

# Android + Facebook

Introduction



# @ME (About)



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# Prerequisites

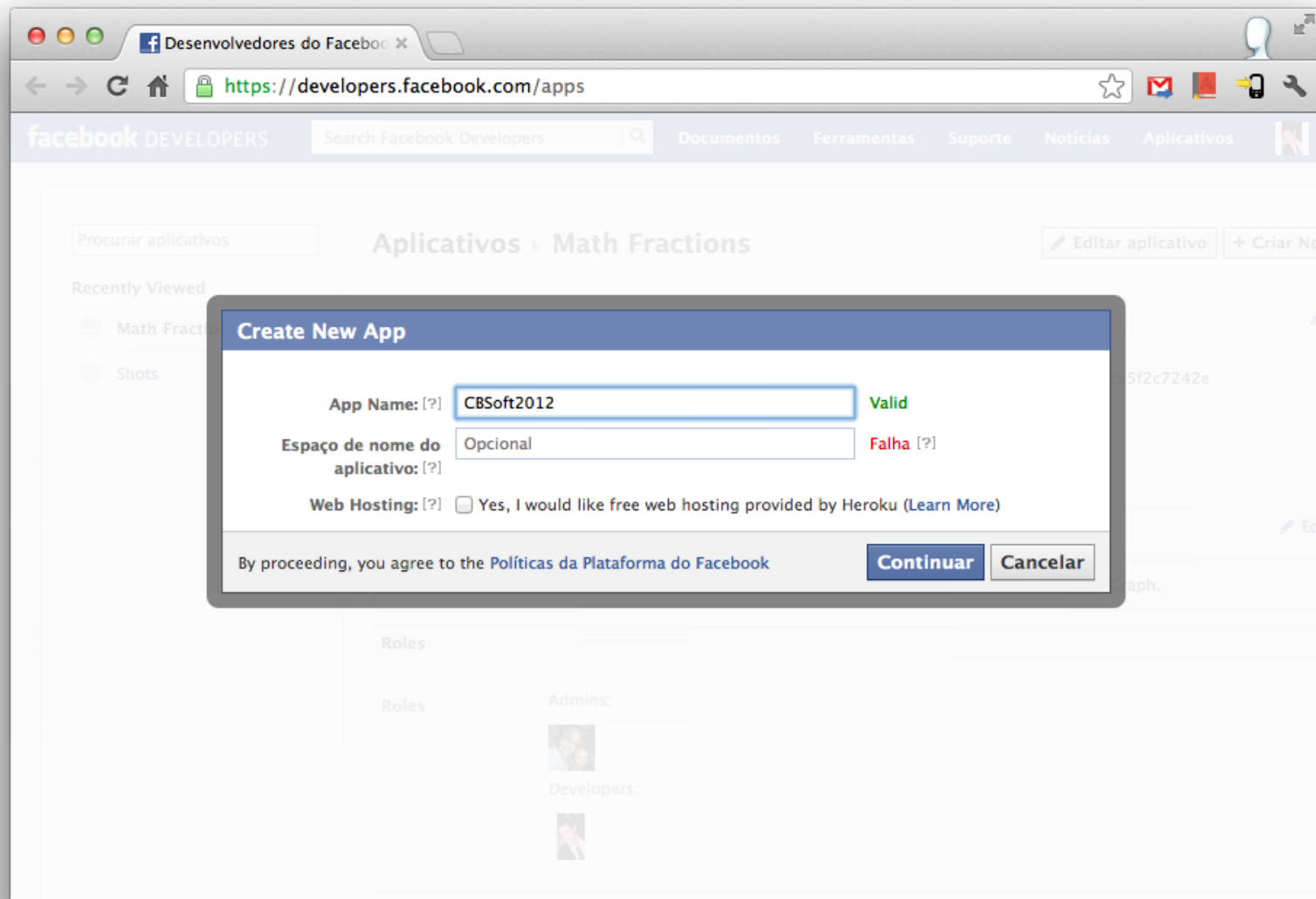
- Eclipse :  
<http://eclipse.org/>
- Android SDK :  
<http://developer.android.com/sdk/index.html>
- Eclipse Plugin (ADT):  
<http://developer.android.com/tools/sdk/eclipse-adt.html>
- Git :  
<http://msysgit.github.com/>
- Facebook SDK:  
`git clone git://github.com/facebook/facebook-android-sdk.git`



# Next Steps

- Create a Facebook Application (on FB)
- Setup Android Support (on FB)
  - Add signing key hash
  - Enable SSO
- Retrieve & Setup Facebook SDK
- Hello World FB App
- Graph API
- FQL

# Create a Facebook Application



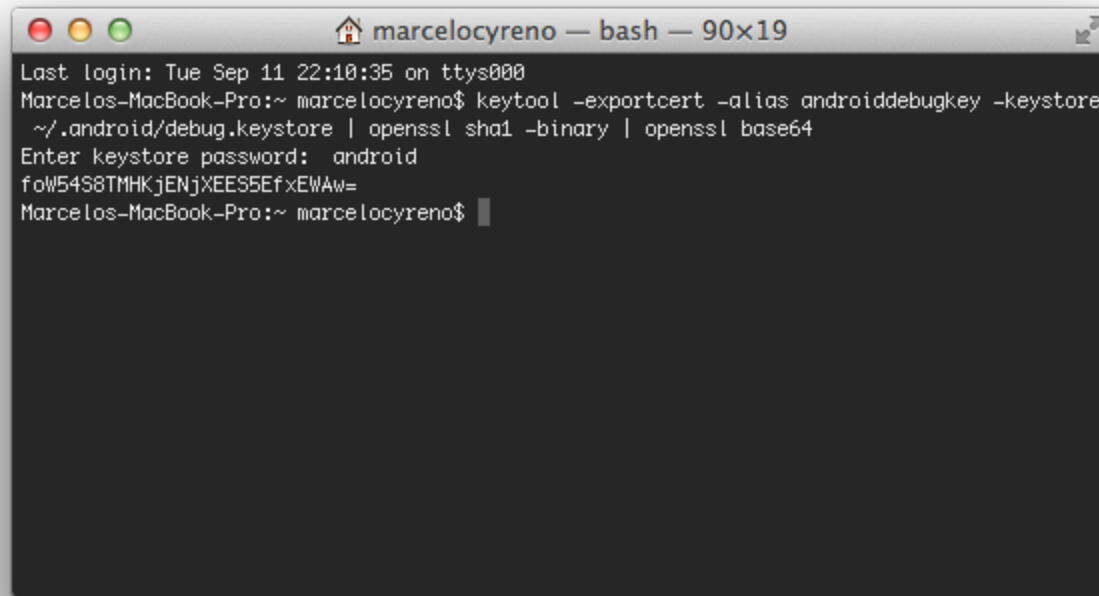
The image shows a web browser window with the URL <https://developers.facebook.com/apps>. The page title is "facebook DEVELOPERS". The main heading is "Aplicativos > Math Fractions". A modal dialog box titled "Create New App" is open. It contains the following fields and options:

- App Name:** [?] CBSoft2012 Valid
- Espaço de nome do aplicativo:** [?] Opcional Falha [?]
- Web Hosting:** [?] ☐ Yes, I would like free web hosting provided by Heroku ([Learn More](#))

At the bottom of the dialog, it says: "By proceeding, you agree to the [Políticas da Plataforma do Facebook](#)". There are two buttons: "Continuar" and "Cancelar".

<https://developers.facebook.com/apps>

# Retrieving signing key\* hash

A screenshot of a macOS terminal window. The title bar shows a home icon, the name 'marcelocyreno', and 'bash' followed by the window size '90x19'. The terminal text shows a successful login on 'Tue Sep 11 22:10:35 on ttys000'. The user 'marcelocyreno' runs the command 'keytool -exportcert -alias androiddebugkey -keystore ~/.android/debug.keystore | openssl sha1 -binary | openssl base64'. The prompt 'Enter keystore password:' is shown, followed by the password 'android' and the resulting base64 hash 'foW54S8TMHKjENjXEES5EfxEWAw='.

```
marcelocyreno — bash — 90x19
Last login: Tue Sep 11 22:10:35 on ttys000
Marcelos-MacBook-Pro:~ marcelocyreno$ keytool -exportcert -alias androiddebugkey -keystore
~/.android/debug.keystore | openssl sha1 -binary | openssl base64
Enter keystore password: android
foW54S8TMHKjENjXEES5EfxEWAw=
Marcelos-MacBook-Pro:~ marcelocyreno$
```

```
keytool -exportcert -alias androiddebugkey
-keystore ~/.android/debug.keystore | openssl sha1 -binary | openssl base64
```



# **Adding signing key hash + Enabling SSO**

(Next Screen)




# Applications Details (Edit button)

facebook DEVELOPERS  Documentos Ferramentas Suporte Notícias Aplicativos

Aplicativos ▾ CSoft2012 ▾ Básico

Changes saved. Note that your changes may take several minutes to propagate to all servers.

 **CSoft2012**  
App ID: 262346097220482  
App Secret:  (redefinir)  
[\(editar ícone\)](#)

**Informações básicas**

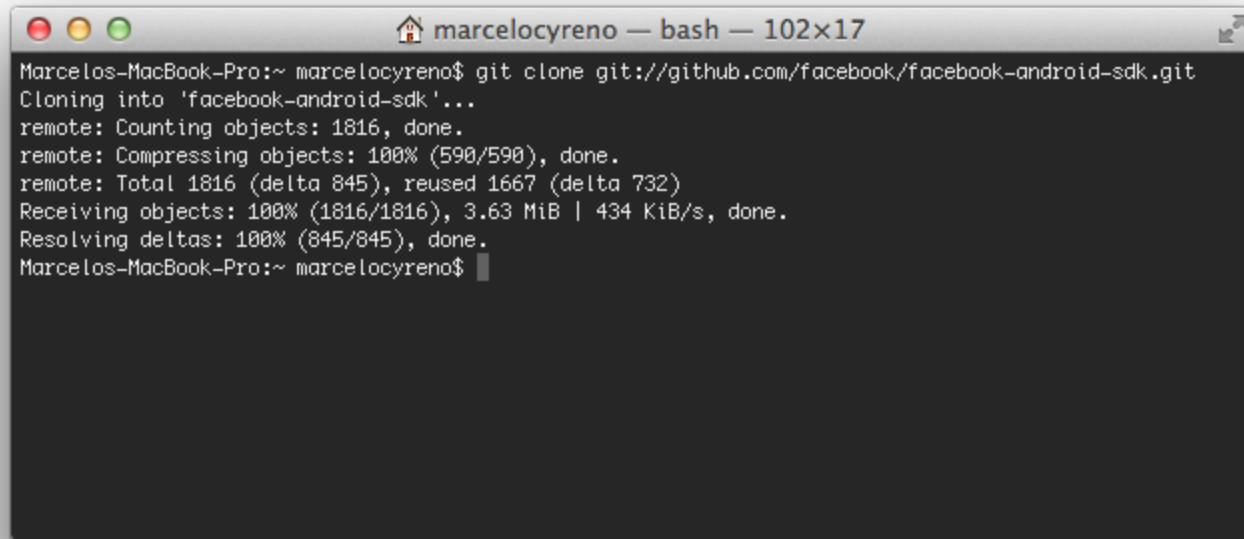
Display Name:   
Namespace:   
Contact Email:   
App Domains:   
Category:  Choose a sub-category  
Hosting URL:   
Sandbox Mode: ☐ Ativada ☒ Desativada

Selecione o modo como seu aplicativo se integra com Facebook

☒ Website with Facebook Login Log in to my website using Facebook.  
☒ App on Facebook Use my app inside Facebook.com.  
☒ Mobile Web Bookmark my web app on Facebook mobile.  
☒ Native iOS App Publish from my iOS app to Facebook.  
☒ Native Android App   
Nome do Pacote Android:   
Android Class Name:   
Android Key Hash:   
Configured for Android SSO: ☒ Ativada ☐ Desativada  
Android Native Deep Linking: ☐ Ativada ☒ Desativada  
☒ Page Tab Build a custom tab for Facebook Pages.



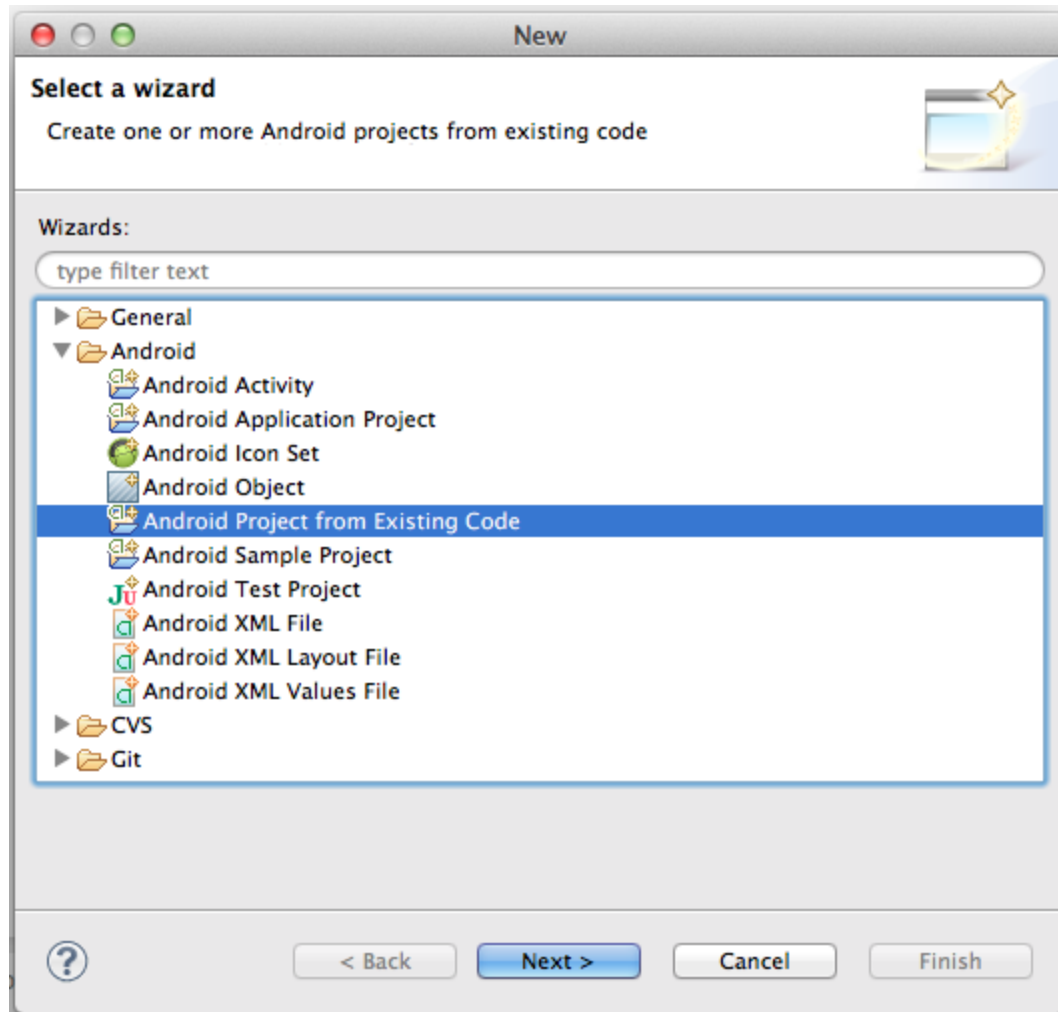
# Download Facebook SDK for Android

A screenshot of a macOS terminal window. The title bar shows a home icon, the name 'marcelocyreno', and the shell 'bash' with a window size of '102x17'. The terminal text shows the execution of 'git clone' to download the Facebook Android SDK from GitHub. The output indicates that 1816 objects were counted, compressed, and received, with a total size of 3.63 MiB. The process completed successfully.

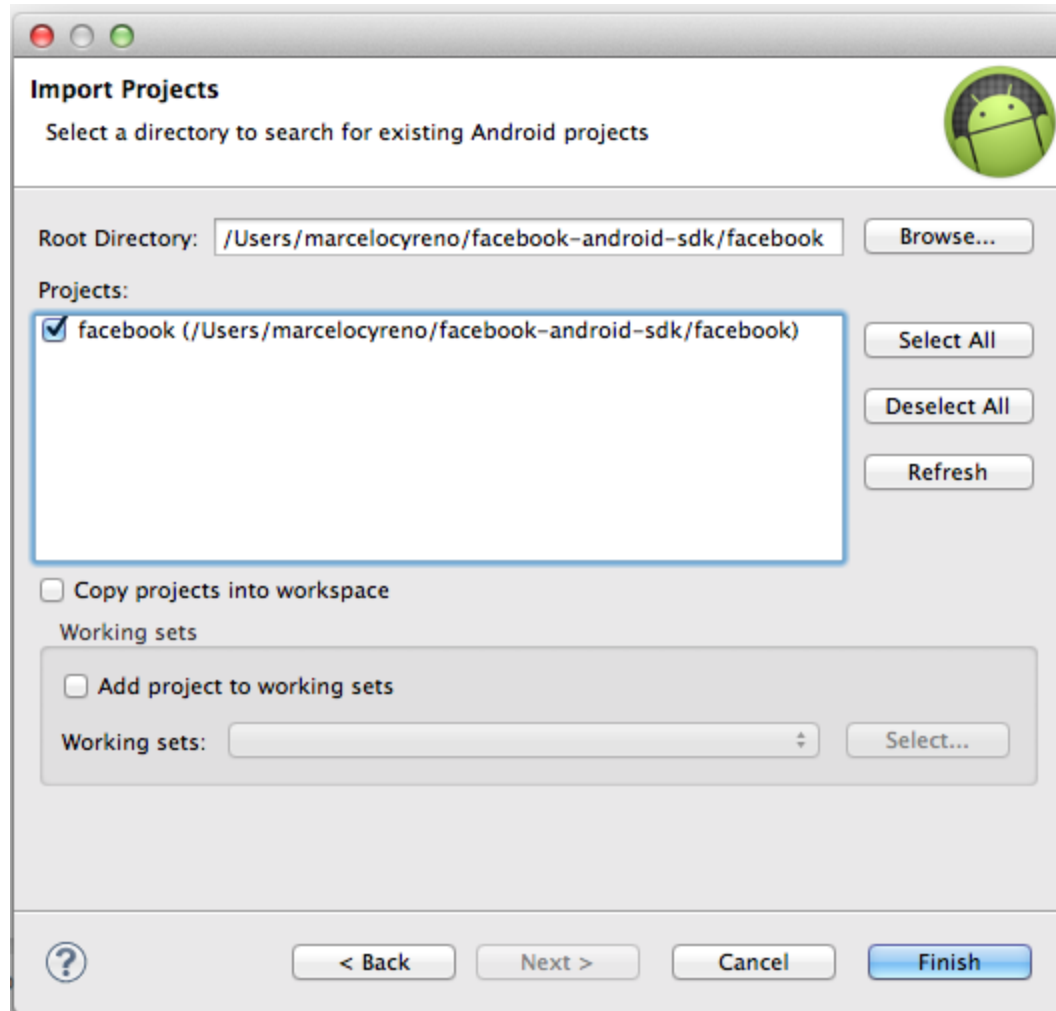
```
Marcelos-MacBook-Pro:~ marcelocyreno$ git clone git://github.com/facebook/facebook-android-sdk.git
Cloning into 'facebook-android-sdk'...
remote: Counting objects: 1816, done.
remote: Compressing objects: 100% (590/590), done.
remote: Total 1816 (delta 845), reused 1667 (delta 732)
Receiving objects: 100% (1816/1816), 3.63 MiB | 434 KiB/s, done.
Resolving deltas: 100% (845/845), done.
Marcelos-MacBook-Pro:~ marcelocyreno$
```

`git clone git://github.com/facebook/facebook-android-sdk.git`

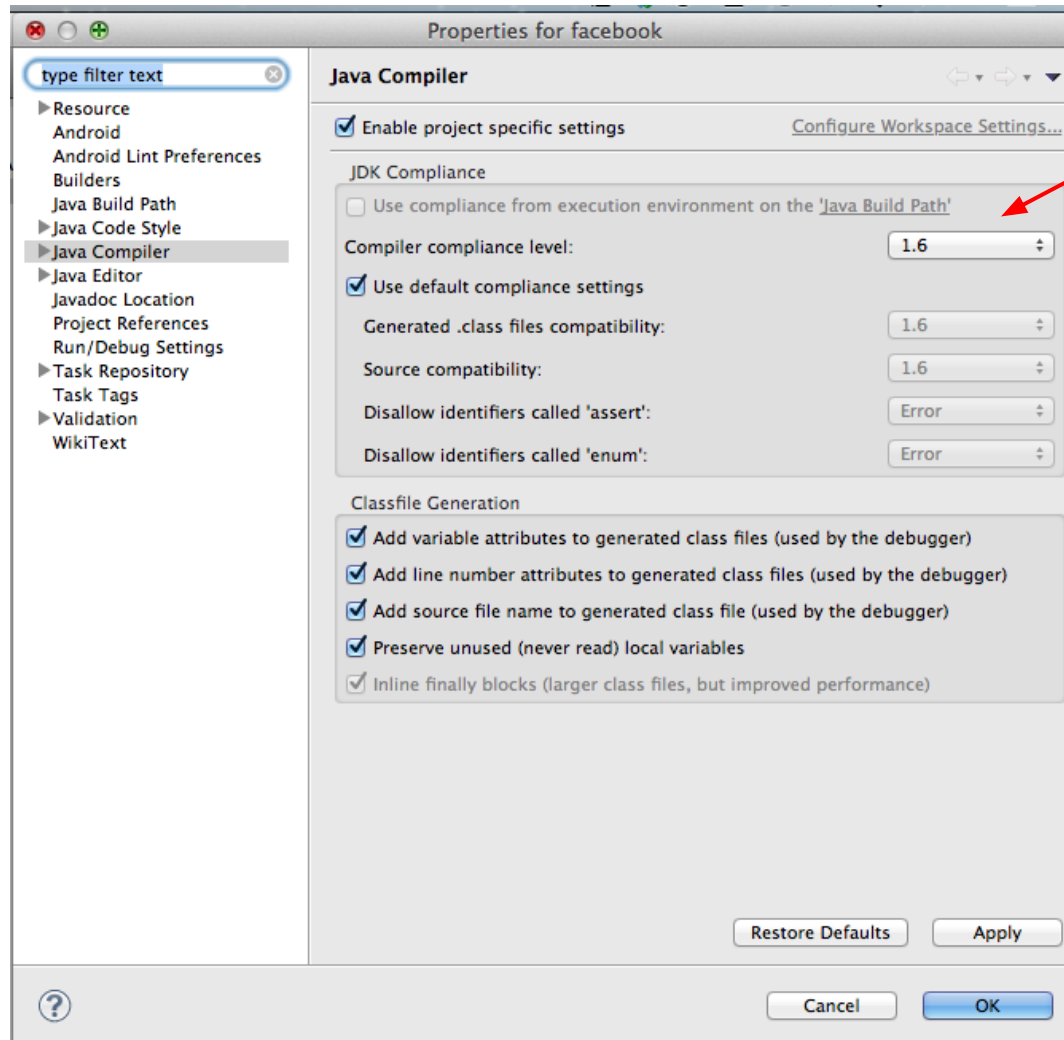
# Create a Android Project for the Facebook SDK #1



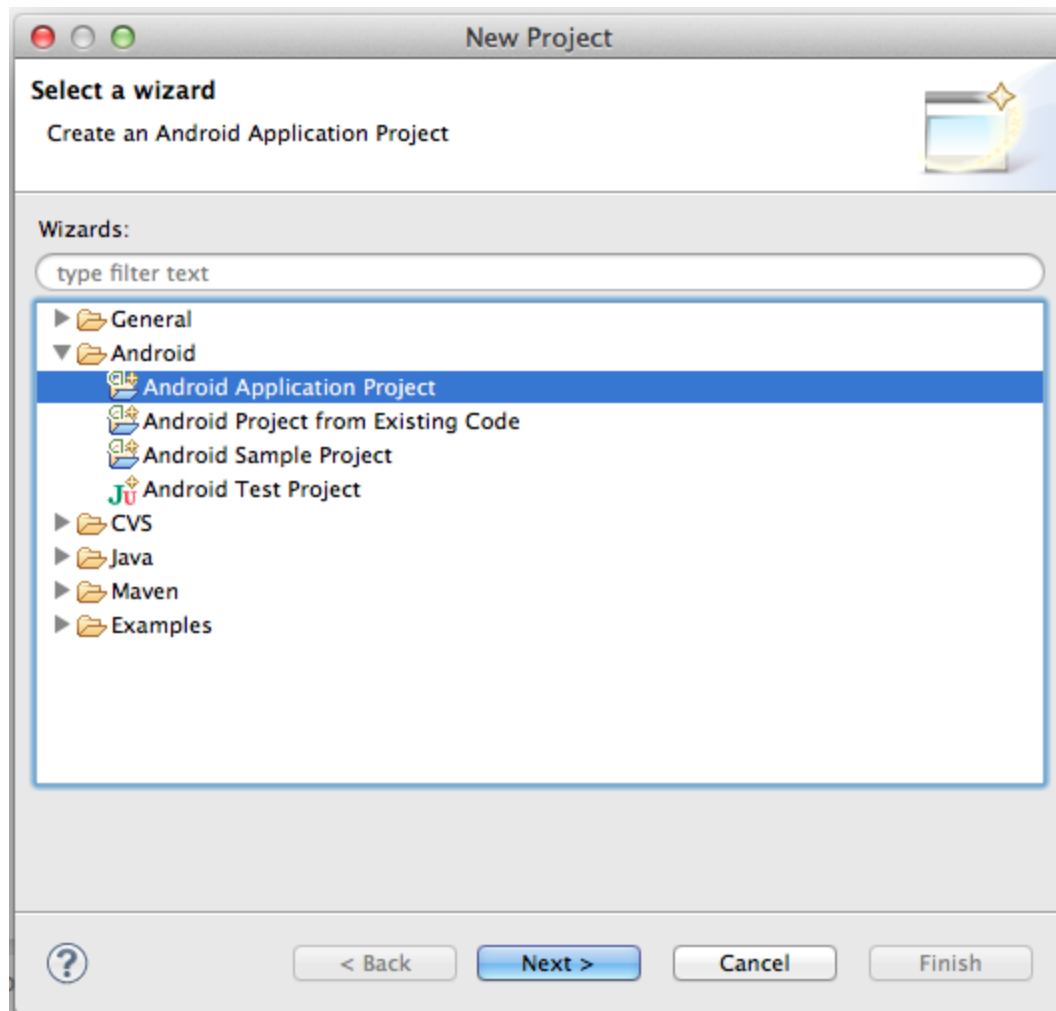
# Create a Android Project for the Facebook SDK #2



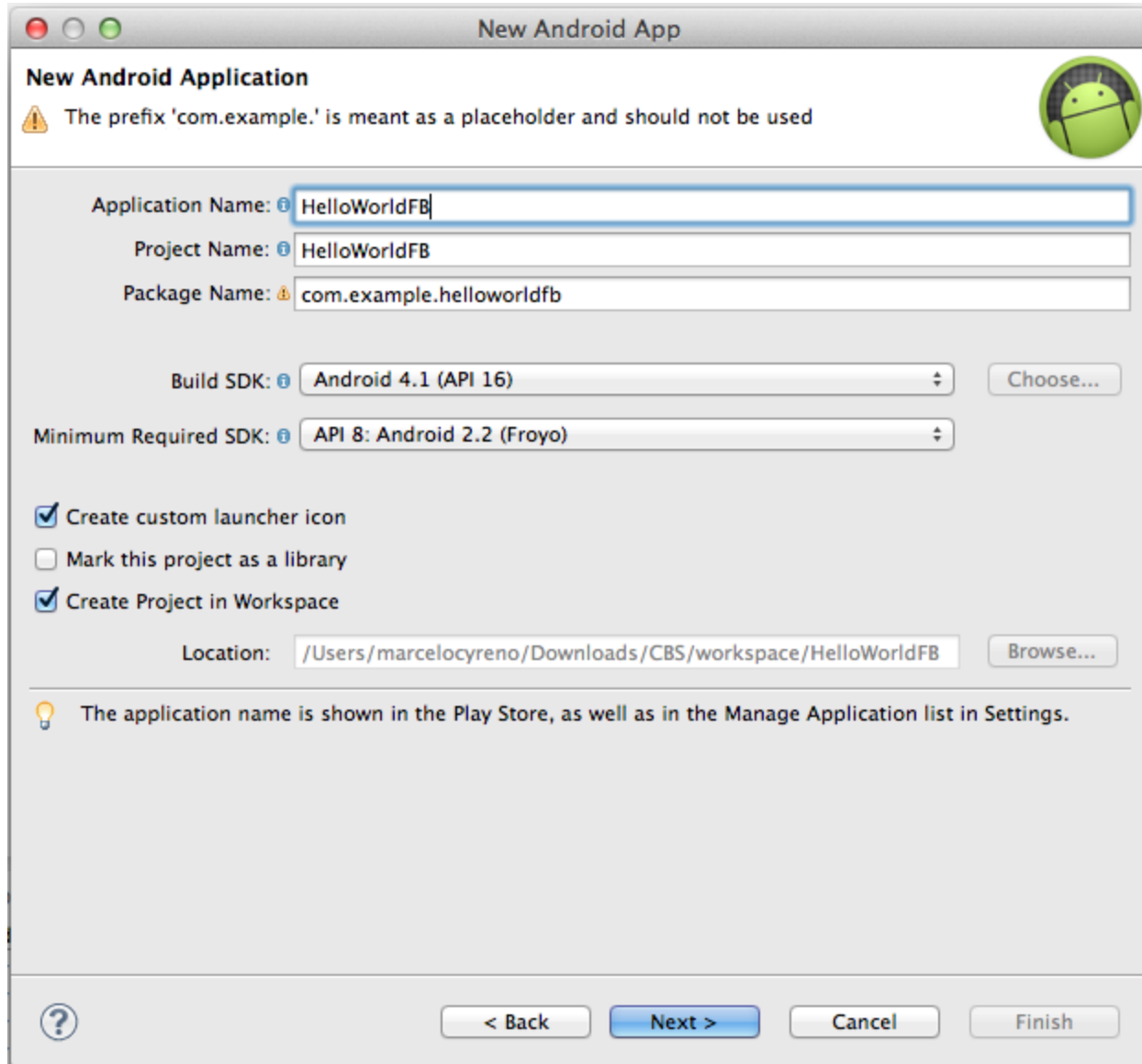
# Java Compiler Compliance level



# Create a new Android App #1



# Create a new Android App #2



The screenshot shows the 'New Android App' dialog box. At the top, the title bar says 'New Android App'. Below it, the main title is 'New Android Application'. A warning icon and text state: 'The prefix 'com.example.' is meant as a placeholder and should not be used'. An Android robot icon is in the top right corner.

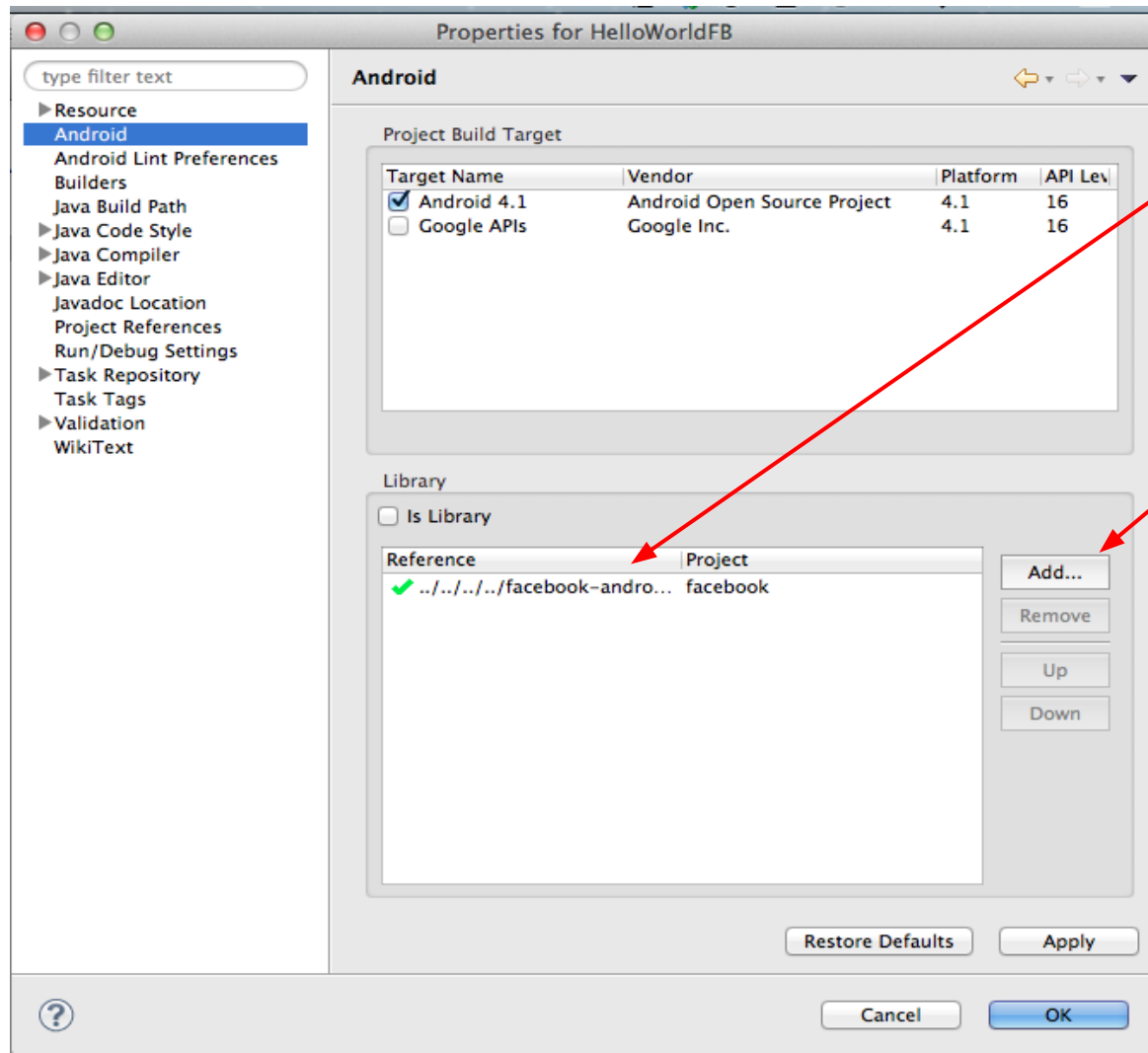
The form contains the following fields and options:

- Application Name:** HelloWorldFB
- Project Name:** HelloWorldFB
- Package Name:** com.example.helloworldfb
- Build SDK:** Android 4.1 (API 16) (with a 'Choose...' button)
- Minimum Required SDK:** API 8: Android 2.2 (Froyo)
- ☒ Create custom launcher icon
- ☐ Mark this project as a library
- ☒ Create Project in Workspace
- Location:** /Users/marcelocyreno/Downloads/CBS/workspace/HelloWorldFB (with a 'Browse...' button)

A lightbulb icon and text at the bottom state: 'The application name is shown in the Play Store, as well as in the Manage Application list in Settings.'

The bottom of the dialog has a help icon (?) and four buttons: '< Back', 'Next >', 'Cancel', and 'Finish'.

# Add a reference to FB SDK



# Adding permission to use Internet

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.helloworldfb"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="15" />

    <uses-permission android:name="android.permission.INTERNET"/>

    <application
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name=".MainActivity"
            android:label="@string/title_activity_main" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```



# Modify your Activity

```
private static final String FB_APP_ID = "262346097220482";  
  
Facebook facebook = new Facebook(FB_APP_ID);  
  
@Override  
public void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
  
    facebook.authorize(this, new DialogListener() {  
        public void onComplete(Bundle values) {}  
  
        @Override  
        public void onFacebookError(FacebookError error) {}  
  
        @Override  
        public void onError(DialogError e) {}  
  
        @Override  
        public void onCancel() {}  
    });  
}  
  
@Override  
public void onActivityResult(int requestCode, int resultCode, Intent data) {  
    super.onActivityResult(requestCode, resultCode, data);  
    facebook.authorizeCallback(requestCode, resultCode, data);  
}
```

# Facebook SSO

facebook

Log in to use your Facebook account with CBSoft2012.

Get Facebook for Android and browse faster.

Email or Phone

Password

Log In

Forgot password?

Trouble logging in? Try the alternative login.

Need a Facebook account?

Sign up here.

Help Center

English (US) · Português (Brasil) · Español · More...

Facebook ©2012

Cancel CBSSoft2012 Install

CBSSoft2012

Using this app requires:

- Your basic info

Who can see posts from this app on Facebook?

About this app

You are logging into CBSSoft2012 as Marcelo Cyreno.

By proceeding, you also agree to CBSSoft2012's Terms of Service and Privacy Policy.

Logged in as Marcelo Cyreno.

# Facebook Permissions

```
@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

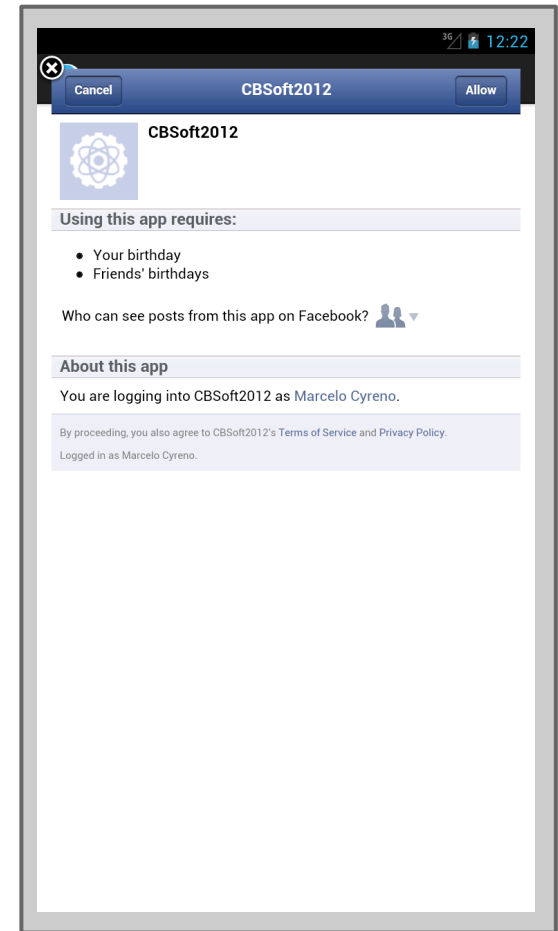
    String permissions[] = { "user_birthday", "friends_birthday" };

    facebook.authorize(this, permissions, new DialogListener() {
        @Override
        public void onComplete(Bundle values) {
        }

        @Override
        public void onFacebookError(FacebookError error) {
        }

        @Override
        public void onError(DialogError e) {
        }

        @Override
        public void onCancel() {
        }
    });
}
```



<https://developers.facebook.com/docs/authentication/permissions/>

# Access Token - Loading

```
private Facebook mFacebook = new Facebook(FB_APP_ID);
private SharedPreferences mPrefs;

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    // Access Token
    mPrefs = getPreferences(MODE_PRIVATE);
    String access_token = mPrefs.getString("access_token", null);
    long expires = mPrefs.getLong("access_expires", 0);
    if (access_token != null) {
        mFacebook.setAccessToken(access_token);
    }
    if (expires != 0) {
        mFacebook.setAccessExpires(expires);
    }

    if (!mFacebook.isSessionValid()) {
        authorize();
    }
}
```

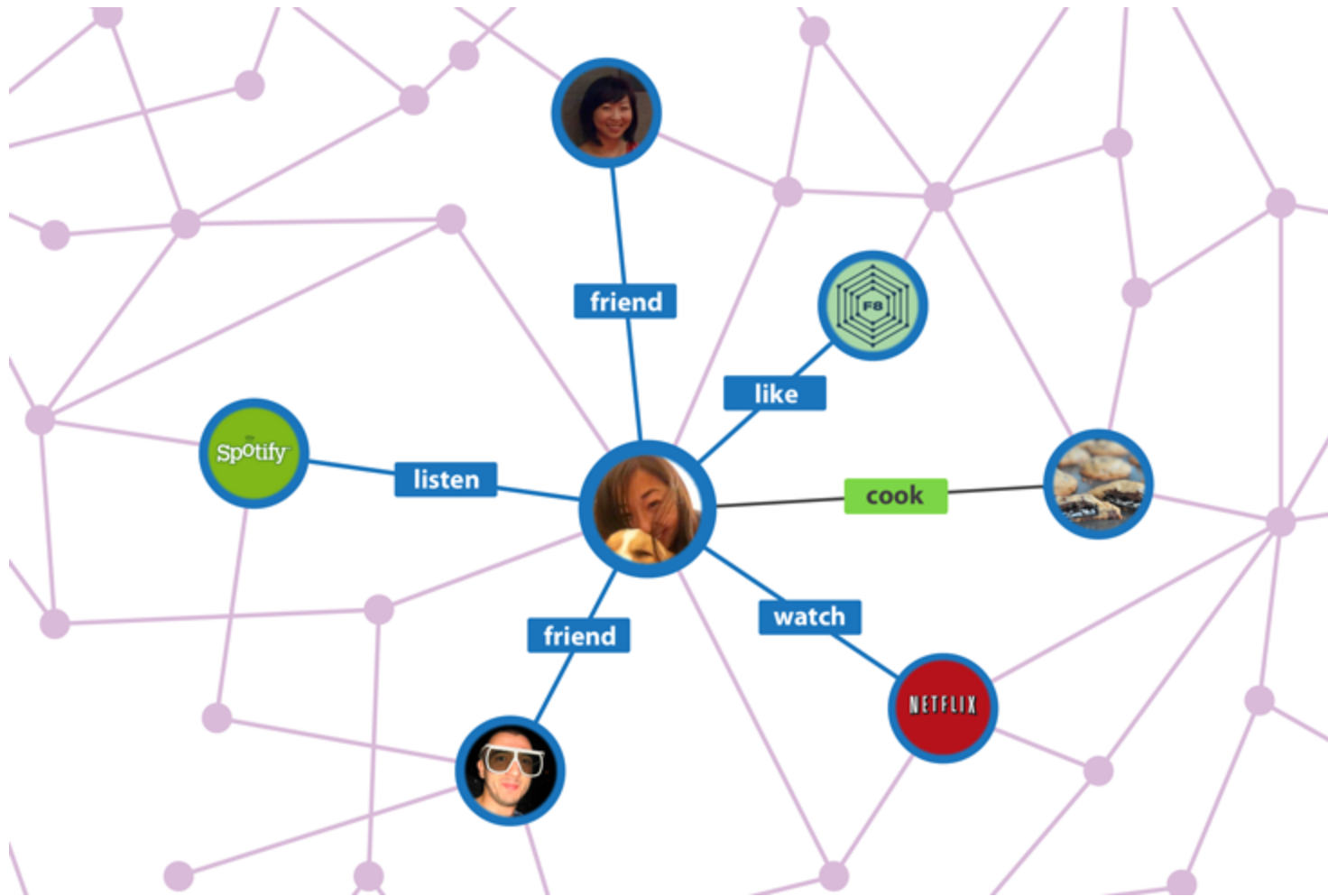
# Access Token - Saving

```
private void authorize() {  
    String permissions[] = { "user_birthday", "friends_birthday" };  
  
    mFacebook.authorize(this, permissions, new DialogListener() {  
        @Override  
        public void onComplete(Bundle values) {  
            SharedPreferences.Editor editor = mPrefs.edit();  
            editor.putString("access_token", mFacebook.getAccessToken());  
            editor.putLong("access_expires", mFacebook.getAccessExpires());  
            editor.commit();  
        }  
  
        @Override  
        public void onFacebookError(FacebookError error) {  
        }  
  
        @Override  
        public void onError(DialogError e) {  
        }  
  
        @Override  
        public void onCancel() {  
        }  
    });  
}
```

# Access Token - Extending

```
public void onResume() {  
    super.onResume();  
    mFacebook.extendAccessTokenIfNeeded(this, null);  
}
```

# Graph API



# Graph API

**https**://graph.facebook.com/  
<ObjId>

**https**://graph.facebook.com/  
<ObjId>[/connection]?[fields]

access\_token



# Graph API - Examples #1

<https://graph.facebook.com>

/google?fields=company\_overview,members,birthday,mission

```
{  
  "mission": "Google's mission is to organize the world's information and make it universally accessible and useful.",  
  "founded": "1998",  
  "name": "Google",  
  "id": "104958162837"  
}
```

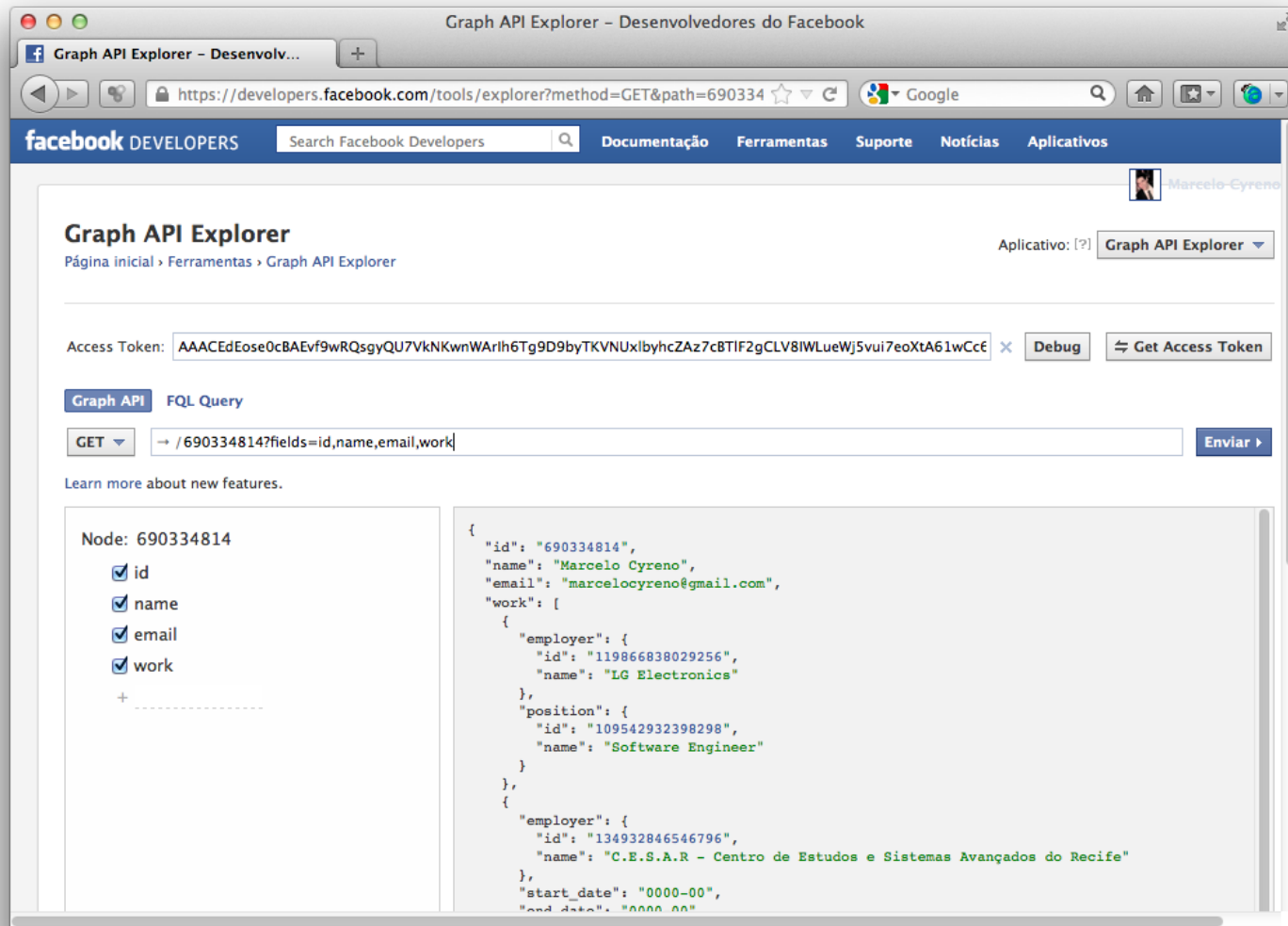
# Graph API - Examples #2

<https://graph.facebook.com>

/me/friends?fields=last\_name&offset=1&limit=2

```
{
  "data": [
    {
      "last_name": "da Fonte",
      "id": "52424679"
    },
    {
      "last_name": "Duarte",
      "id": "51266422"
    }
  ],
  "paging": {
    "next": "https://graph.facebook.com/690334814/friends?fields=last\_name&limit=2&offset=12",
    "previous": "https://graph.facebook.com/690334814/friends?fields=last\_name&limit=2&offset=8"
  }
}
```

# Graph API - Explorer



<https://developers.facebook.com/tools/>

# Graph API - Introspection

## Introspection

"The Graph API supports introspection of objects, which enables you to see all of the connections an object has without knowing its type ahead of time. To get this information, add `metadata=1`"

\*applicable only to a single object (N/A to a list/collection)

# Graph API - Introspection

<https://graph.facebook.com>

**/262346097220482?metadata=1**

```
{
  "id": "262346097220482",
  "name": "CBSof2012",
  "link": "https://www.facebook.com/apps/application.php?id=262346097220482",
  "icon_url": "https://s-static.ak.facebook.com/rsrc.php/v2/yT/z/4QVMqOjUhd.gif",
  "logo_url": "https://s-static.ak.facebook.com/rsrc.php/v2/y_/z/9myDd8iyu0B.gif",
  "daily_active_users": "1",
  "weekly_active_users": "1",
  "monthly_active_users": "1",
  "metadata": {
    "connections": {
      "feed": "https://graph.facebook.com/262346097220482/feed",
      "posts": "https://graph.facebook.com/262346097220482/posts",
      "tagged": "https://graph.facebook.com/262346097220482/tagged",
      "statuses": "https://graph.facebook.com/262346097220482/statuses",
      "links": "https://graph.facebook.com/262346097220482/links",
      "notes": "https://graph.facebook.com/262346097220482/notes",
      "photos": "https://graph.facebook.com/262346097220482/photos",
      "albums": "https://graph.facebook.com/262346097220482/albums",
      "events": "https://graph.facebook.com/262346097220482/events",
      "videos": "https://graph.facebook.com/262346097220482/videos",
      "picture": "https://graph.facebook.com/262346097220482/picture",
      "insights": "https://graph.facebook.com/262346097220482/insights",
      "subscriptions": "https://graph.facebook.com/262346097220482/subscriptions"
    },
    "fields": [
      {
        "name": "id",
        "description": "The application ID. No `access_token` required. `string`."
      }
    ]
  }
}
```

```
{
  "id": "262346097220482",
  "name": "CBSof2012",
  "link": "https://www.facebook.com/apps/application.php?id=262346097220482",
  "icon_url": "https://s-static.ak.facebook.com/rsrc.php/v2/yT/z/4QVMqOjUhd.gif",
  "logo_url": "https://s-static.ak.facebook.com/rsrc.php/v2/y_/z/9myDd8iyu0B.gif",
  "daily_active_users": "1",
  "weekly_active_users": "1",
  "monthly_active_users": "1"
}
```

# Graph API - Objects

Achievement

Album

Application

Checkin

Comment

Domain

Event

FriendList

Group

Insights

Link

Message

Note

Offer

Order

Page

Photo

Post

Question

QuestionOption

Review

Status

message

Thread

User

Video

# Facebook Query Language (FQL)

"The FQL object enables running FQL queries using the Graph API. Facebook Query Language, or FQL, enables you to use a SQL-style interface to query the data exposed by the [Graph API](#). It provides for some advanced features not available in the Graph API, including batching multiple queries into a single call."

<https://developers.facebook.com/docs/reference/fql/>

# FQL - Examples #1

<https://graph.facebook.com/fql?q=>

SELECT name, email FROM user WHERE uid = me()

```
{
  "data": [
    {
      "name": "Marcelo Cyreno",
      "email": "marcelocyreno@gmail.com"
    }
  ]
}
```



# FQL - Examples #2

[https://graph.facebook.com/fql?q=](https://graph.facebook.com/fql?q=SELECT%20last_name%20FROM%20user%20WHERE%20uid%20IN%20(SELECT%20uid2%20FROM%20friend%20WHERE%20uid1%20=%20me())%20LIMIT%200%2C%205)  
SELECT last\_name FROM user WHERE uid IN  
(SELECT uid2 FROM friend WHERE uid1= me())  
LIMIT 0, 5

```
{
  "data": [
    {
      "last_name": "Sampaio"
    },
    {
      "last_name": "Peixoto"
    },
    {
      "last_name": "Mafra"
    },
    {
      "last_name": "Santos"
    },
    {
      "last_name": "Santos"
    }
  ]
}
```

# FQL - Examples #3

[https://graph.facebook.com/fql?q=](https://graph.facebook.com/fql?q=SELECT%20last_name%20FROM%20user%20WHERE%20uid%20IN%20(SELECT%20uid2%20FROM%20friend%20WHERE%20uid1%20=%20me())%20AND%20strpos(lower(last_name),'silva')%20%3E%3D0)  
SELECT last\_name FROM user WHERE uid IN  
(SELECT uid2 FROM friend WHERE uid1= me())  
AND strpos(lower(last\_name),"silva") >=0

```
{
  "data": [
    {
      "last_name": "Silva"
    },
    {
      "last_name": "LSilva"
    },
    {
      "last_name": "Vasconcelos Silva"
    },
    {
      "last_name": "da Silva"
    },
    {
      "last_name": "Silva"
    },
    {
      "last_name": "Silva"
    },
    {
      "last_name": "Ruiz da Silva"
    },
    {
      "last_name": "Silva"
    }
  ]
}
```

# FQL - Examples #4

[https://graph.facebook.com/fql?q=](https://graph.facebook.com/fql?q=SELECT%20name,%20venue,%20location,%20start_time%20FROM%20event%20WHERE%20eid%20=%20209798352393506)  
SELECT name, venue, location, start\_time  
FROM event WHERE eid = 209798352393506

```
{
  "data": [
    {
      "name": "Pushing millions of lines of code five days a week tech talk",
      "venue": {
        "street": "1050 Page Mill Road B2",
        "city": "Palo Alto",
        "state": "California",
        "country": "United States",
        "latitude": 37.772418672222,
        "longitude": -122.43224061222,
        "id": 100125800051297
      },
      "location": "Facebook",
      "start_time": "2011-05-26T19:00:00"
    }
  ]
}
```

# FQL - Functions

now()

rand()

strlen(string)

concat(string, ...)

substr(string, start, length)

strpos(haystack, needle)

upper(string)

lower(string)

# FQL - Tables

Go to:

<https://developers.facebook.com/docs/reference/fql/>



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Questions ?