

Facebook Platform

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SoCS @ McGill

The Facebook logo, consisting of the word "facebook" in white lowercase letters on a blue rectangular background.

facebook

- A social networking website
- By [Mark Zuckerberg](#) on February 4, 2004
- Second most trafficked website

What is Facebook?

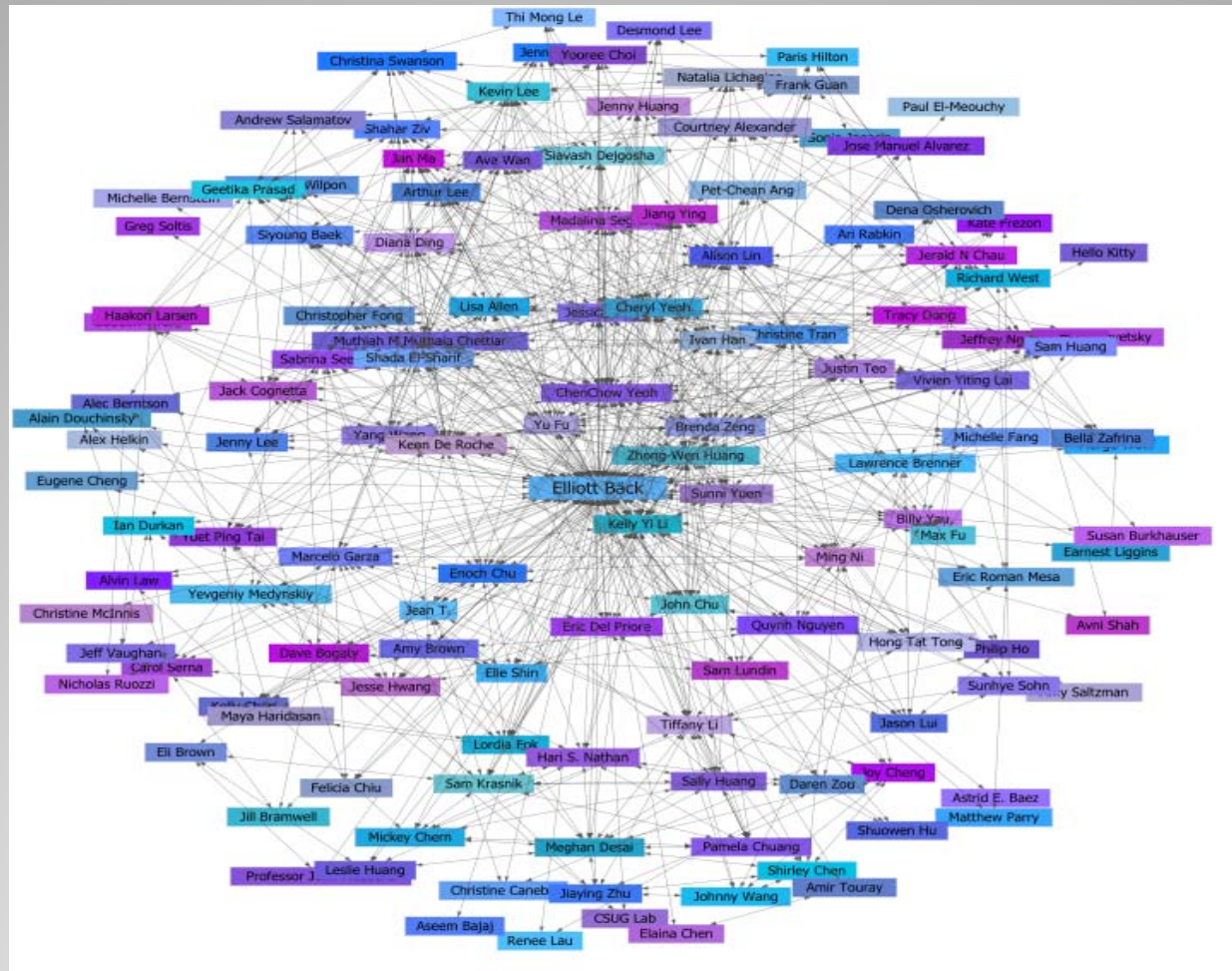
- A framework for developers to create applications that interact with core Facebook features
- Launched on May 24, 2007
- Application Examples:
[Top Friends](#), [Graffiti](#), [iLike](#) ...

Facebook Platform

- Large number of active users:
10% population in Canada registered
50% of users return daily
- Quick growth:
3% per week / 300% per year

HUGE SOCIAL DATABASE!

Why Facebook Application?



Social Network & Database

Left
Nav

The screenshot shows a Facebook profile page for David Zhuang in a Mozilla Firefox browser window. The page is annotated with red dashed boxes and arrows pointing to specific sections:

- Left Nav:** Points to the left sidebar containing the search bar, application menu (Developer, Photos, Groups, Events, Marketplace, iLike, Movies, Video, Posted Items, Notes, News Talk), and the Stanford Flyer.
- Canvas:** Points to the main profile area, which includes the profile picture placeholder, a status update box, and a list of applications (Stanford Friends, iLike, Movies).
- News Feed:** Points to the Mini-Feed section on the right, displaying recent updates from friends.
- Profile Box:** Points to the iLike and Movies modules on the right, which are part of the profile's featured content.

The profile information for David Zhuang includes:

- Name:** David Zhuang
- Update your status...**
- Networks:** Stanford Alum, Silicon Valley, CA
- Sex:** Male

The Mini-Feed shows updates from friends, including David adding the Movies application and iLike application.

Canvas

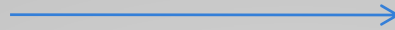
News
Feed

Profile
Box

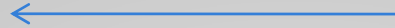
Profile Page



1. HTTP
Request



2. HTML
Response



Your Server

Web/App
Server

SQL
Query

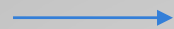
Data

Database

Traditional Web App. Architect.

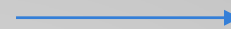


1. HTTP

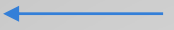


**Facebook
Server**

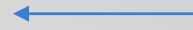
2. HTTP



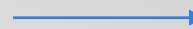
6. HTML



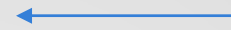
3. API/FQL



4. API Rsp



5. FBML



Your Server

Web/App
Server

SQL
Query

Data

Database



Facebook App. Architecture

- API
 - Web Service API
 - Client Library:
 - Official: PHP, Java
 - Unofficial: Perl, Python, Ruby, VB.NET, and others
- FQL
 - Similar to SQL
 - Access to user profile, friend, group, event, and photo
- FBML
 - Similar to HTML
 - Subset of HTML + Proprietary Extensions

Components

- Web Service API: ~~Well Documented~~
- API Client Library
 - Mostly Covered by Web Service API Documentation
 - For the Rest, Read Code (Only 2 Files)
 - facebook.php
 - facebookapi_php5_restlib.php
- Access Facebook User Data
 - Profile, Friends, Group, Event, Photo, etc.
- Other Functions
 - Redirect, Log in, Update user views

API

```
$facebook->redirect($url)
```

```
$facebook->require_login()
```

```
$facebook->api_client->users_isAppAdded()
```

```
$facebook->api_client->users_getInfo($uids, $fields)
```

```
$facebook->api_client->friends_get()
```

```
$facebook->api_client->photos_createAlbum($name)
```

```
$facebook->api_client->fql_query($query)
```

API Client Lib. Function Examples

- Very Similar to SQL
 - No Join Query
 - Select From One Table At a Time
 - Must Be Indexable
- Access Facebook Database Tables
 - user, friend, group, group_member, event, event_member, photo, album, photo_tag
- Why FQL?
 - Reduces bandwidth and parsing costs
 - Reduce the number of requests necessary
 - Consistent, unified interface

FQL

- Get the names of the groups in which *u1* is a member

```
$query = "
```

```
SELECT name FROM group WHERE gid IN (SELECT gid  
  FROM group_member WHERE uid = u1)
```

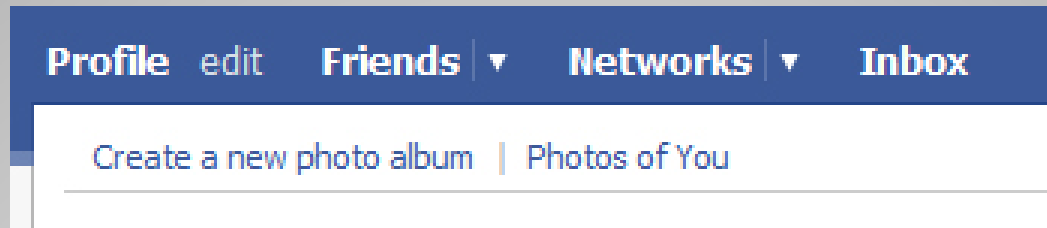
```
";
```

```
$array = $facebook->api_client->fql_query($query);
```

FQL Example

- A Subset of HTML
 - Excluded: `<script>`
 - Limited: `<style>` (internal CSS only)
 - Cached: `<img>`
 - Hidden Fields Added: `<form>`
- Proprietary Extensions
 - Markup Tags: UI Elements
 - Procedural Tags: Control Program Flow
- Mock Ajax

Preview:



Code:

```
<fb:dashboard>  
  <fb:action href="new.php">Create a new photo  
album</fb:action>  
  <fb:action href="you.php">Photos of You</fb:action>  
</fb:dashboard>
```

FBML Tags Example: Markup Tags

Code:

```
<fb:if-can-see uid="12345" what="profile">  
  You're allowed to see 12345's profile, chum!  
  
  <fb:else>  
    No profile for you!  
  </fb:else>  
</fb:if-can-see>
```

FBML Tags Example: Procedural Tags

- A Facebook account
- A http server (public_html)
- A little HTML knowledge
- A little knowledge on PHP (/ Java / .NET / Perl / Python / Ruby / Actionscript / Cocoa / ColdFusion)
- Some knowledge on XML
- Some knowledge on MySQL
- A good idea

Preparation for the first step

0. Become a Facebook developer

- Go to <http://developers.facebook.com/>
- Click on '**Get Started**'
- Click on '**Add Facebook Developer Application**'
- Find '**Developer**' link in your left navigation bar



Hello, world!

1. Setup a new application on Facebook

- Application Name, Term of Service,
- Support E-mail, Callback URL, Canvas Page URL,
- Application Type,
- Can your application be added to Facebook,
- Post-add URL, Default FBML, Side Nav URL
- API Key, Secret

Hello, world! (cont.)

2. Build your application

- Write an *index.php*

```
<?php  
echo "Hello, world!";  
?>
```

- Put *index.php* at right place, according to the setup of **Callback URL**

Hello, world! (cont.)

 Photos	My name is Weihuan Shu
 Groups	
 Events	Now I'm in the following networks:
 Marketplace	• Montreal, QC • McGill
 Developer	
 Tutorial Application	Display text on profile
 more	the following form was added to the profile box:
	Draw text below

Print out user information

Slightly more complicated

1. Setup a new application on Facebook

- You get **API Key** and **Secret** for your application

2. Initialization

- `require_once 'facebook.php';`
- `$appapikey = '6b392fc3720649537fcfb0052f5d87fc';`
- `$appsecret = '8d4b28d83c9f4e8cd37f85efb88a791a';`
- `$facebook = new Facebook($appapikey, $appsecret);`
- `$user = $facebook->require_login();`
- `$appcallbackurl = 'http://www.cs.mcgill.ca/~wshu
/facebook/test_example/';`

Slightly more complicated (c.)

3. Print out user information

```
$fields = array('name', 'pic', 'affiliations');  
$info = $facebook->api_client->users_getInfo($user, $fields);  
// print_r ($info);
```

```
echo "My name is <b> {$info[0]['name']} </b>";  
echo "<br />";  
echo "<img src='{ $info[0]['pic']}' />";  
...
```

Slightly more complicated (c.)

4. Display text on profile

```
if (isset($_REQUEST['profiletext'])) {  
    $facebook-> api_client->profile_setFBML  
        ($_REQUEST['profiletext'], $user);  
    $facebook->redirect($facebook->get_facebook_url()  
        .'/profile.php');  
}  
  
echo '<form action="" method="get">';  
echo '<input name="profiletext" type="text" size="30"  
    value=""><br>';  
echo '<input name="submit" type="submit" value="Display  
    text on profile">';  
echo '</form>';
```

Slightly more complicated (c.)

5. Draw text in a mock-Ajax way

```
if (isset($_REQUEST['mockfbmltext'])) {  
    echo $_REQUEST['mockfbmltext'];  
    exit;  
}
```

```
$fbml = <<<EndHereDoc  
<form>  
<input name="mockfbmltext" type="text" size="30">  
<br />
```

Slightly more complicated (c.)

```
<input type="submit"
  clickrewriteurl = "$appcallbackurl"
  clickrewriteid = "preview" value="Draw text below"
/>
<br />
<div id="preview" style="border-style: solid; border-color:
  black; border-width: 1px; padding: 5px;">
</div>
</form>
EndHereDoc;

$facebook->api_client->profile_setFBML($fbml, $user);
```

Slightly more complicated (c.)

- Facebook

<http://www.facebook.com>

- Facebook Developers Documentation

<http://developers.facebook.com/documentation.php>

- Anatomy of a Facebook Application

<http://developers.facebook.com/anatomy.php>

- Guide to Creating an Application

http://developers.facebook.com/step_by_step.php

- API Test Console

<http://developers.facebook.com/tools.php>

Resources about Facebook

- HTML 4.01 Specification

<http://www.w3.org/TR/html4/cover.html#minitoc>

- PHP Manual

<http://ca3.php.net/manual/en/index.php>

- Source code of the previous example

<http://www.cs.mcgill.ca/~wshu/taing.html>

Other resources

To get started, tell us which of these artists you like

We've selected some artists below based on those in your Facebook profile (Shakira).

[Skip this step](#)



Rihanna
Local show



Christina Aguilera



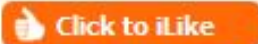
Jennifer Lopez
Local show



Radiohead



Faith Hill



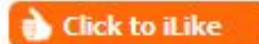
Jay-Z



Beyonce



U2



Red Hot Chili Peppers



Dixie Chicks
On tour



The Crystal Method
On tour



Green Day



A tour to iLike



[Concerts](#) | [Free MP3s](#) | [Music Challenge](#) | [My Music](#) | [Contest](#)

Find Music:

iLike.

Browse Concerts

Concerts matching your favorite (and related) artists near Montreal, QC [Change location](#)

To add artists to your favorites, enter artist names separated by commas, for example: 50 Cent, Rihanna, Yellowcard

Submit



**Jennifer
Lopez**
Local show



Rihanna
Local show

Concerts matching your friends' favorite artists (near Montreal, QC)

No upcoming concerts matching your friends' favorite music.

A tour to iLike (cont.)

- Concerts
 - Music information: iLike Database
 - Matching your favorite artists
 - Location: Facebook Database
 - Interests: iLike Database
 - Matching your friends' favorite artists
 - Friends: Facebook Database
 - Friends' Location: Facebook Database
 - Friends' interests: iLike Database
- Free MP3s
- Music Challenge

A little analysis on iLike

iLike

Instant music discovery, just add friends!

[Sign in](#) or [Create your own profile](#)

Discover new music with friends.

Playlists. Share iTunes playlists with friends.

New Music. Get music picks and free MP3s to match your tastes.

Concerts. Get notified when your favorite artists are playing near you.

Create your profile today!

[Take the tour](#)

Facebook users: [Add music to your Facebook profile.](#)

Success: from 3w to Facebook

Have fun!