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GUIDE FOR BUILDING FACEBOOK APPLICATIONS WITH PHP

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Bachelor's Thesis
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TIIVISTELMÄ

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Tämän opinnäytetyön tarkoituksena oli kehittää Facebook-sovellusten kehitys-opas käyttäen PHP:tä. Päätarkoituksena oli oppia erilaisia alustoja, SDK:ta ja kuinka Facebook ohjelmistorajapinta (API) toimii. Tämä pikaopas on tehty Oulun Ammattikorkeakoululle Teppo Räisänen valvonnassa ja sitä käytetään opetusmateriaalina ~~koska~~ Facebook-sovelluskehityskurssilla Oulun Ammattikorkeakoulussa.

Tämä opinnäytetyö jakautuu kahteen osaan. Ensimmäinen osa keskittyy teoriaan Facebookista, kuinka se toimii ja mitä Facebookilla voi tehdä käyttäen API:a tai SDK:ta. Toinen osa sisältää kuvallisen oppaan Facebook-sovelluskehityksestä käyttäen saatavilla olevia tekniikoita ja SDK-versiota. Tämä pikaopas Facebook-sovelluskehitykseen soveltuu aloittelijalle, joka haluaa kehittää Facebook-sovelluksen. Tämä pikaopas näyttää kuinka lisätään uusi sovellus, sen alusta, nykyiset SDK:n vaatimukset ja ladattavat lähteet eri SDK:lle.

Osana opinnäytetyötä kehitettiin yksinkertainen Facebook-sovellus käyttäen PHP:tä. Sovellus auttaa lukijaa ymmärtämään Facebook-sovelluskehityksen menettelytapoja käyttäen nykyistä PHP SDK:ta. Tässä sovelluksessa käytettiin PHP SDK versiota 5.0.0 ja default graph v2.4:ää.

Facebook muuttaa käytäntöjään ajoittain, päivittää SDK:ta ja poistaa joitain ominaisuuksia käytöstä. Sovelluskehittäjän tulee seurata Facebookin päivitys- tai muunnoskäytäntöjä niin, että sovellus toimii uusimpien vaatimusten mukaisesti. Tässä opinnäytetyössä kehitetty sovellus noudattaa sääntöjä ja käytäntöjä tammikuulta 2015 joulukuulle 2015. Nämä voivat muuttua tulevaisuudessa. Uusimmat käytännöt löytyvät noudattamalla Facebookin ohjeistusta.

Asiasanat: HTML5, CSS3, PHP, MySQL, Facebook

ABSTRACT

Oulu University of Applied Sciences
Bachelor of Business Information Technology

Author: Gulshan Kumar
Title: Guide for Developing Facebook Applications with PHP
Supervisor: Teppo Räisänen
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The aim of this Bachelor's thesis was to develop a Facebook applications development guide using PHP. The main aim of this thesis was to learn different platforms, SDK and how Facebook API work. This quick guide is completed for Oulu University of Applied Sciences under supervision of Mr. Teppo Räisänen and will be used as teaching material because Facebook application development course was already introduced in Oulu University of Applied Sciences.

This thesis is divided into two parts. The first part focuses on the theory on Facebook, how it works and what can be done with Facebook using either API or SDK. The second part contains a pictorial guide of Facebook applications development process using current available technique and SDK's version. This quick guide for Facebook applications development is suitable for beginners who want to develop the Facebook applications. This quick guide shows, how to add a new application, its platform, current requirement for SDK and downloadable source of different SDK.

Small Facebook application developed using PHP which help reader to understand the procedure of Facebook applications development using current PHP SDK. In this application PHP SDK version 5.0 and default graph v2.4 has been used to complete Facebook application.

Facebook changes its policy from time to time, updates SDK and deprecates some features from Facebook. It is a developer who needs to follow the Facebook upgrade or migration policy so that application work according to current system requirement. Application developed for this thesis follows the rules and policies available from January 2015 to December 2015. It may change in future. To find the current policies, it is suggested to follow the Facebook documentation for more information.

Keywords: HTML5, CSS3, PHP, MySQL, Facebook

CONTENT

ABBREVIATIONS AND TERMS

API	Application Programming Interface, implemented by a software program to interact with other software.
CSS	Cascading Style Sheets, electronic documents developed in the style sheet for
FBML	Facebook Markup Language, used in Facebook application
FBJS	Facebook JavaScript, a scripting language used in Facebook applications
FQL	Facebook Query Language, a database computer language used in Facebook applications.
HTML	HypterText Markup Language – used in web documents
HTTP	Hypertext Transfer Protocol, an application layer protocol for distributed information system.
iFrame	The website of the frame, which is loaded in the second HTML
JavaScript	A scripting language used in client-side web development
PHP	PHP Hypertext Preprocessor, a scripting language used in server-side web development
SDK	Software Development Kit, set of development tools that enable the development of applications for a particular platform.
XFBML	A set of FBML tags, which can also be used in iFrame applications.
XHTML	eXtensible HyperText Markup Language
XML	eXtensible Markup Language, a set of rules for encoding documents electronically

1 INTRODUCTION

Social networking has become the most dominant part of the Internet, whose users are spending more time on social network than on any other type of websites. From marketer's and developer's perspectives, social networking seems very exciting. Developers and marketers get a large amount of data to publish ads and develop versatile applications for different kind of users.

In the beginning, the social network was very simple, one could only create a profile and there were no opportunities to develop applications. But now the application can be developed and integrated into a social network. These applications can be created for almost any purpose. Facebook applications have become hugely popular and valuable.

The main reasons of Facebook's popularity are a wide range of tools and an interesting application. User data can be used in applications for marketing if the user approves.

The idea for thesis topic came from OIVA (student web portal at Oulu University of Applied Sciences) while I was checking courses study material and upcoming seminars. I found this topic very interesting which helped me to get more information about social media, Facebook Application development and marketing using social media.

The purpose of this thesis is to study how Facebook's platform works and how to use it to develop applications. This thesis focuses only on Facebook platform canvas application development using PHP SDK, not external websites or mobile platforms.

First I analyzed Facebook's platform from a developer point of view, learn basics of Facebook application development, and how to develop application on Facebook using PHP SDK and at the end of the work; I present a brief application which has been developed using PHP SDK that Facebook offers.
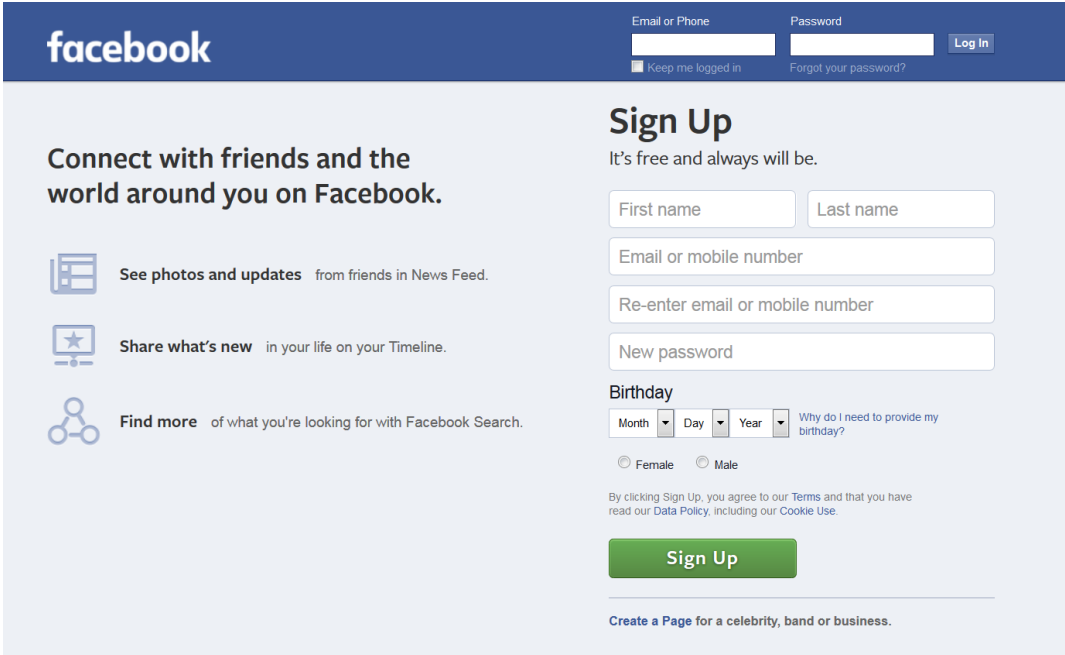
2 FACEBOOK APPLICATION

In this chapter, Facebook platform, API, SDK and apps types explained so that reader get familiar with the Facebook and see how it works.

2.1 Facebook

Facebook is a social networking service, owned and operated by Facebook Inc. that allows user to create an online page to connect with family, friends, or make new friends with anyone anywhere, join different communities and keep track of upcoming events. On Facebook the user can share pictures, messages, and personal information (see Figure 1).

FIGURE 1. Facebook main login and signup screen

Facebook's biggest competitors are Instagram, Snapchat, MySpace and Google+ and they provide similar features but they are not even close to Facebook when it comes to users or traffic. Facebook became so popular because they combined many services into one such as games, apps and marketing.

2.2 The Basic of Facebook Application

Since 2007, it is possible to develop custom application on Facebook. Today, more than nine million applications are using Facebook application platform. There are two different kinds of applications that can be develop on Facebook - Canvas and Tab application. User can build a Facebook Application using Canvas pages with basic HTML skills and a server. Facebook has produced own markup language called FBML

2.2.1 Canvas Apps

Canvas apps such as Farm Ville, utilize the full available width of the Facebook. Canvas apps full width is 760 pixels wide and height is not really limited. Apps on Facebook are web apps that are loaded in the context of Facebook in what we refer to as a Canvas Page (Figure 2). In general, Canvas application is virtually in main side of iFrame in Facebook and require secure URL of app.

FIGURE 2. Canvas app
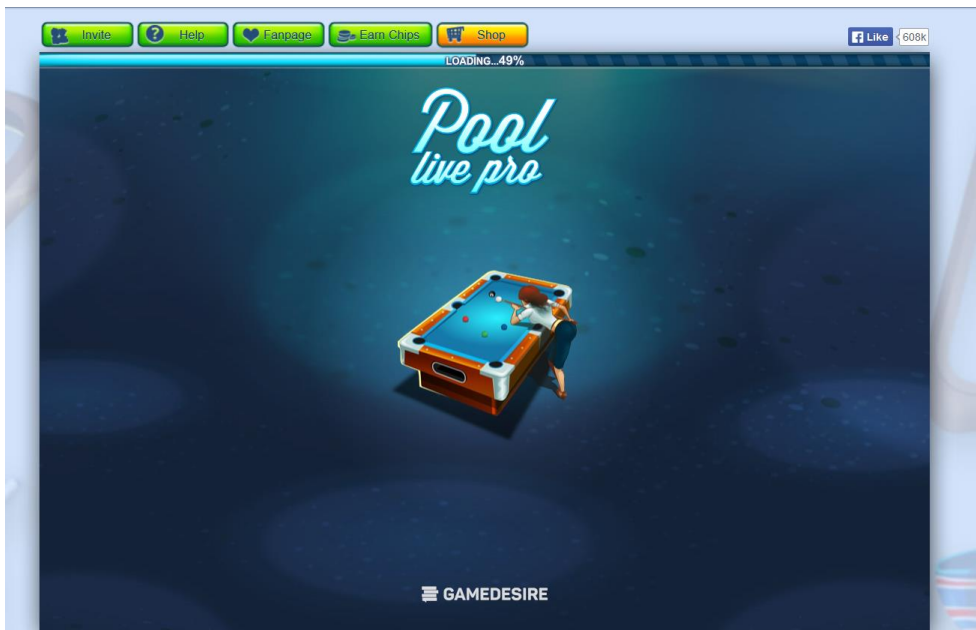
2.2.2 Tab Apps

Tab apps runs on a Facebook Page (Figure 3). They are not as wide as Canvas apps and can be displayed in small width such as normal profile display page. Tabs apps display different content to a user who likes the page and who does not like the page. Tab apps width is 520 pixels. Tab-applications integrated with Facebook same as a canvas application.
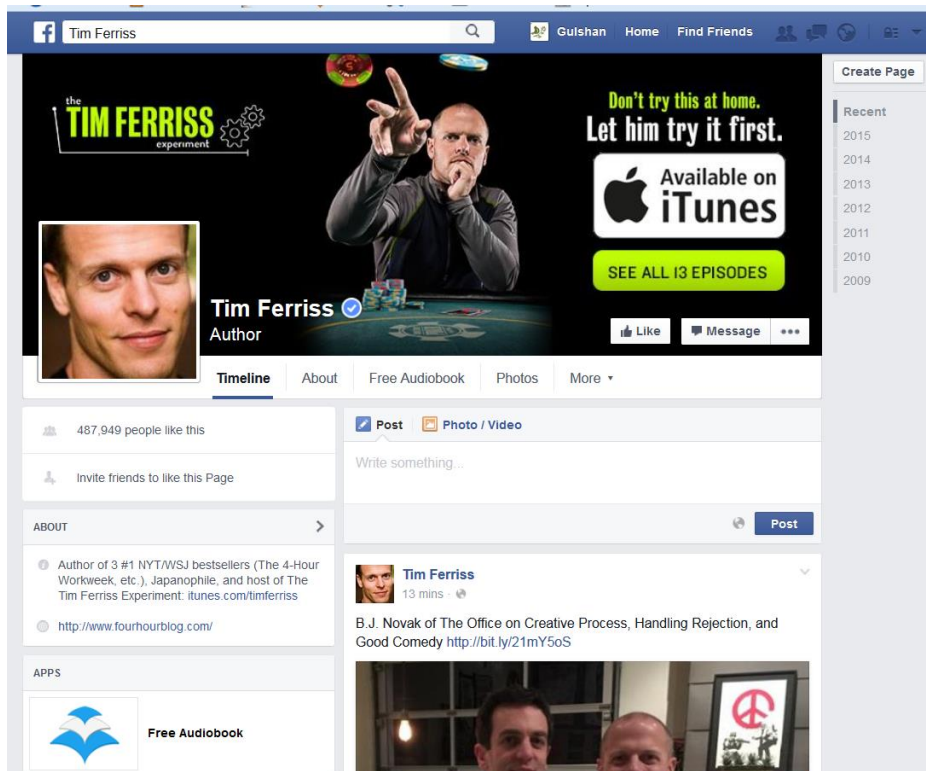

FIGURE 3. Tab app

2.3 Facebook Application Development Process

Facebook application development process is very simple and similar to that of traditional web development. Anyone can create a Facebook application using different SDK and API provided by Facebook. However, it is required to understand how Facebook's API works and use the library that Facebook offers. Facebook requires that all developers must register and this is done in Facebook by going to Facebook's development site which is also the place where all application's configurations are performed.

Facebook has set some requirement for applications before they can be published to the App Center. The application must have working and secure URL, description, banner logo, mobile logo and web view logo, as these appear in the App Center.

2.4 Facebook SDK

Facebook SDK allows the developer to implement a wide range of server-side applications, client-side applications and cross-platform games. These SDKs allows developer to:

- share a post or video
- send a message to one or more friends
- like a post or page
- sharing custom stories using open graph
- send request or invites friends from apps
- linking apps for example click share link if apps are not installed, it open install link and suggest installing apps
- publish news feed
- responses from Graph API
- login to apps using Facebook login

2.4.1 iOS SDK

iOS SDK enables the developer to create application for iOS7 using Objective-C language (see Figure 4).

```
<key>CFBundleURLTypes</key>
<array>
  <dict>
    <key>CFBundleURLSchemes</key>
    <array>
      <string>fb1647178595532821</string>
    </array>
  </dict>
</array>
<key>FacebookAppID</key>
<string>1647178595532821</string>
<key>FacebookDisplayName</key>
<string>sanapeli</string>
```

FIGURE 4. Sample iOS SDK code

2.4.2 Android SDK

As iOS SDK, Android SDK also provide support for native android app including UI controls, object responses from Graph API, adding support and session management. Both iOS and Android SDK enable easy login and build engaging social apps (see Figure 5).

```
import java.util.*;

/**
 * This class represents an immutable access token for using Facebook APIs. It also includes
 * associated metadata such as expiration date and permissions.
 * <p/>
 * For more information on access tokens, see
 * <a href="https://developers.facebook.com/docs/facebook-login/access-tokens/">Access Tokens</a>.
 */
public final class AccessToken implements Parcelable {
    public static final String ACCESS_TOKEN_KEY = "access_token";
    public static final String EXPIRES_IN_KEY = "expires_in";
    public static final String USER_ID_KEY = "user_id";

    private static final Date MAX_DATE = new Date(Long.MAX_VALUE);
    private static final Date DEFAULT_EXPIRATION_TIME = MAX_DATE;
    private static final Date DEFAULT_LAST_REFRESH_TIME = new Date();
    private static final AccessTokenSource DEFAULT_ACCESS_TOKEN_SOURCE =
            AccessTokenSource.FACEBOOK_APPLICATION_WEB;
```

FIGURE 5. Sample Android SDK code

2.4.3 JavaScript SDK

JavaScript SDK allow developer to use Facebook login, launch dialog, like button and other social plugin. As shown in Figure 6, JavaScript function check if user login then display user name in alert window otherwise redirect to face-book.com

```javascript
// checking login
FB.getLoginStatus(function(response) {
    if (response.status === 'connected') {
        FB.api('/me', function(response){
        alert(response.name);
        //alert(response.id);
        });
        var uid = response.authResponse.userID;
        var accessToken = response.authResponse.accessToken;
    } else if (response.status === 'not_authorized') {
        //alert ('You are not authorised');
        FB.login(function(response){
        }, {scope:'email,user_likes'});
    } else {
        window.top.location = "https://facebook.com";
    }
});
};
```

FIGURE 6. Sample JavaScript SDK code

2.4.4 PHP SDK

PHP SDK allows the developer to implement a wide range of server-side applications and let developer to access the Graph API with Facebook login advantage. It is mostly used when developing canvas applications, own website or adding server-side functionality. It can be used with SDK for JavaScript. Function shown in Figure 7, display feed on user's timeline if permitted by user.

```php
try {
        // sharing link on the user timeline
    $postRequest = new FacebookRequest($session, 'POST', '/me/feed', array('link' =>
    'http://www.netwink.fi', 'description' => 'Score', 'message' =>
    'Congratulations! You got!!!'));
    $postResponse = $postRequest->execute();
    $posting = $postResponse->getGraphObject();
    echo $posting->getProperty('id');

} catch(FacebookRequestException $e) {
    echo $e->getMessage();
}
```

FIGURE 7. Sample PHP SDK code

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2.4.5 Unity SDK

Unity SDK allows developer to implement a cross-platform games as users using different kind of games either canvas based or mobile apps. It follows the concept of – write-once and run-everywhere. Currently, Unity SDK is becoming more famous because of its concept or in general, regardless of platform, user can play the games either on web or mobile (see Figure 8).

```html
<!DOCTYPE html>
<html>
<body>
<script>
var chromeVersion = window.navigator.userAgent.match(/Chrome\/(\d+)\./);
if (chromeVersion && chromeVersion[1]) {
  if (parseInt(chromeVersion[1], 10) >= 42) {
    window.location = "/unity/webgl";
  }
}
window.location = "/webplayer/webplayer.html";
</script>
</body>
</html>
```

FIGURE 8. Sample Unity SDK code

2.4.6 Third-party SDK

Facebook allows third-party's unofficial SDK to develop Facebook apps or games because third-party SDK uses different language and framework as well. PhoneGap, Ruby, Qt framework, Corona SDK, Flash (Action Script), Django-Facebook are some examples of third-party SDK.

2.5 Selecting a Development Language

Facebook allows using different SDK to develop app for different purposes such as games and puzzles. PHP SDK is a very good example for apps development because it enables developers to implement a rich set of server-side functionality for accessing Facebook's API which include all features of Graph API. The SDK perform operations as an app administration and can perform on behalf of current session user. The PHP SDK authorize user for app and simplify the process of authentication.
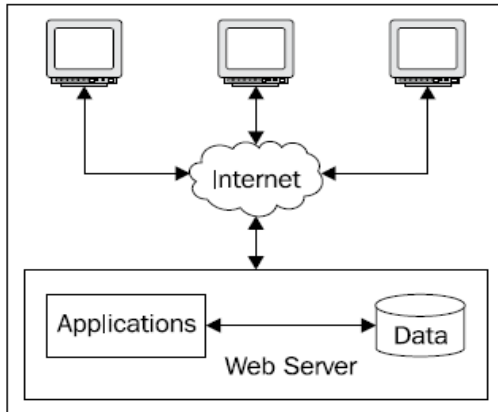
14

2.6 The Standard Web Application Model

FIGURE 9. Standard web application model

As shown in Figure 9, in Standard web application model, user's application and associated data placed on a web server and application user access it from their web browsers via the internet.

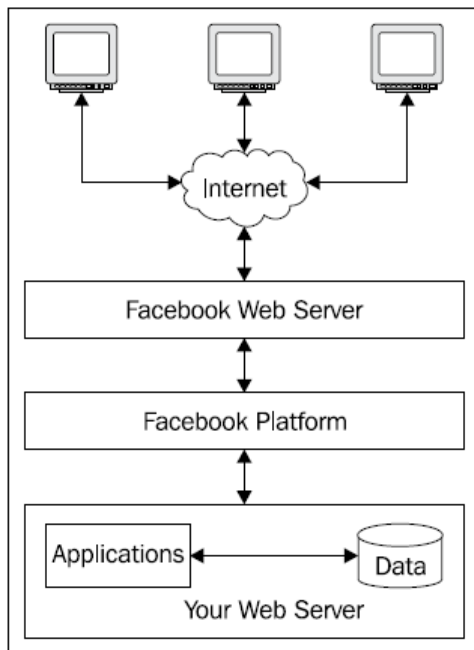## 2.7 The Facebook Web Application Model

FIGURE 10. Facebook web application model

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Facebook web application model is slightly different from the standard web application model because in Facebook web application model, user's apps reside in user's own server. Facebook platform just provides an interface between user application and itself (see Figure 10).

2.8 Facebook API

Facebook API is the heart of Facebook platform. It is used to authenticate users who use the application on Facebook. All applications can access users' data such as friend, networking etc. Through Facebook API, developer can also communicate with Facebook's other APIs. Facebook API is the only way to use all features that Facebook offers.

Developers can communicate with Facebook API through HTTP requests. Nowadays, some other API exists such as Ads API, marketing API and Business Manager API. There are third party libraries also available for developers who do not want to use the official libraries.

2.8.1 Graph API

The Graph API is low-level HTTP-based API that gives access to the Facebook social graph, uniformly representing objects in the graph and the connections between them. Most other APIs at Facebook are based on the Graph API. Graph API was introduced in April 2010 (19). There are many different ways to read data from the Graph API and it depends on the kind of data required. Graph API is all about objects and connections (see Figure 11).
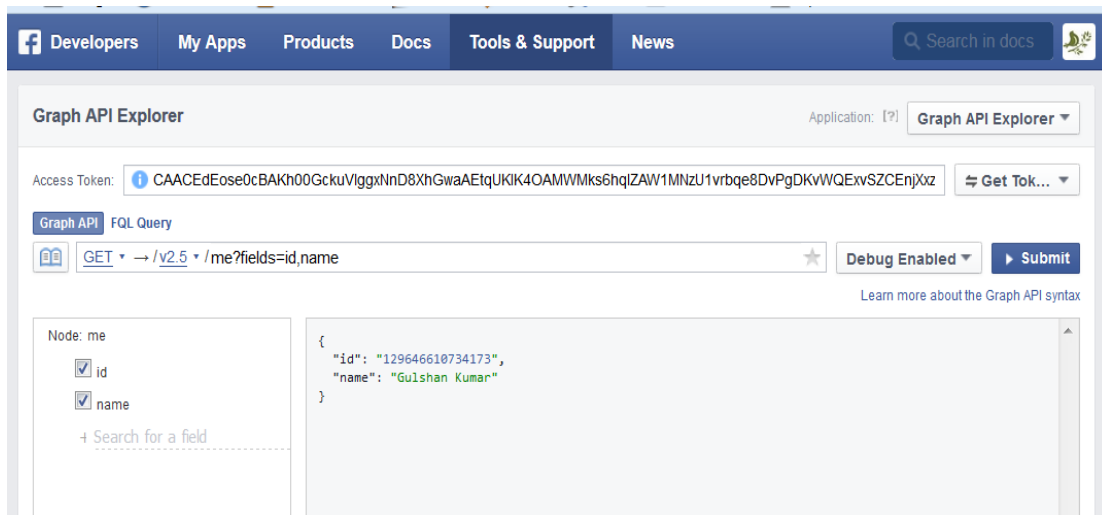
FIGURE 21. Facebook Graph API explorer

2.8.2 Open Graph

The Open Graph API allows apps to tell stories on Facebook through a structured, and strongly typed API. Open Graph provides the ability for developers to integrate their application deeply into Facebook to increase the visibility of application (see Figure 12).
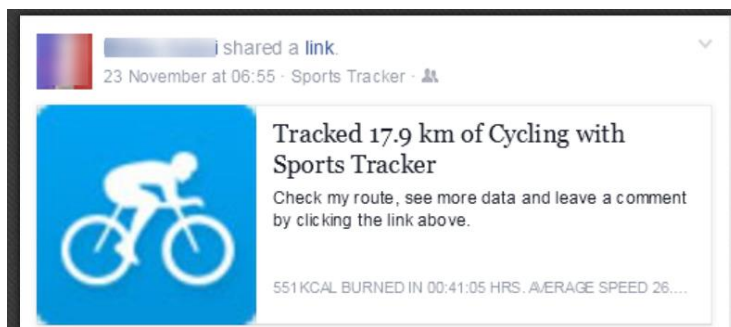

FIGURE 32. Open graph apps

2.8.3 Chat

Earlier Facebook chat was integrated into web-based, desktop, or mobile instant messaging product. As mentioned on Facebook docs, Chat API deprecated by Facebook since April 2014 (27).

2.8.4 Ads API

The Ads API allows users/developers to build own app as customized alternative to the Facebook Ads Manager and Power Editor tools (29) (see Figure 13).

FIGURE 43. Facebook ads for suggested pages

2.8.5 FQL

FQL stands for Facebook Query Language which enables users to use a SQL style interface to query the data exposed by the Graph API and is a very efficient way to search and retrieve user's personal data (See Figure 14). As mentioned in Facebook product docs that FQL will not be supported after version 2.0 (30).
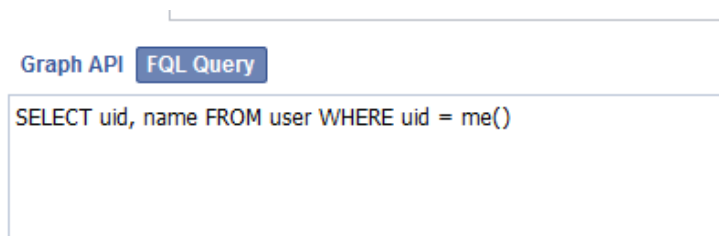

FIGURE 54. Facebook FQL query

2.8.6 Localization and translation

Facebook supports localization of apps and supports 70+ languages. When app integrate with Facebook, it automatically takes advantage of translation frame-work, helping to deliver local-specific version of app (see Figure 15 and 16).
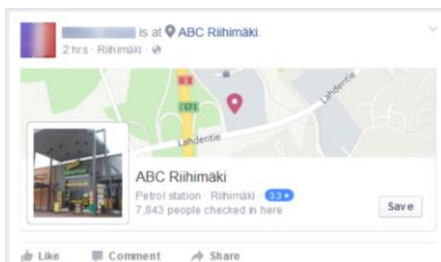

FIGURE 65. Facebook translation

FIGURE 76. Facebook localization

2.8.7 Atlas API

Facebook restricts some platforms which are only used by whitelisted apps. At-las API is one of the restricted platforms. Atlas API is also built on Graph API. The Atlas APIs provides developers with programmatic access to the Atlas web services (29).

2.8.8 Public Feed API

The Public Feed API lets developer read the stream of public comments as they are posted to Facebook. But it required approval before usage and updates sent to dedicated HTTPS connection containing basic data about given post (9).

Demo source code of Public Feed API:

```
<feed xmlns="http://www.w3.org/2005/Atom"
  xmlns:activity="http://activitystrea.ms/spec/1.0/"
  xmlns:fb="http://www.facebook.com"
  xmlns:access="http://www.bloglines.com/about/specs/fac-1.0"
  xmlns:og="http://ogp.me/ns#">
</feed>
```

2.8.9 Keyword Insights API

The Keyword Insights API exposes an analysis layer on top of all Facebook posts that enables developer to aggregate query, anonymous insights about people mentioning a certain term.

2.9 Facebook Dialogs

Different popups and iframe dialog can be triggered in Facebook using FB.ui method (21) and require JavaScript SDK (See Figure 17).

FIGURE 87. Facebook dialogs

- Share dialog; allows to post a graph story and post to different place including individual story, friend's timeline, group and private message on Facebook messenger. Share dialog is available in JavaScript, Android and iOS SDKs (see Figure 18)

- Login dialog; allows app to login using Facebook several login flows and also require JavaScript SDK

- Add page tab dialog; allows to add an app to Facebook page without any extended permission

- Requests dialog; allows to send request to one or many friends from games to participate or play

- Send dialog; allows to send message privately to specific friend(s) and available to person-to-person communication not for canvas app and it requires JavaScript SDK.

- Payments dialog; handle payment on Facebook to pay items or currency via different payment methods and also require JavaScript SDK to launch it

FIGURE 98. Share dialog

2.10 Social Plugins

- Like Button, allows users to like the content of external sites (see Figure 19)

- Share Button, allows users to write a customized message to share on their profile and they can share message with particular friends, with a group or in a private message (see Figure 19)

- Send button,

- Embedded Posts, allows users to add any public post from Facebook to their blog or web site.

- Embedded video player, (see Figure 20)

- Comments, allows users to comment on content (Figure 19)

- Page plugin, allow user to use embed components of Facebook page into their own website

- Follow button, allow user to follow some specific profile, page or post

FIGURE 19. Facebook like, comments and share buttons
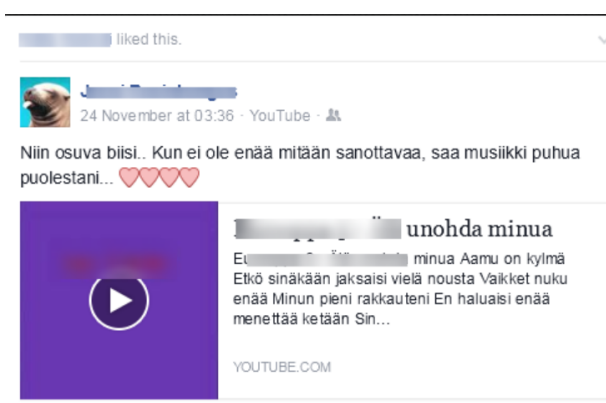

FIGURE 20. Facebook embedded video

3 TECHNOLOGIES

Web development is divided in two parts – client side and server side. Client side is also called front-end and Server side is also called back-end. Client refers to web browser and server refer to server that host. Some web scripting languages are designed to run either on client side or server side.

3.1 Server-side Technologies

Server-side technology performs operations of processing and storage of data from a client to a server, which can be viewed by a group of clients. Facebook uses different kind of server-side technologies

- Linux, open source operating system kernel.
- Apache, web server – optimized by Facebook for network throughput.
- MySQL, database technology for its speed and reliability.
- PHP, web programming language with extensive support and good for rapid iteration.
- MemCached, caching system, uses by Facebook to relieve some burden to the database.
- Thrift, internally developed cross-language framework to tie and make possible to talk all programming language to each other.
- Cassandra, distributed storage system uses by Facebook for inbox search.
- Hadoop, open source map-reduce implementation to perform calculations on massive amounts of data.

Sample of server side scripting language - PHP code:

```
<h1 id="hello"><?php echo 'Hello'; ?></h1>
```

3.2 Client-side Technology

Client-side technology performs operation on client. Client requests page from the server, and display them to the user. The primary Client-side technologies are HTML, CSS and JavaScript. Client browses the web page for example www.oamk.fi on web browser. On behalf of user, client send request to www.oamk.fi server for their home page. Then request acknowledged by the server and server replies the client request with meta-data. After receiving the reply as page source, client renders it into human viewable website. Client-side is often used to describe technologies such as JavaScript. JavaScript is a client-side technology which executes in the user's browser. When a web page is requested from the Web server that contains JavaScript, JavaScript code is sent to the browser with rest of the content of the Web page. When that page loads in the user's browser, the JavaScript interpreter fires and the JavaScript code is executed. Client side scripting language require more time and client's browser must support that scripting language. But client-side scripting is good when page need to be change without database. Input-box is a very good example because validation can be done on client side without requesting server.

Sample of client side scripting language – Javascript code:

```
<script>
    document.getElementById('hello').innerHTML = 'Hello';
</script>
```

4 FACEBOOK PLATFORM FOR DEVELOPER

The Facebook Platform mission is to build the social web. The Facebook platform currently offers a wide range of tools for developers to build applications that can be integrated with Facebook (see Figure 21).

FIGURE 21. Facebook platform

4.1 Facebook Application Platform

Facebook provide different kind of application platform to develop an application which are canvas, website, iOS, Android, Windows App, Page Tab, Xbox and playstation (see Figure 22).
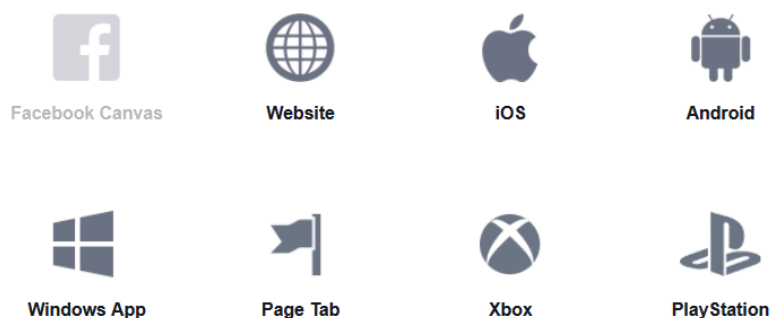

FIGURE 22. Facebook application platform

Facebook application platform includes the some policy and it is depended on what features used in apps such as login, ads, and games. But basic principles are:

- Quality product
  - easy to navigate, stable and not confuse and mislead
  - follow the Facebook's community standard, advertising policies and technical documentation
- Giving control
  - follow the privacy policy
  - obtaining consent from people
  - provide customer support
- Protecting data
  - do not demand or store username, password, request or other proxy
  - improve user experience and keep it up to date
  - display user's data only obtained from a user access token
- Encourage proper use
  - respect Facebooking looks, functions and functionality
  - do not sell API or other tools to anyone
- Follow the law
  - obtain necessary consent to share data
  - follow the law and regulation in the jurisdiction where app is available
  - follow all licensing and other obligation to third parties in connection with app

4.2 Platform Application

Facebook Platform applications share the feature that are web application hosted outside of Facebook and user does not need to do anything specific to install application. User need to authorize them to give an application access to their personal information.

4.3 Desktop Application

User can create application and integrate externally with Facebook. Firefox Facebook extension (see Figure 23) and Telerik FDeck is very good example of it. External application requires special permit to allow user to remain logged into Facebook indefinitely on their behalf.
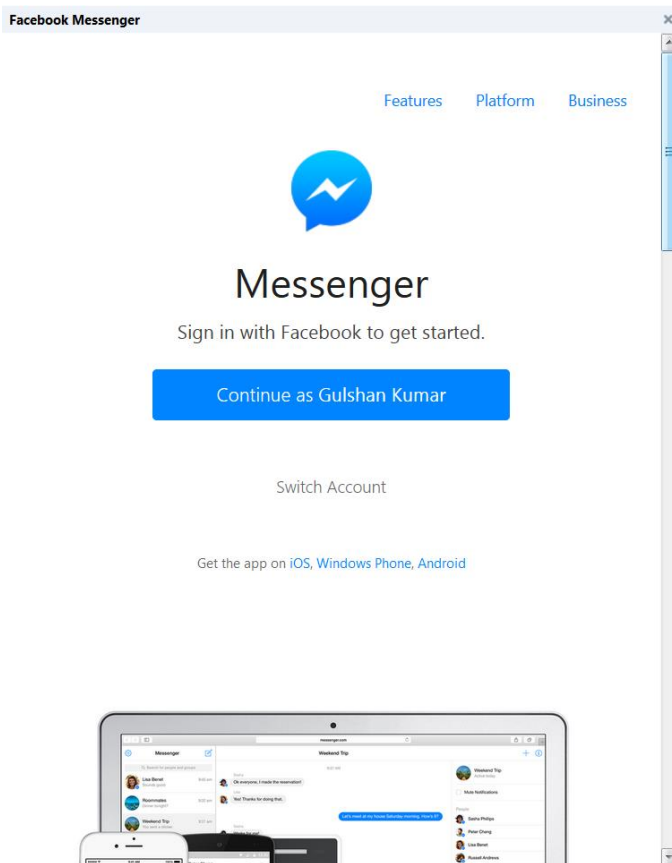
FIGURE 23. Messenger addons for firefox

4.4 Public Profiles

Public profiles formerly known as Facebook Pages or Facebook Fan Pages which create Facebook presence for companies, celebrities or brands. Public profiles do not have friends; they have Fan. Public profiles provide one of the most important horizons for application growth as business (see Figure 24).

FIGURE 24. Company's public profile

4.5 Facebook Connect

Facebook connect allows a Facebook user to take their social graph with them across the web. In May 2008, Facebook announced connect. Facebook Connect is iteration of Facebook platform that allows user to "connect" their social identity, friends and privacy to any site and enable third party websites to implement and offer even more features of Facebook Platform (see Figure 25).

Facebook connect main features are:

- Trusted Authentication
- Real Identity
- Friends Access
- Dynamic Privacy
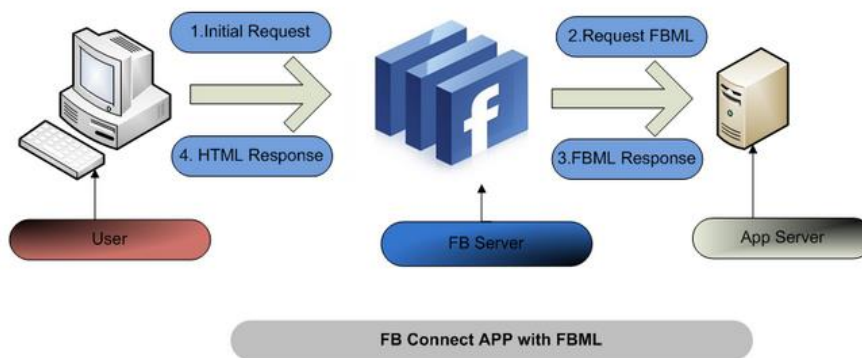
FIGURE 25. Facebook connect diagram

5 DISCUSSION

One of the reasons for writing a quick guide on Facebook apps development with PHP was to learn and research more about Facebook and app development. Other than that, I wanted to learn technical writing as this guide contains technical writing. This pictorial guide helps reader to understand the Facebook applications development procedure because it contains more images with simple and easy to understand text.

This guide provides the latest information about Facebook application development and platform. The Facebook platform is developing at rapid speed and old features are slowly turned off such as XMPP chat API is deprecated as mentioned in Facebook documentation (27). So it is important for developers to stay up-to-date with Facebook policies in order to get most out of it. Facebook application framework provides the developer with useful and easy to use tools, which can built social application quickly. Earlier Facebook did not demand privacy policy url but currently Facebook demands privacy policy before submitting the application for a review.

In the Facebook app development guide, I use PHP SDK and learn some JavaScript SDK as well. JavaScript SDK dialog use to popups message in Facebook application development. After analyzing how Facebook works, I learned about versioning and migration. Because Facebook application development follows the platform versioning so that developer can roll out changes over time and follow the platform services. Other than versioning, Facebook platform migrations play a main role as well in development because Facebook also uses to changes APIs.

For this thesis report Facebook application developed using PHP SDK version 5.0. Until December 2015, Facebook did not change its' policies or upgrade the PHP SDK's. Facebook may change or upgrade the PHP SDK and add more advance features.

REFERENCES

1. Eugene Liang, Yuxian. 2012. WordPress Mobile Applications with Phon-eGap. Birmingham, UK: Packt Publishing.

2. Hasin Hayder, Dr. Mark Alexander Bain Learning. 2008. Learning Face-book Application Development. Birmingham – Mumbai: PACKT Publishing.

3. Harris Andy. 2003. PHP/MYSQL Programming for the Absolute Beginner. Boston, USA : Premier Press.

4. Jesse Stay. 2011. Facebook Application Development For Dummies. Indianapolis, Indiana, USA: Wiley Publishing Inc.

5. 2012. Microsoft Manual of Style. Forth Edition. Redmond, Washington, USA: Microsoft Press.

6. Reiss David. 2008. Accessed on 30.10.2013 Thrift: (Slightly more than) one year later. https://www.facebook.com/note.php?note_id=16787213919

7. Ullman Larry. 2012. PHP and MySQL for Dynamic Web Sites. : Berkley, CA, USA: Peachpit Press.

8. Purdy, Douglas. 2011. Moving to a Modern Platform. Date of retrieval 11.10.2015, https://developers.facebook.com/blog/post/568/.

9. Facebook APIs. Date of retrieval 11.10.2015 https://developers.facebook.com/docs/reference/apis/.

10. Client Side. 2011. Date of retrieval,   http://www.worldwideweb-x.com/client-side-and-server-side-technologies.html.

11. Localization & Translation. Date of retrieval,   https://developers.facebook.com/docs/internationalization/.

12. Facebook Platform Policies/Principles. Date of retrieval, https://developers.facebook.com/policy/.

13. Announcing Facebook Connect. Date of retrieval, https://developers.face-book.com/blog/post/2008/05/09/announcing-facebook-connect/.

14. Developing Facebook Connect Application using ASP.NET. Date of retrieval, http://www.codeproject.com/Articles/73848/Developing-Facebook-Connect-Application-using-ASP.

15. App on Facebook.com. Date of retrieval, https://developers.face-book.com/docs/appsonfacebook/tutorial/.

16. Social Plugins. Date of retrieval, https://developers.face-book.com/docs/plugins/.

17. Inspect and Adapt. Date of retrieval, http://carlfrendo.blog-spot.fi/2012/04/week-6-server-side-technologies-used-by.html.

18. Getting Started with the Facebook SDK for JavaScript. Date of retrieval, https://developers.facebook.com/docs/javascript/gettingstarted/

19. Facebook platform changelog. Date of retrieval 11.11.2015 https://developers.facebook.com/docs/apps/changelog.

20. Taylor, Bret. 2010. The Next Evolution of Facebook Platform. Date of retrieval, https://developers.facebook.com/blog/post/377/.

21. Goldman, Brent. 2010. Platform Dialogs, Reloaded. Date of retrieval, https://developers.facebook.com/blog/post/437/.

22. Getting Started: The Graph API. Date of retrieval, https://developers.face-book.com/docs/getting-started/graphapi/.

23. Open Graph Overview. Date of retrieval, https://developers.face-book.com/docs/opengraph/overview/.

24. Client Side Technologies. Date of retrieval, http://www.tconsult.com/web-site_internet_faq/client_side.aspx d

25. Facebook SDK v5 for PHP. Date of retrieval 30.10.2015 https://developers.facebook.com/docs/reference/php/5.0.0.

26. Register and Configure an App. Date of retrieval 30.10.2015 https://developers.facebook.com/docs/apps/register

27. Chat API. Date of retrieval 02.11.2015 https://developers.facebook.com/docs/chat.

28. Social plugins. Date of retrieval 02.11.2015 https://developers.facebook.com/docs/plugins

29. APIs and SDKs. Date of retrieval 03.11.2015 https://developers.facebook.com/docs/apis-and-sdks#third-party-sdks

30. Facebook Query Language (FQL) Overview. Date of retrieval 04.11.2015 https://developers.facebook.com/docs/technical-guides/fql

31. Lewis Mike. 2015. Qloud and Facebook's platform (9 of 14). Date of retrieval 15.10.2015 http://loo.me/tag/facebook-platform/.

32. Chowdhur, Shahriar Iqbal. 2010. Developing an application for Facebook. Date of retrieval 02.10.2015 http://www.codeproject.com/Articles/73848/Developing-Facebook-Connect-Application-using-ASP.

33. Dialogs. Date of retrieval 02.10.2015 https://developers.facebook.com/docs/javascript/reference/FB.ui

34. Facebook-android-sdk. Date of retrieval 05.11.2015 https://github.com/facebook/facebook-android-sdk/blob/master/facebook/src/main/java/com/facebook/AccessToken.java.

35. Facebook SDK for Android. Date of retrieval 05.11.2015 https://developers.facebook.com/docs/android.

APPENDICES

Appendices 1 Facebook Application Development Process Chart

Appendices 2 Facebook Application Development Guide

Appendices 3 Demo Application Code - SanaPeli
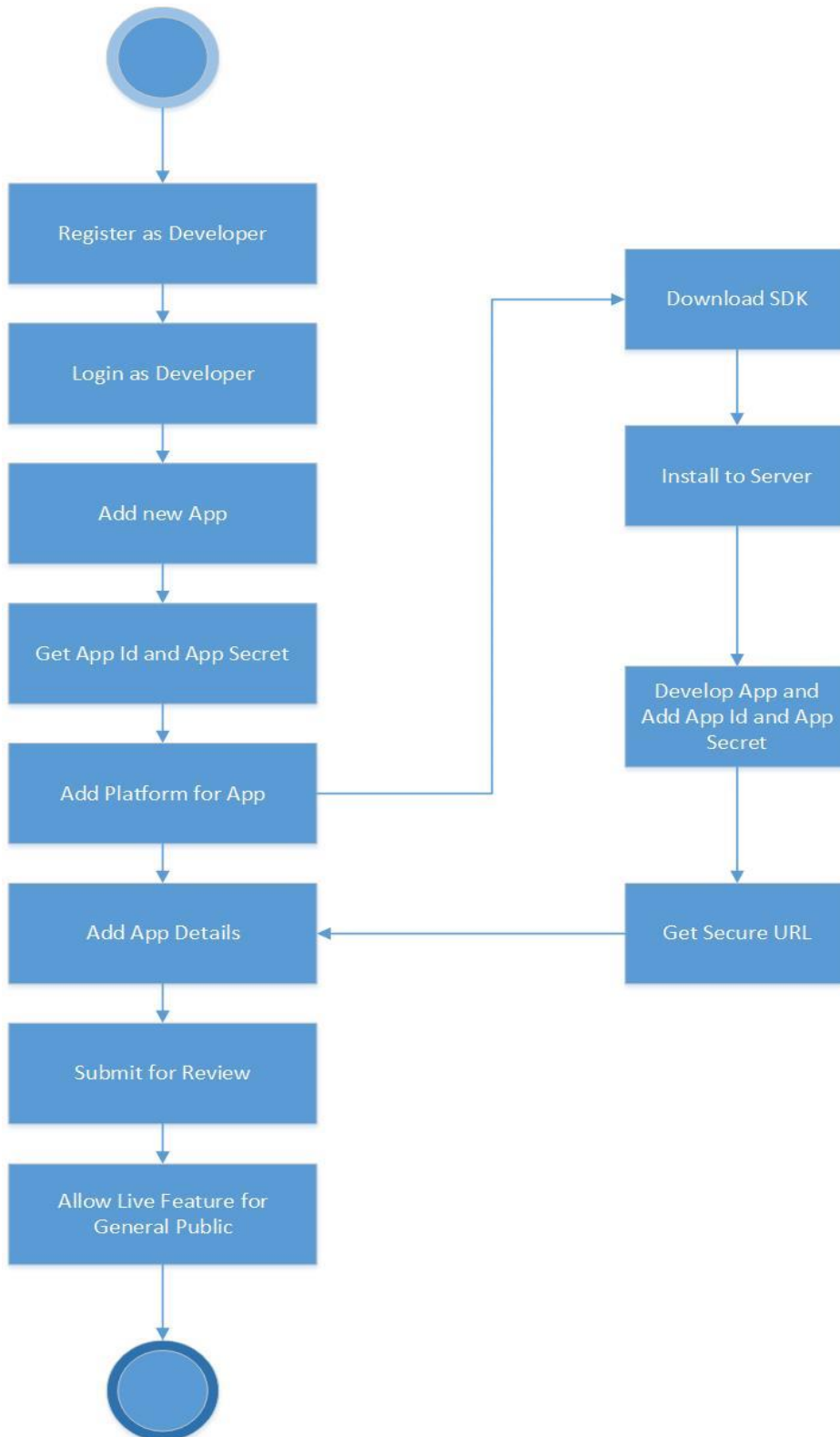
Appendices 4 SanaPeli's Screenshot

FIGURE 26. Facebook application development chart

FIGURE 27. Facebook main screen

1. Facebook signup Screen
    a. Register as a Facebook user
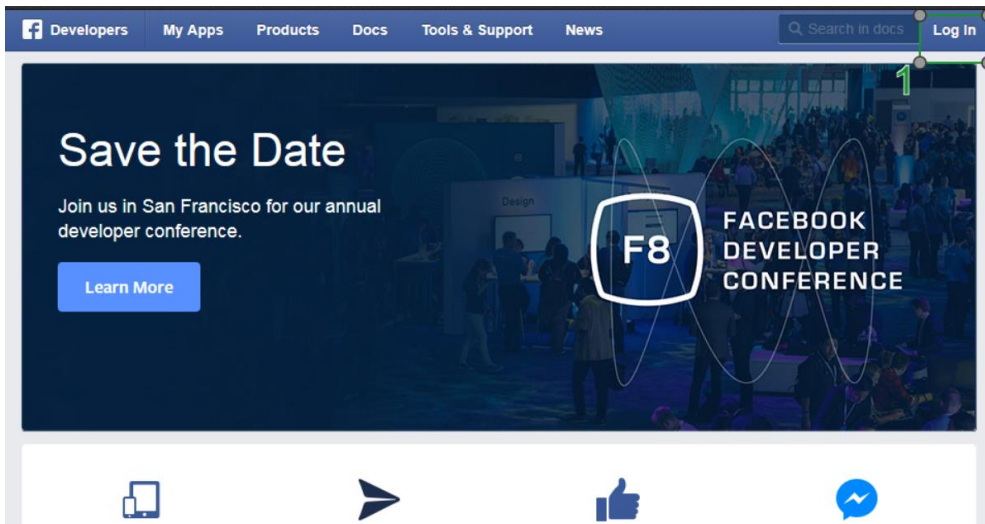2. Click to login screen for developer

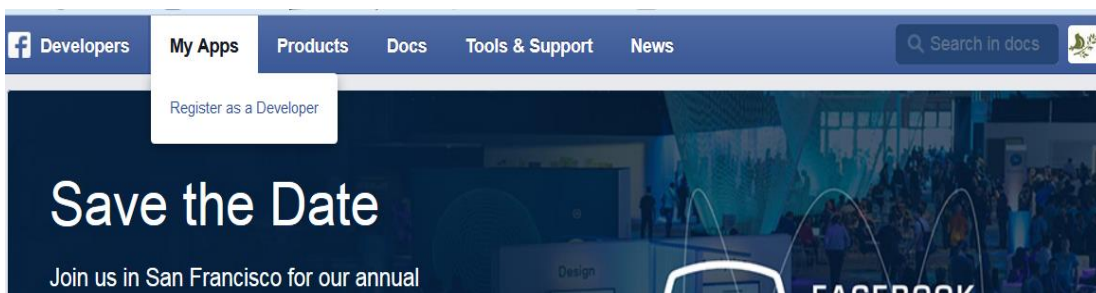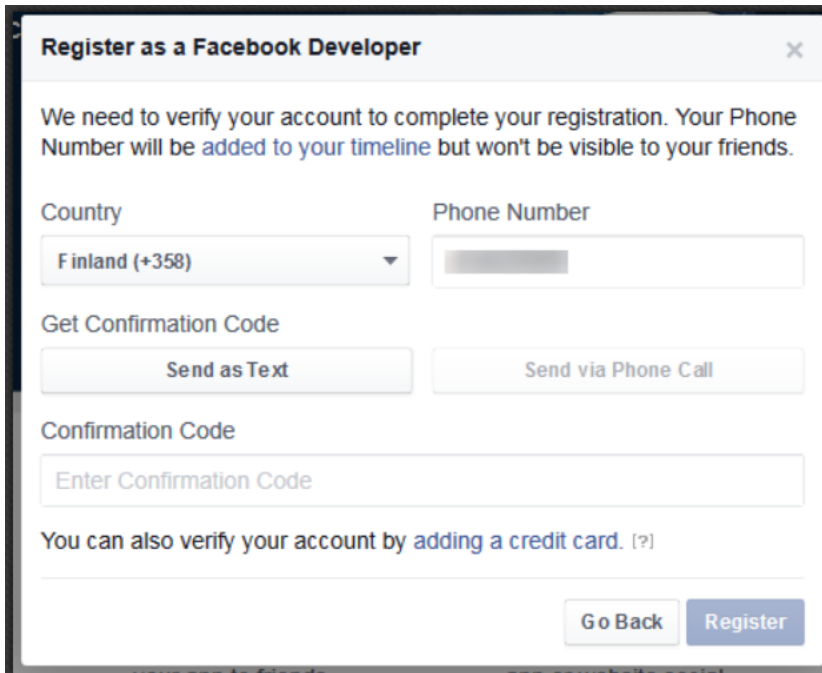*FIGURE 28. Facebook developer's login screen*

1. Click to login as developer

FIGURE 29. Registering as a developer

FIGURE 30. Accept Facebook platform policy

FIGURE 310. Register as a Facebook developer screen

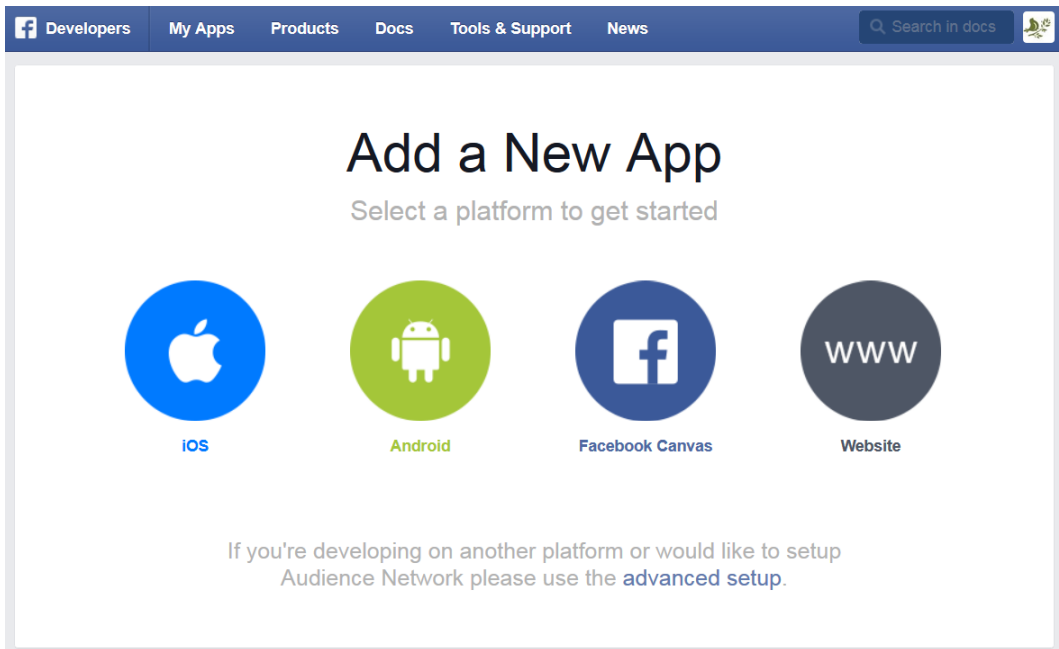*FIGURE 32. Confirmation of registration as a Facebook developer*

FIGURE 33. Developer main screen
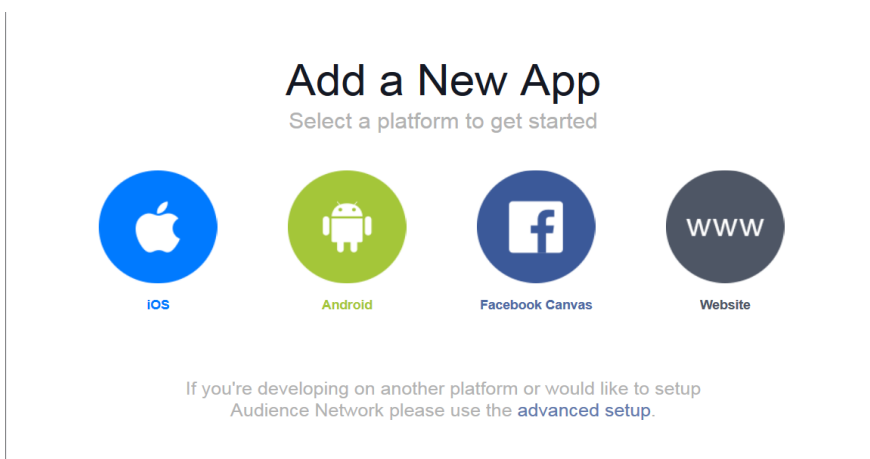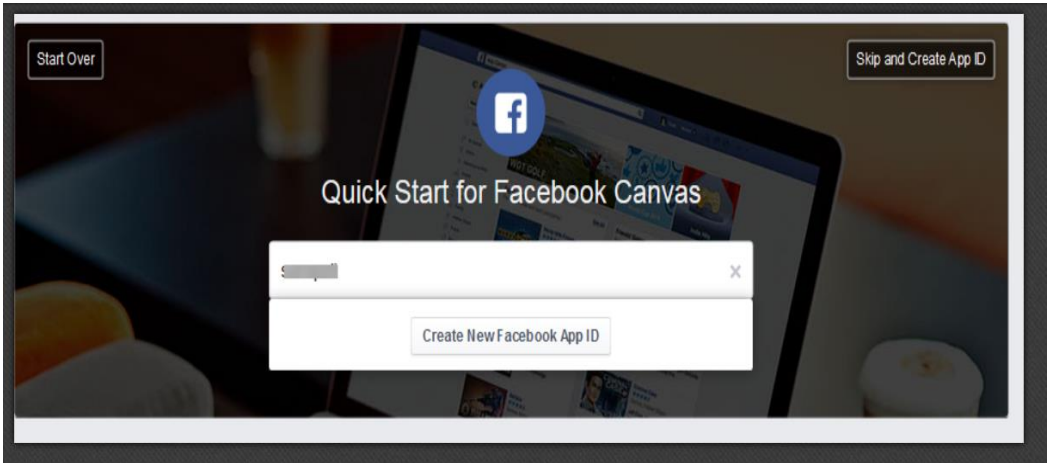

FIGURE 34. Add a new app

FIGURE 35. Select platform
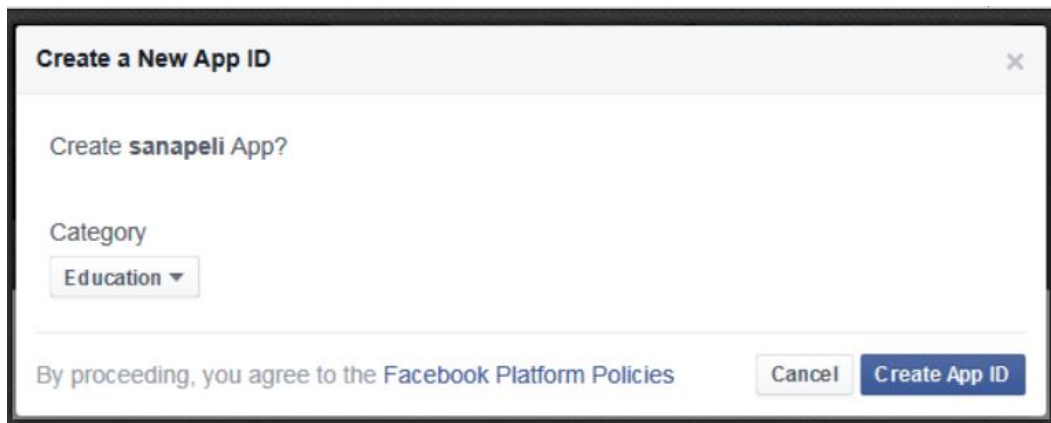
FIGURE 36. Assign unique name to app

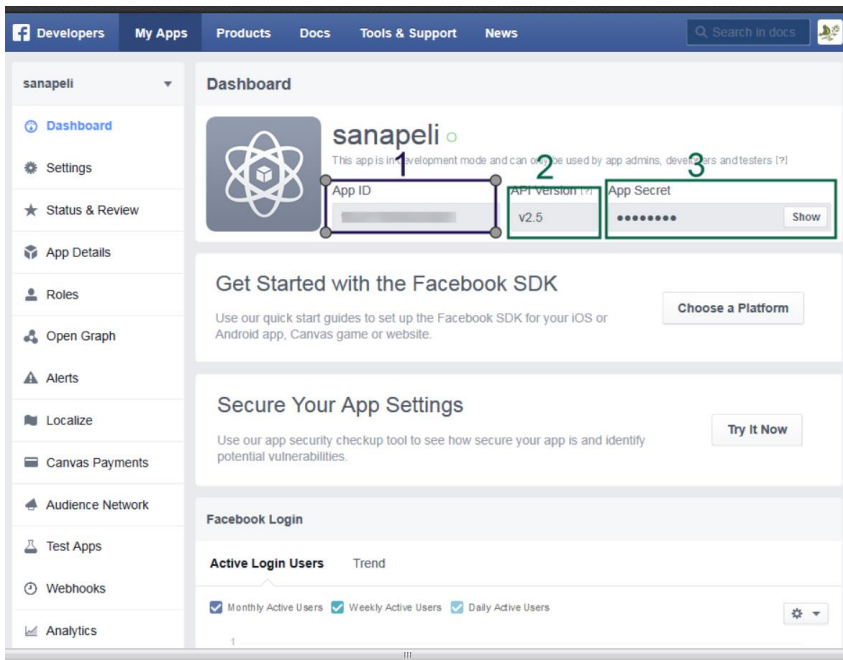*FIGURE 37. Select apps category and create app id*

FIGURE 38. App dashboard

1. App Id (Require in app development)

2. Version

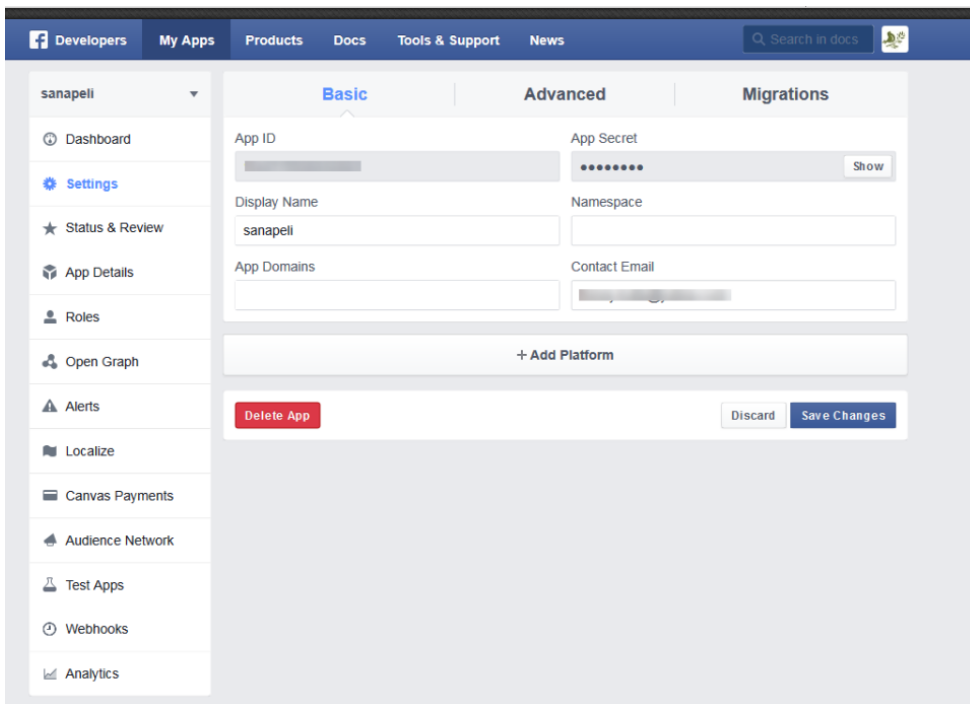3. App Secret (Require in app development)
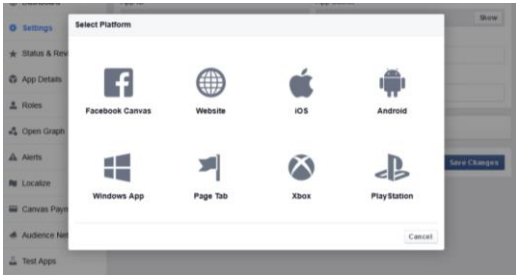

FIGURE 39. App setting

6

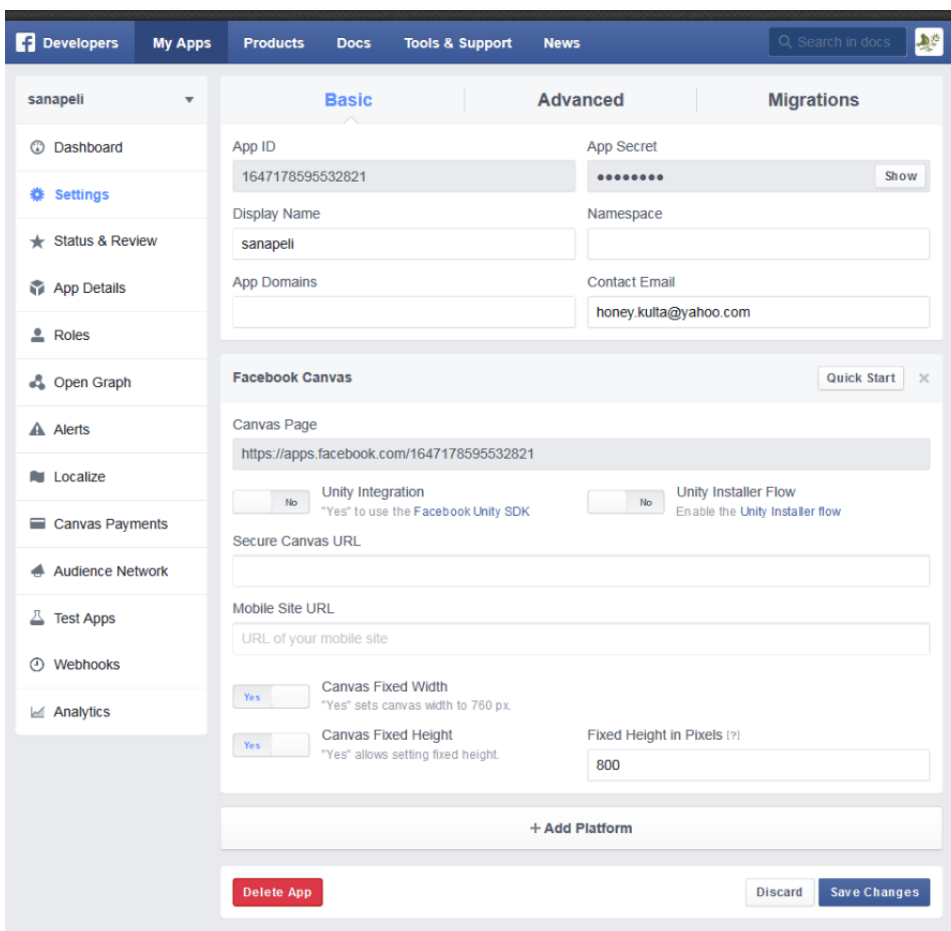FIGURE 40. Add platform for app (Canvas platform selected)
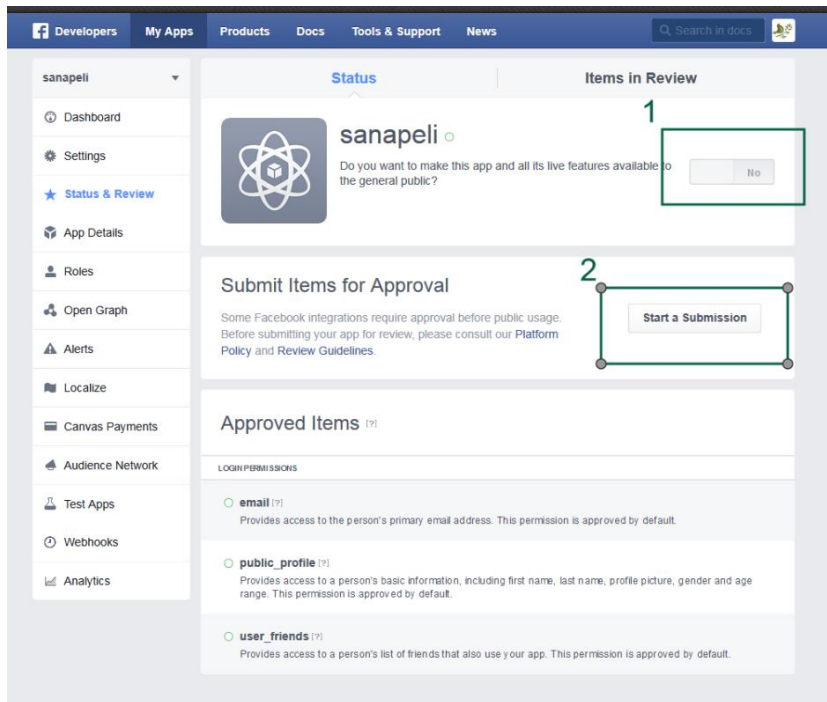

FIGURE 411. App setting with apps canvas page

FIGURE 42. App status

1. Allow app features available to the general public
2. Submit app for approval
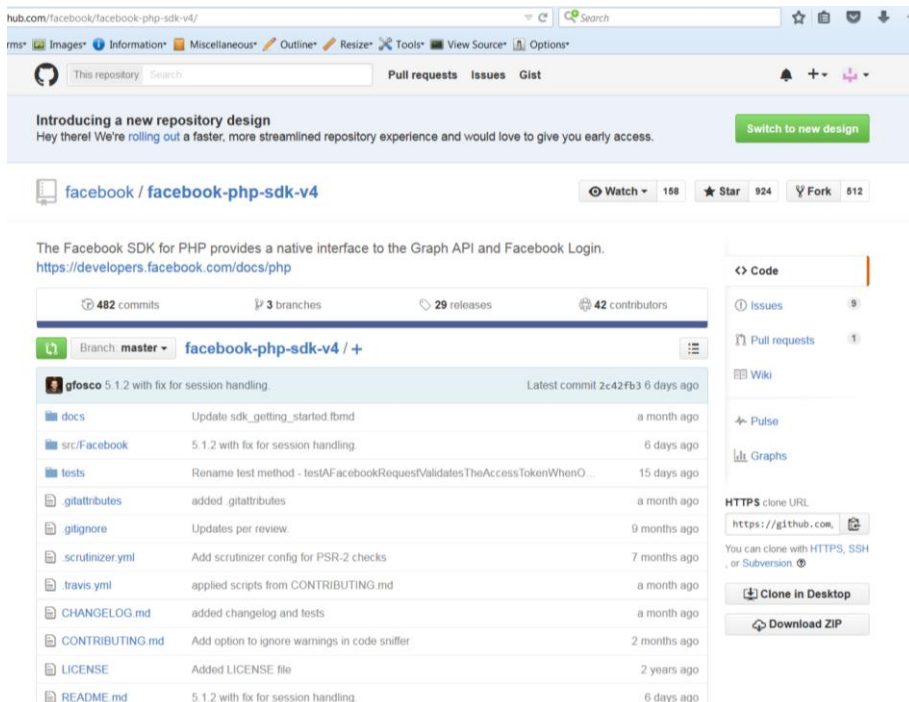
FIGURE 43. PHP SDK from GitHub

Simple Tips to create secure URL in Localhost

SSL Setup on XAMPP

Simple steps to generate a SSL Certificate

Go to command prompt, **c:\xampp\apache\bin** and try out the be-
low commands and you are done   with SSL setup

Step 1: Generating a Public Key

openssl genrsa -des3 -out server.key 1024

Step 2: Generate a CSR (Certificate Signing Request)

openssl req -new -key server.key -out server.csr -config
"c:\xampp\apache\conf\openssl.cnf"

Note: if openssl.cnf file is not found, please download it from the
apache website or just google it.

Step 3: Remove Passphrase from Key

copy server.key server.key.org
openssl rsa -in server.key.org -out server.key

Step 4: Generating a Self-Signed Certificate

openssl x509 -req -days 365 -in server.csr -signkey
server.key -out server.crt

Step 5: Installing the Private Key and Certificate

copy server.crt C:\xampp\apache\conf\ssl.crt

copy server.key C:\xampp\apache\conf\ssl.key

Step 6: Configuring SSL Enabled Virtual Hosts

c:\xampp\apache\conf\

```
<VirtualHost *:443>
    DocumentRoot "d:/xampp/htdocs/"
    ServerName localhost
    ServerAlias
    SSLEngine On
    SSLCertificateFile "d:/xampp/apache/conf/ssl.crt/server.crt"
    SSLCertificateKeyFile "d:/xampp/apache/conf/ssl.key/server.key"

    <Directory "d:/xampp/htdocs/">
        Options All
        AllowOverride All
        order allow,deny
        allow from all
    </Directory>
</VirtualHost>
```

FIGURE 44. Virtual host C:\xampp\apache\conf\extra

Step 7: Restart Apache and Test

C:\xampp\apache_stop.bat

C:\xampp\apache_start.bat

10

index.php

```php
<?php

session_start();

require_once( 'Facebook/HttpClients/FacebookHttpable.php' );

require_once( 'Facebook/HttpClients/FacebookCurl.php' );

require_once( 'Facebook/HttpClients/FacebookCurlHttpClient.php' );

require_once( 'Facebook/Entities/AccessToken.php' );

require_once( 'Facebook/Entities/SignedRequest.php');

require_once( 'Facebook/FacebookSession.php' );

require_once( 'Facebook/FacebookSignedRequestFromInputHelper.php');

require_once( 'Facebook/FacebookCanvasLoginHelper.php');

require_once( 'Facebook/FacebookRedirectLoginHelper.php' );

require_once( 'Facebook/FacebookRequest.php' );

require_once( 'Facebook/FacebookResponse.php' );

require_once( 'Facebook/FacebookSDKException.php' );

require_once( 'Facebook/FacebookRequestException.php' );

require_once( 'Facebook/FacebookOtherException.php' );

require_once( 'Facebook/FacebookAuthorizationException.php' );

require_once( 'Facebook/GraphObject.php' );

require_once( 'Facebook/GraphUser.php');

require_once( 'Facebook/GraphSessionInfo.php' );

use Facebook\HttpClients\FacebookHttpable;
```

```php
use Facebook\HttpClients\FacebookCurl;

use Facebook\HttpClients\FacebookCurlHttpClient;

use Facebook\Entities\AccessToken;

use Facebook\Entities\SignedRequest;

use Facebook\FacebookSession;

use Facebook\FacebookSignedRequestFromInputHelper;

use Facebook\FacebookCanvasLoginHelper;

use Facebook\FacebookRedirectLoginHelper;

use Facebook\FacebookRequest;

use Facebook\FacebookResponse;

use Facebook\FacebookSDKException;

use Facebook\FacebookRequestException;

use Facebook\FacebookOtherException;

use Facebook\FacebookAuthorizationException;

use Facebook\GraphObject;

use Facebook\GraphUser;

use Facebook\GraphSessionInfo;

$facebook = FacebookSession::setDefaultApplica-
tion('1647178595532821','63d4af3c8204b764e19f223651928f38');

$helper = new FacebookCanvasLoginHelper();

try {

        $session = $helper->getSession();

} catch (FacebookRequestException $ex) {

        echo $ex->getMessage();

} catch (\Exception $ex) {
```

2

```php
            echo $ex->getMessage();

}

if ($session) {

try {

            $request = new FacebookRequest($session, 'GET', '/me');

                    $response = $request->execute();

                    $me = $response->getGraphObject();

                    //echo $me->getProperty('id');

                    $ses_id = $me->getProperty('id');

                    // To get token

                    $test_id = $session->getToken();

                    //echo $test_id;

?>
```

```html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<title>Facebook Apps - Thesis</title>

<link rel="stylesheet" type="text/css" href="css/style.css" />

</head>

<body>

<div id="page-wrap">

<h1>Facebook Apps - Thesis</h1>

<form action="grade.php" method="post" id="quiz">
```

3

```
<ol>

   <li>

    <h3>OAMK Stands for...</h3>

    <div>

        <input type="radio" name="q1a" id="q1aa" value="A" />

        <label for="q1aa">A) Oulu University of Applied Science </label>

      </div>

      <div>

        <input type="radio" name="q1a" id="q1ab" value="B" />

        <label for="q1ab">B) Oulun Ammattikorkeakoulu</label>

      </div>

      <div>

        <input type="radio" name="q1a" id="q1ac" value="C" />

        <label for="q1ac">C) Oulu Ammatti Koulu</label>

      </div>

      <div>

        <input type="radio" name="q1a" id="q1ad" value="D" />

        <label for="q1ad">D) None of the above</label>

      </div>

    </li>

    <li>

      <h3>OAMK's Business Unit located on</h3>

      <div>

        <input type="radio" name="q2a" id="q2aa" value="A" />

        <label for="q2aa">A) Kaukovainio</label>
```

4

```
      </div>


      <div>

         <input type="radio" name="q2a" id="q2ab" value="B" />

         <label for="q2aa">B) Raksila</label>

      </div>

      <div>

         <input type="radio" name="q2a" id="q2ac" value="C" />

         <label for="q2aa">C) Peltola</label>

      </div>

      <div>

         <input type="radio" name="q2a" id="q2ad" value="D" />

         <label for="q2ad">D) Ainolan Puisto</label>

      </div>

       </li>

        <li>
```

<h3>Who teach Facebook application development course in OAMK</h3>

```
      <div>

         <input type="radio" name="q3a" id="q3aa" value="A" />

         <label for="question-3-answers-A">A) Matti Viitala</label>

      </div>

      <div>

         <input type="radio" name="q3a" id="q3ab" value="B" />

         <label for="q3ab">B) Tapani Alakiutu</label>

      </div>
```

```
    <div>

        <input type="radio" name="q3a" id="q3ac" value="C" />

        <label for="q3ac">C) Teppo Räisänen</label>

    </div>

    <div>

        <input type="radio" name="q3a" id="q3ad" value="D" />

        <label for="q3ad">D) Jouni Vartiainen</label>

    </div>

  </li>

</ol>

<input type="submit" value="Submit Quiz" />

</form>

    </div>

</body>

</html>

<?php

        } catch(FacebookRequestException $e) {

        echo $e->getMessage();

        }

} else {

$helper = new FacebookRedirectLoginHelper('https://apps.facebook.com/the-
sisquizapp/');

        $auth_url = $helper->getLoginUrl(array('email'));

        echo "<script>window.top.location.href='".$auth_url."'</script>";

}
```

grade.php

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

        <meta http-equiv="Content-Type" content="text/html; charset=UTF-
8" />

        <title>Facebook Apps - Thesis</title>

</head>

<body>

        <div id="page-wrap">

                <h1>Final Result - Facebook Apps Thesis</h1>

    <?php

      $answer1 = $_POST['q1a'];

      $answer2 = $_POST['q2a'];

      $answer3 = $_POST['q3a'];

      $totalCorrect = 0;

      if ($answer1 == "B") { $totalCorrect++; }

      if ($answer2 == "B") { $totalCorrect++; }

      if ($answer3 == "C") { $totalCorrect++; }
```

```
        echo "<div id='results'><h3>You have $totalCorrect / 3 correct

</h3></div> <br>";

echo "<A HREF='javascript:history.go(0)'>Start Quiz Again</A>";

    ?>

</div>

</body>

</html>
```
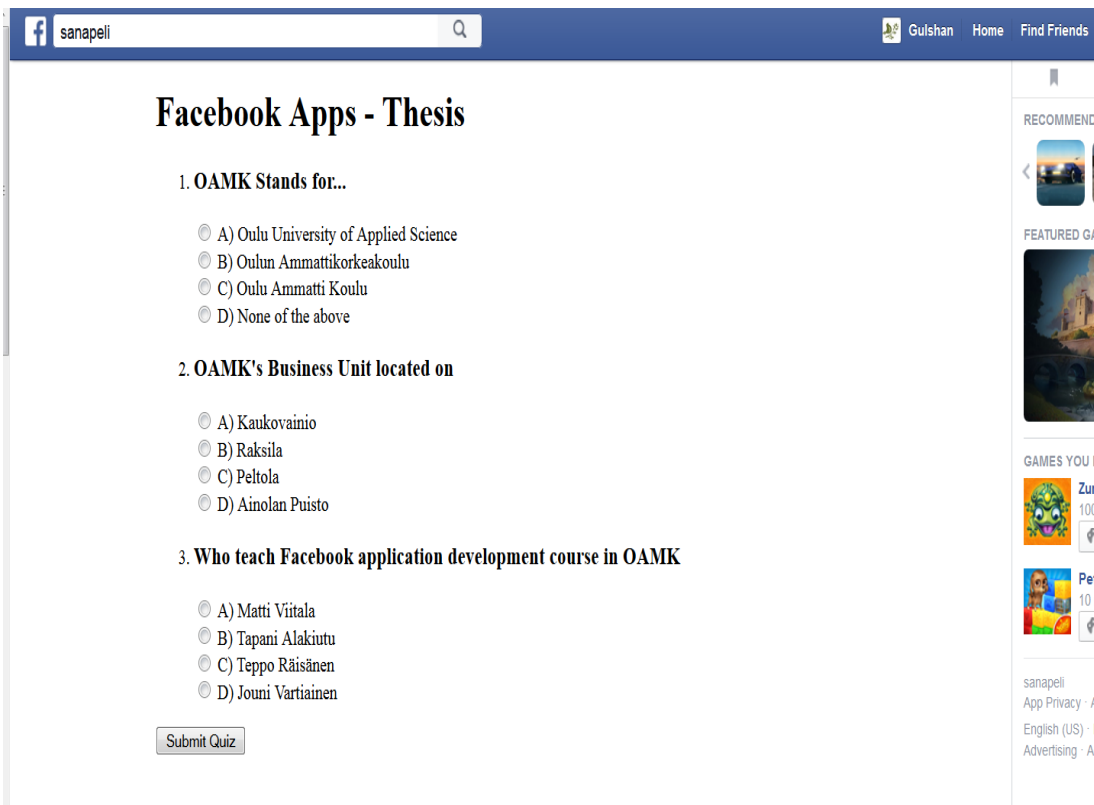
FIGURE 45. SanaPeli's main screen

FIGURE 46. Sanapeli's result screen