Software Security - OAuth Framework

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Case: Sign-up to the PHP Webpage using Google OAuth 2.0

OAuth 2.0

OAuth is a framework simply use for authorization and give access to users to verify their identity on other 3rd party applications like web pages / mobile applications or desktop applications. With this authorization method developers are found various ways to give access to using API like Facebook/ Google/ GitHub etc. by means of OAuth, providing the user's confirmed identification.

OAuth have 3 level of defines

- Client (Resource Owner)
- Application Server (Resource)
- Authorization Server (API Server)

Client

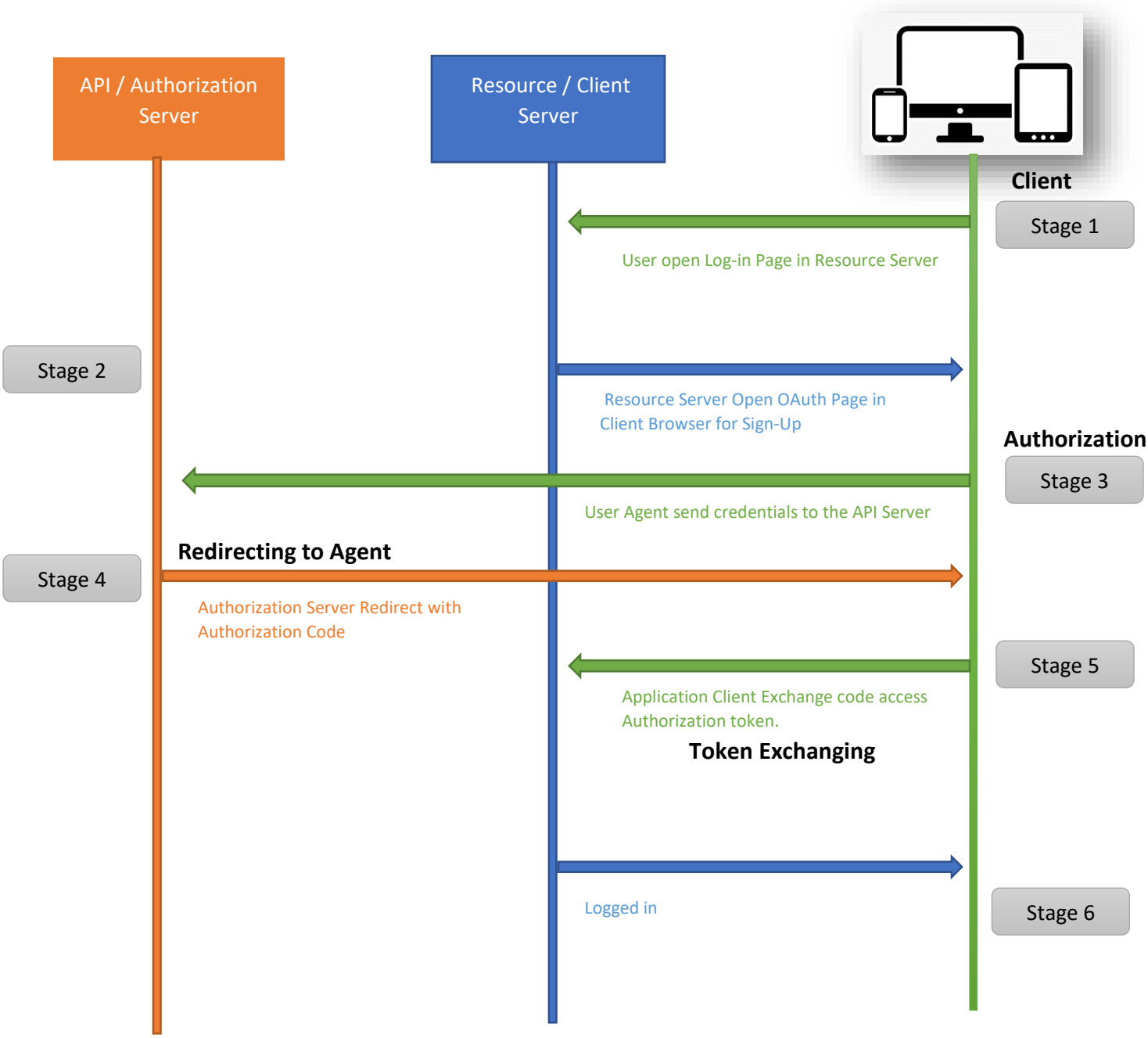
The resource owner who need to verify on desired application to access using their limited access details from trusted API party.

Resource / Client Server

The 3rd party application server that hosting application and keep User's credentials and giving access using API framework.

API server (Authorization)

Recourse server that giving limited user information access to the 3rd party applications.

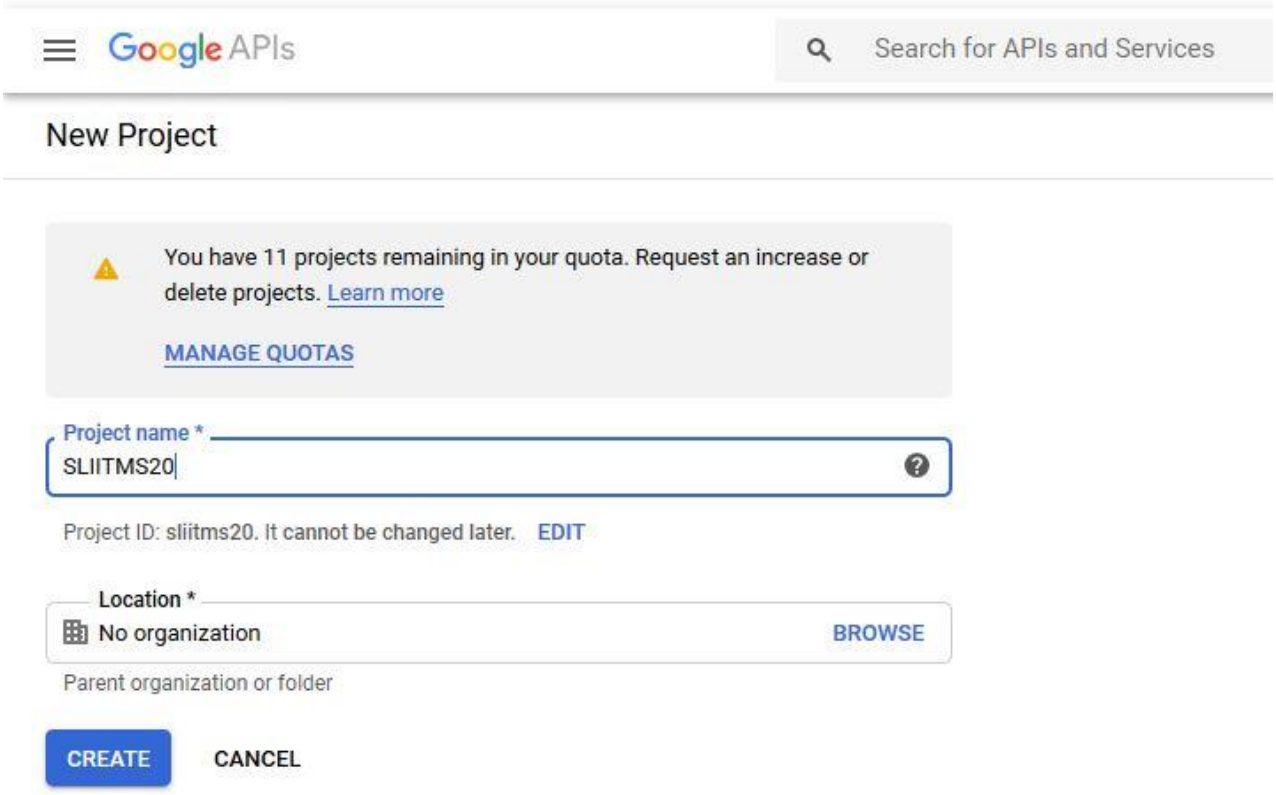

API / Authorization Server
Resource / Client Server
Client
Stage 1
User open Log-in Page in Resource Server
Stage 2
Resource Server Open OAuth Page in Client Browser for Sign-Up
Authorization
Stage 3
User Agent send credentials to the API Server
Redirecting to Agent
Stage 4
Authorization Server Redirect with Authorization Code
Stage 5
Application Client Exchange code access Authorization token.
Token Exchanging
Logged in
Stage 6

- **Stage 01:** User Open Agent to Login to the Resource Server.
- **Stage 02**: Resource Server Redirect OAuth Login to User
- **Stage 03**: User send Credentials to Authorization Server.
- **Stage 04**: Authorization Server returns with code (Limited details) with redirection.
- **Stage 05**: Agent use access token to authorized Resource Server
- **Stage 06:** User Logged in

Creating Google OAuth ID

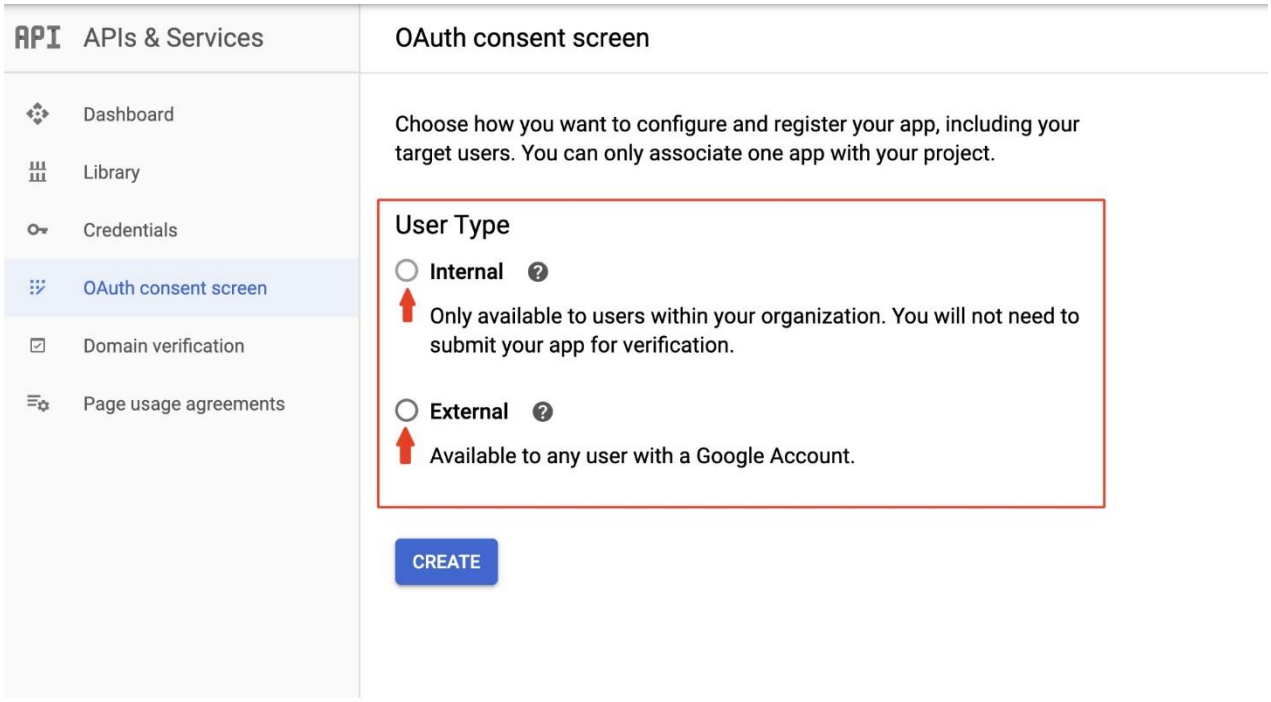
To access the Google API Service first you need to have Gmail Account or GSuite Account, then you must access Google Developer API Platform from below link.

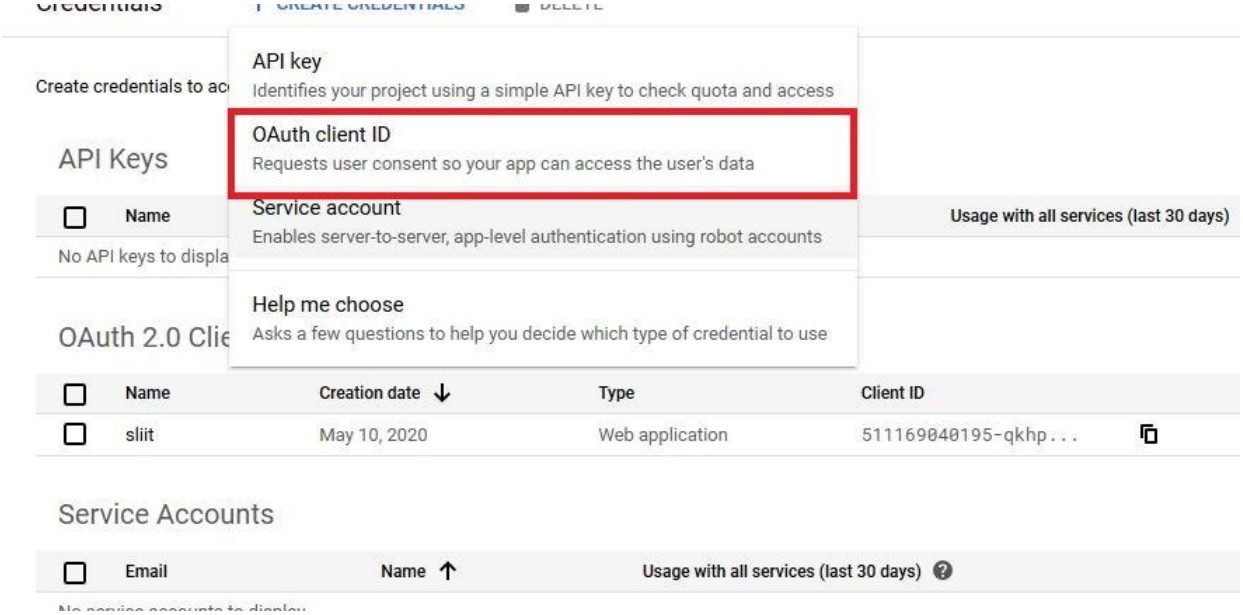
https://console.developers.google.com/



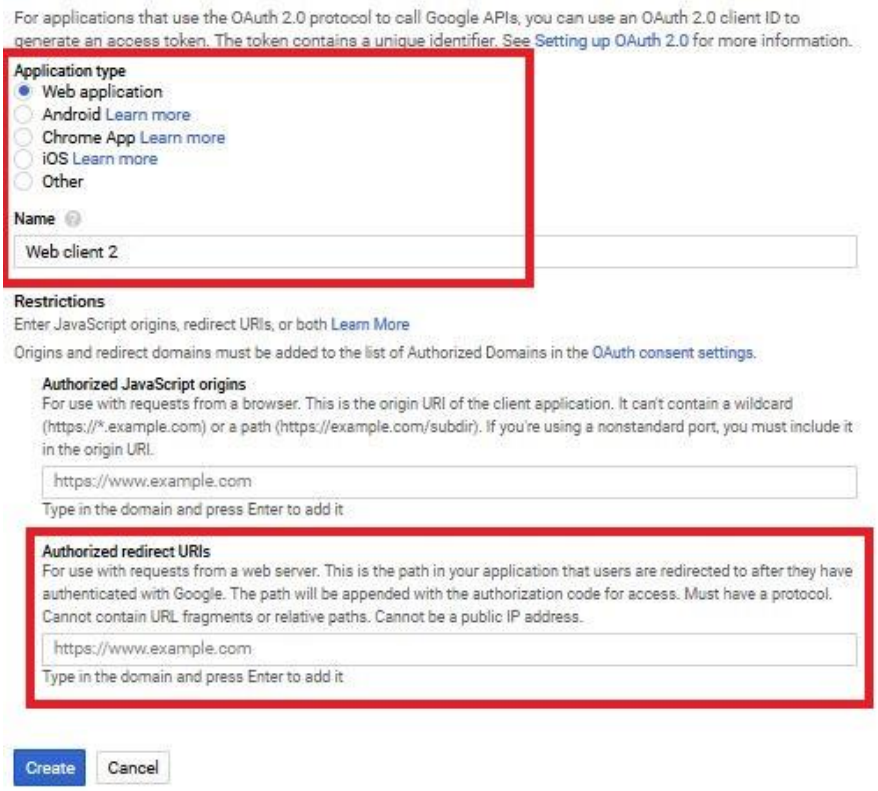
Once login to the API Service we need to create a New Project & Giving a Name

After creating a New Project, we must select the privacy level of the Project. If we are using our application among our organization, we must select internal else we can select external that enabled any domain name can access it.

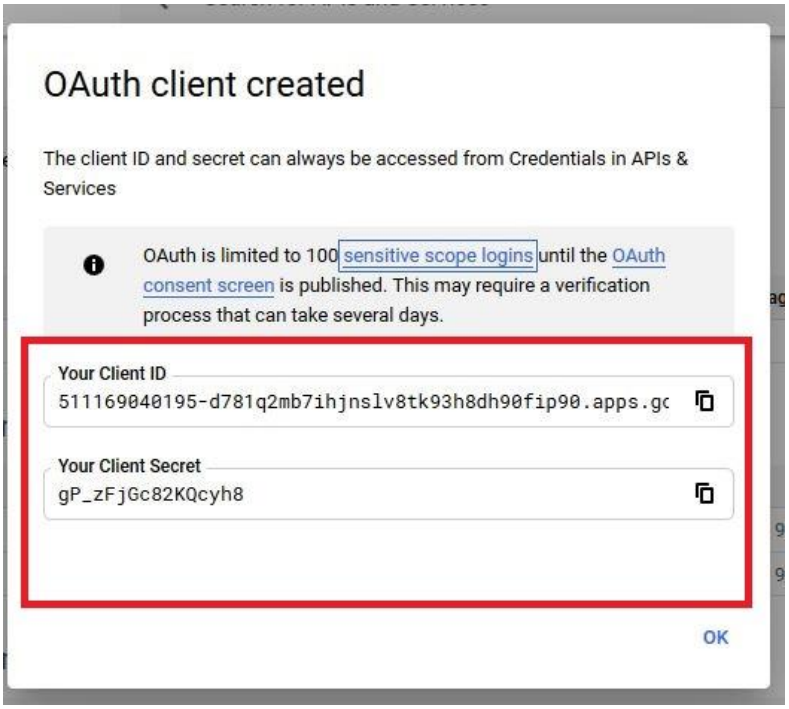




After selecting the Environment, we need to have create OAuth Client ID using Create Credential Tab



We need to select Application from first windows & Type the project Authorized Redirect URI for mapping specific application to Google API.

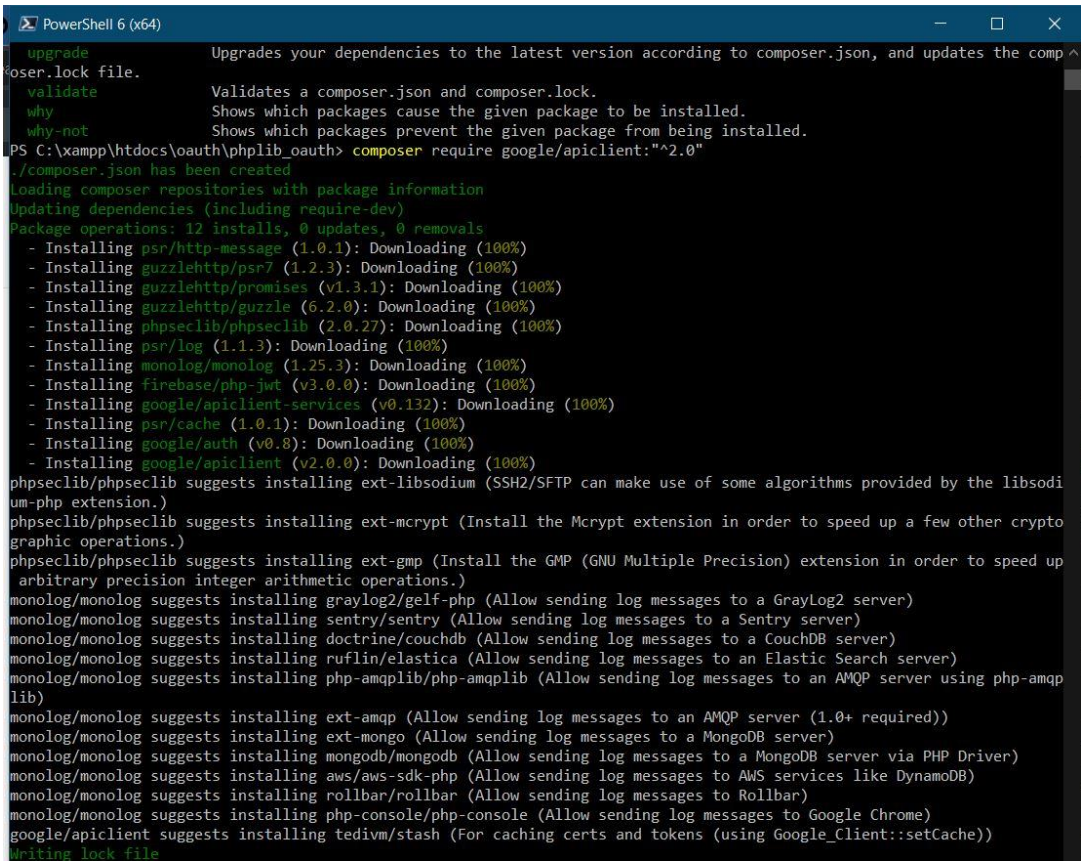


Once OAuth Client Created Client ID and Secret will be show. We must save it for future use.

Then composer need to install for to the Project Folder to call the Scripts Packages.

PowerShell Command

composer require google/apiclient:"^2.0"



API Client Adding to PHP Code

```
6
7   //OAuth Client ID
8
9   $google_client->setClientId('511169040195-qkhpdmr7pbddiuts0fobkursvmr3o677.apps.googleusercontent.com');
10
11  //OAuth Client Secret key
12
13  $google_client->setClientSecret('7GB8iJN49GwH3           );
14
```

Exchanging Tokens from Google API

```
if(isset($_GET["code"]))
{
//exchange a code for an valid token.

$token = $google_client->fetchAccessTokenWithAuthCode($_GET["code"]);

//checking errors occur during geting token

if(!isset($token['error']))

{
```

Profile Data Getting to the SESSION

```
//profile data and store into $_SESSION

if(!empty($data['given_name']))
{
$_SESSION['user_first_name'] = $data['given_name'];
}
if(!empty($data['family_name']))
{
$_SESSION['user_last_name'] = $data['family_name'];
}
if(!empty($data['email']))
{
$_SESSION['user_email_address'] = $data['email'];
}
if(!empty($data['gender']))
{
$_SESSION['user_image'] = $data['picture'];
}
}
```

Showing SESSION information on Page

```php
<?php
if($login_button == '')
{
echo '<div class="panel-heading">Welcome User</div><div class="panel-body">';
echo '<img src="'.$_SESSION["user_image"].'" class="img-responsive img-circle img-thumbnail" />';
echo '<h3><b>Name :</b> '.$_SESSION['user_first_name'].' '.$_SESSION['user_last_name'].'</h3>';
echo '<h3><b>Email :</b> '.$_SESSION['user_email_address'].'</h3>';
echo '<h3><a href="logout.php">Logout</h3></div>';
}
else
{
    ?>
```

Logout & Redirect to Home Page

```php
<?php
session_start();

session_destroy();

header('Location:index.php');

exit;
?>
```