certain game mechanisms
  - Players can skip time
- “Coerrsive Monetisation ?”

Candy Crush

- http://www.thedrum.com/opinion/2013/08/07/keys-candy-shop-how-candy-crush-offers-masterclass-market
- $633k a days (!?)
- Pay or Market
  - Limited lives at each level
  - You need to wait OR
    - Ask friends for lives
    - Pay
- 90% of users never pay

What's up Messenger

- `http://finance.yahoo.com/news/facebook-plans-monetize-whatsapp-large-162853681.html`
- Build a really large userbase
- Collect their habits
- Sell users stickers (!?)
- Sell an premium version of the app
- Sell your business to a third party

Worms 3

- Take an old classic title
- Packet it for android phones
- Sell it
- Profit (!?)

Puzzle and Dragons

- http://www.gamasutra.com/blogs/RaminShokrizade/20130626/194933/The_Top_F2P_Monetization_Tricks.php
- Reward Removal
  - Give something to the the user
  - Take it back if they don't pay
- Fight through a dungeon
- If you don't "pay to win" a final boss, lose whatever you collected

Podcast Addict

- Ads at the bottom of the screen
- Very common model (and not that aggressive)
- Paid app actually a donation
- No hidden gems

Thank you!

- Polish your final app as much as you can
- Thank you!