

Assignment 02
Software Security – IE5042

OAuth Authorization

Implementing a web application that consumes the service of OAuth Authorization Server and OAuth Resource Server

Jayasinghe R – MS21926808
Rajarithna S B M N - MS21926112

SECTION I : Prerequisite

1. To run .php application install XAMPP or any other web server in to your computer.
2. To edit code snippet, install a Text editor (Notepad, Sublime text)

SECTION II : The Process of uploading a file to Google Drive using OAuth Authorization

a. Use XAMPP server to run the application

Start XAMPP

After XAMPP server started successfully, open the browser using the following url

<http://localhost>

b. Obtaining Credentials from the google API console

Go to Google API Console using the following link.

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

Create a new project and configure consent screen.

Here select user type as **External** and update App information.

Next generate credentials. Create OAuth client ID giving application type as Web Application and adding a suitable name.

Under the section Authorized JavaScript origins add the URI as <http://localhost>.

Under Authorized redirect URIs add the URL as our application URI as <http://localhost/ProjectGoogle/upload.html> which is our developed web application.

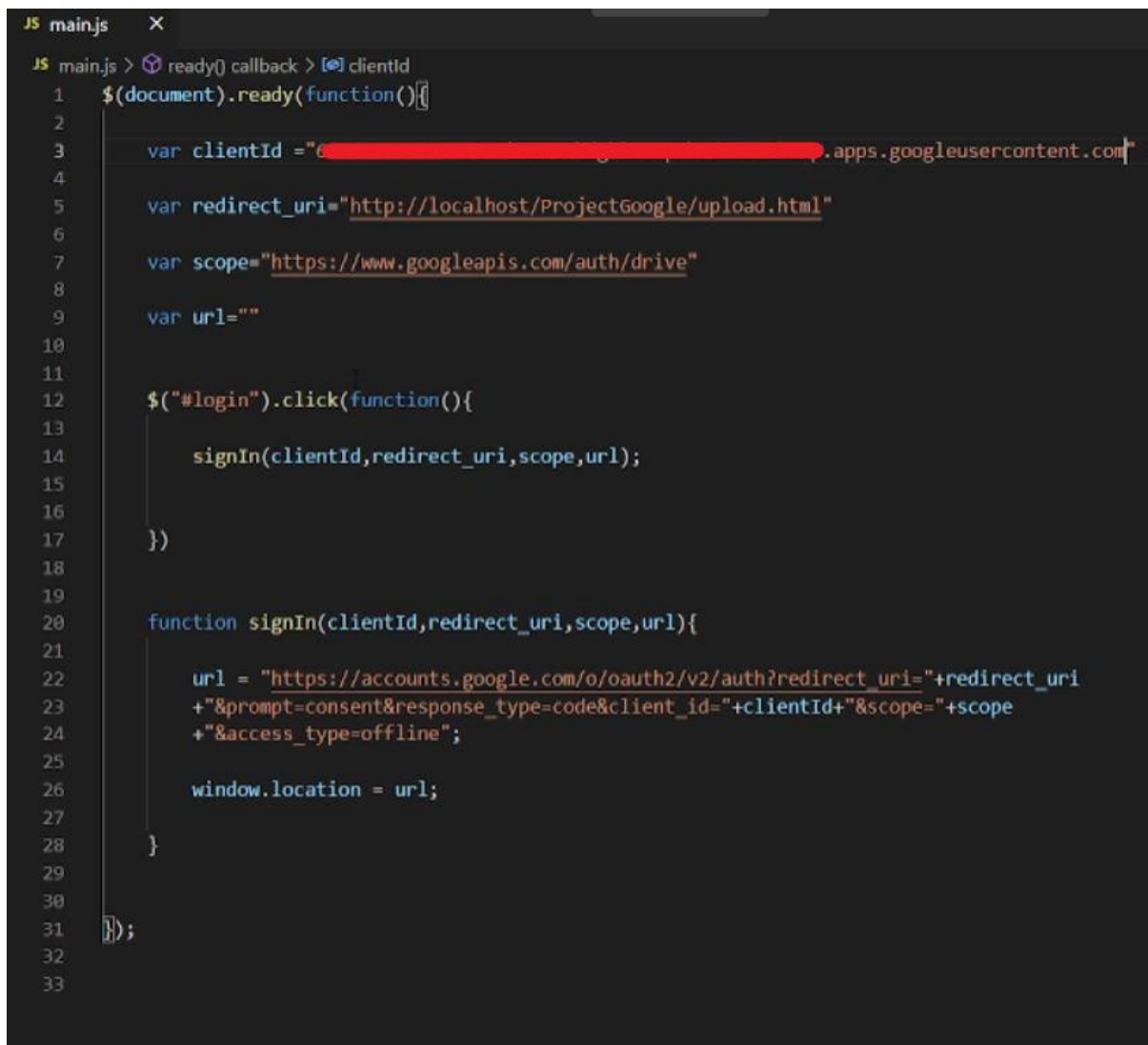
Finally Create OAuth client ID, Client Secret and save it in a separate location where it is accessible.

Go to Google Client Library. Next Enable the following APIs which are necessary for this process.

- Google Drive API
- Google+ API

c. Configure Web Application with tokens

Here, save the OAuth Client ID in .json file which is related to login and upload page as follows.

A screenshot of a code editor with a dark theme. The editor shows a JavaScript file named 'main.js'. The code is as follows:

```
1  $(document).ready(function(){
2
3      var clientId = "XXXXXXXXXXXXXXXXXXXX.apps.googleusercontent.com";
4
5      var redirect_uri = "http://localhost/ProjectGoogle/upload.html";
6
7      var scope = "https://www.googleapis.com/auth/drive";
8
9      var url = ""
10
11
12      $("#login").click(function(){
13
14          signIn(clientId,redirect_uri,scope,url);
15
16      })
17
18
19
20      function signIn(clientId,redirect_uri,scope,url){
21
22          url = "https://accounts.google.com/o/oauth2/v2/auth?redirect_uri="+redirect_uri
23              + "&prompt=consent&response_type=code&client_id="+clientId+"&scope="+scope
24              + "&access_type=offline";
25
26          window.location = url;
27
28      }
29
30
31  });
32
33
```

Next save Client Secret in .json file which is related to redirect page of the web application as follows.

JS main.js X


JS main.js > ready() callback > clientId

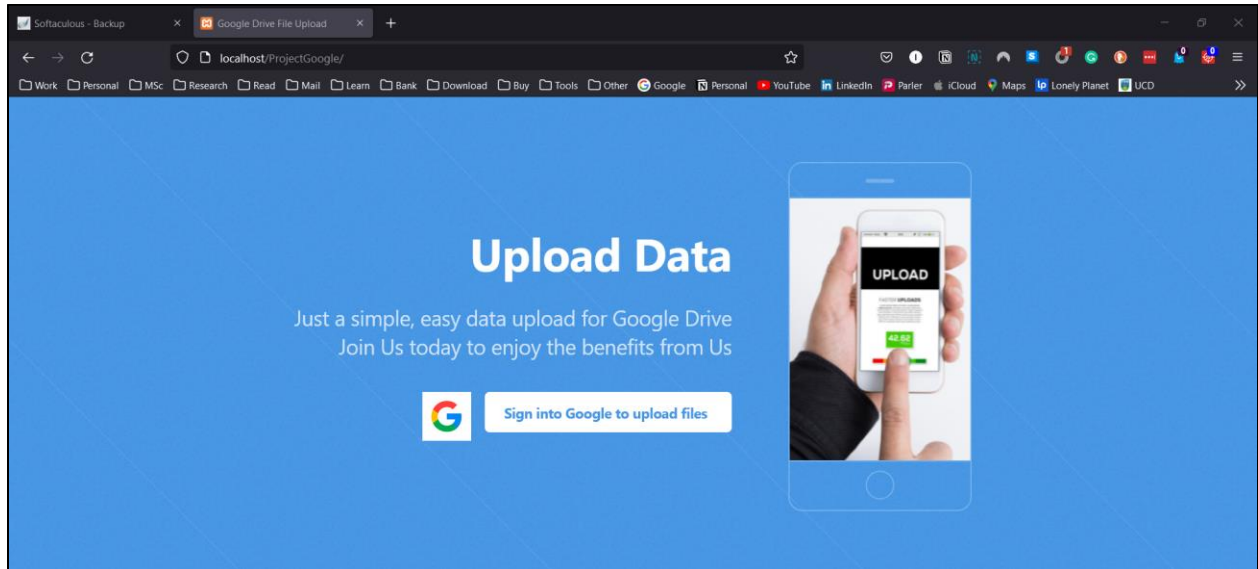
```
1  $(document).ready(function(){
2
3      var clientId = "6[REDACTED].apps.googleusercontent.com";
4
5      var redirect_uri = "http://localhost/ProjectGoogle/upload.html"
6
7      var scope = "https://www.googleapis.com/auth/drive"
8
9      var url = ""
10
11
12      $("#login").click(function(){
13
14          signIn(clientId,redirect_uri,scope,url);
15
16      })
17
18
19
20      function signIn(clientId,redirect_uri,scope,url){
21
22          url = "https://accounts.google.com/o/oauth2/v2/auth?redirect_uri="+redirect_uri
23              + "&prompt=consent&response_type=code&client_id="+clientId+"&scope="+scope
24              + "&access_type=offline";
25
26          window.location = url;
27
28      }
29
30
31  });
32
33
```

d. Publishing and Testing the Process

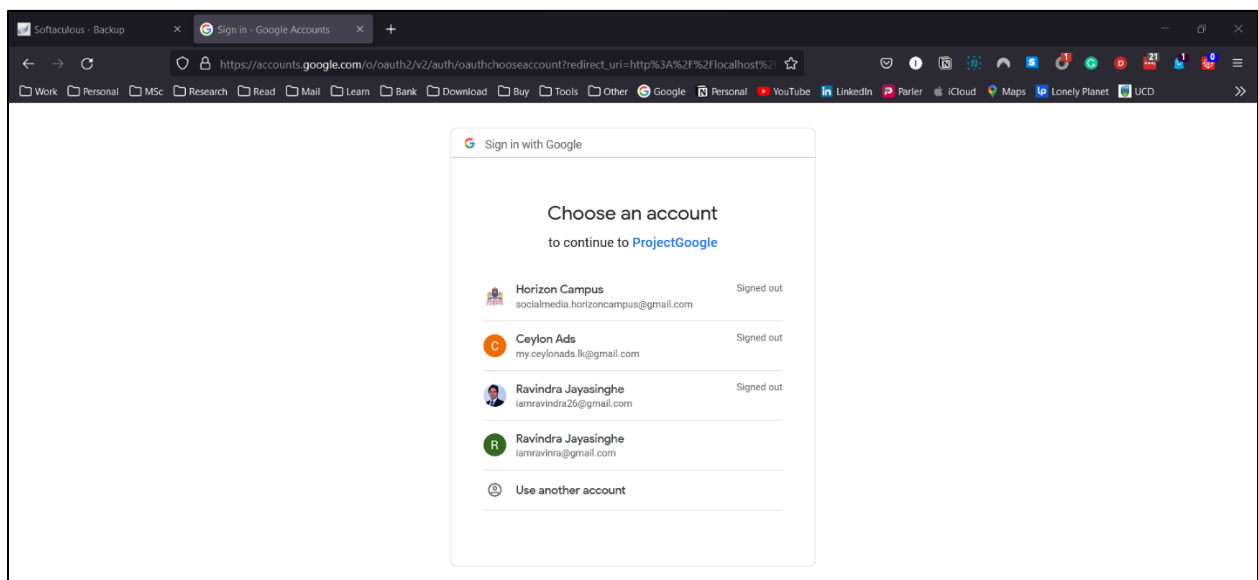
As the process still in testing mode, first need to Publish the application

Next Start testing the process.

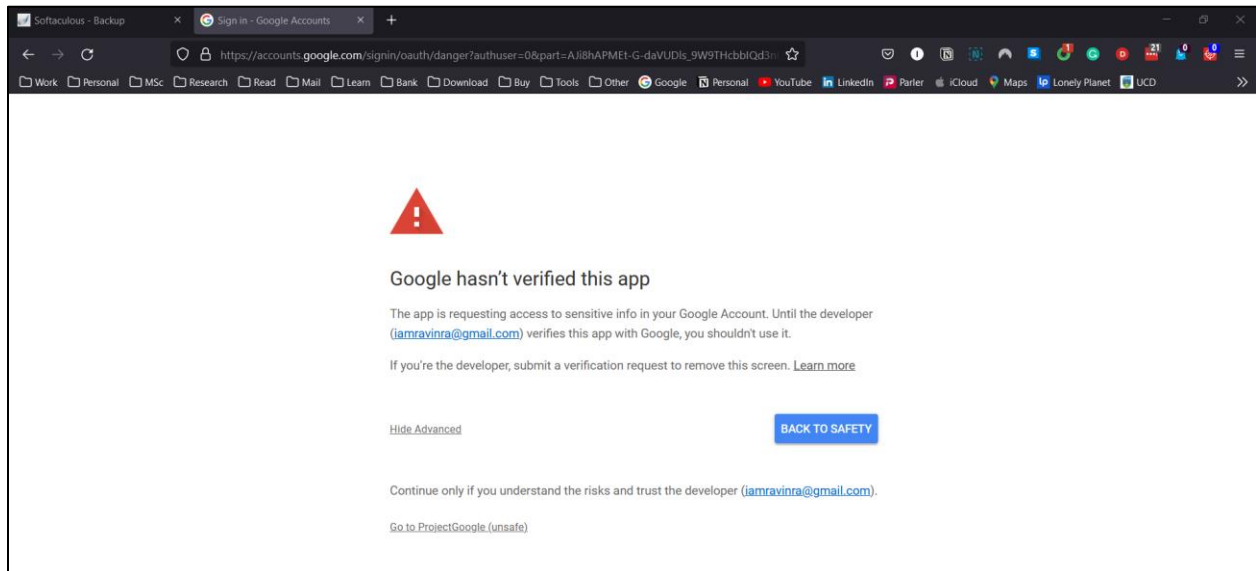
Now go to the URL <http://localhost> and click the button 



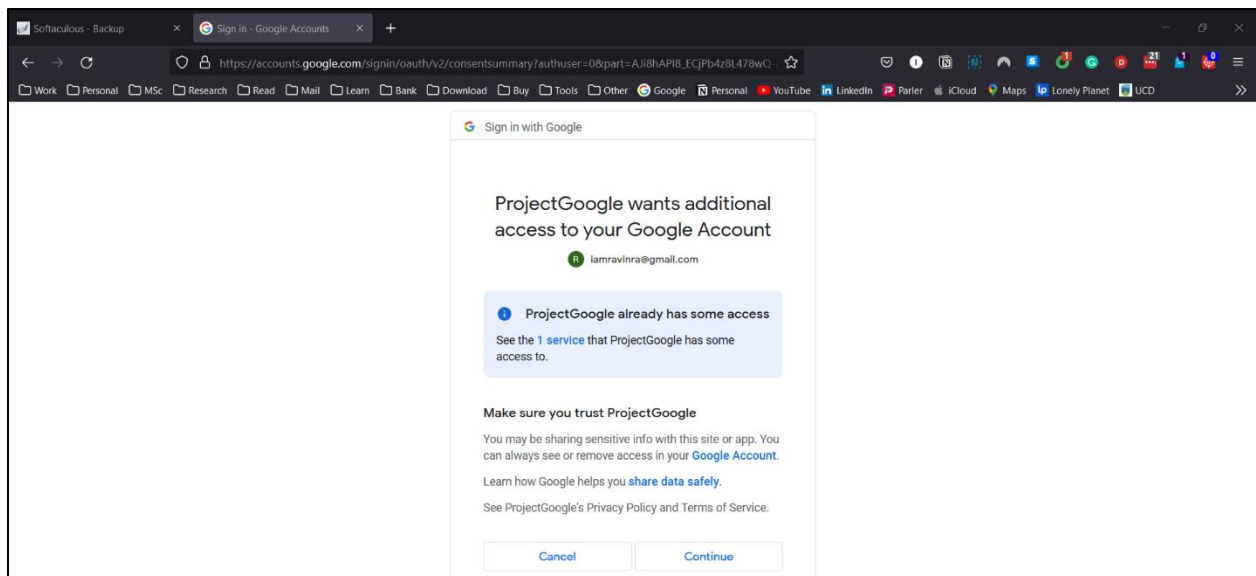
The button link moves to the Google Account Sign In page. Login to your existing Google account.



Next proceed with Google verification

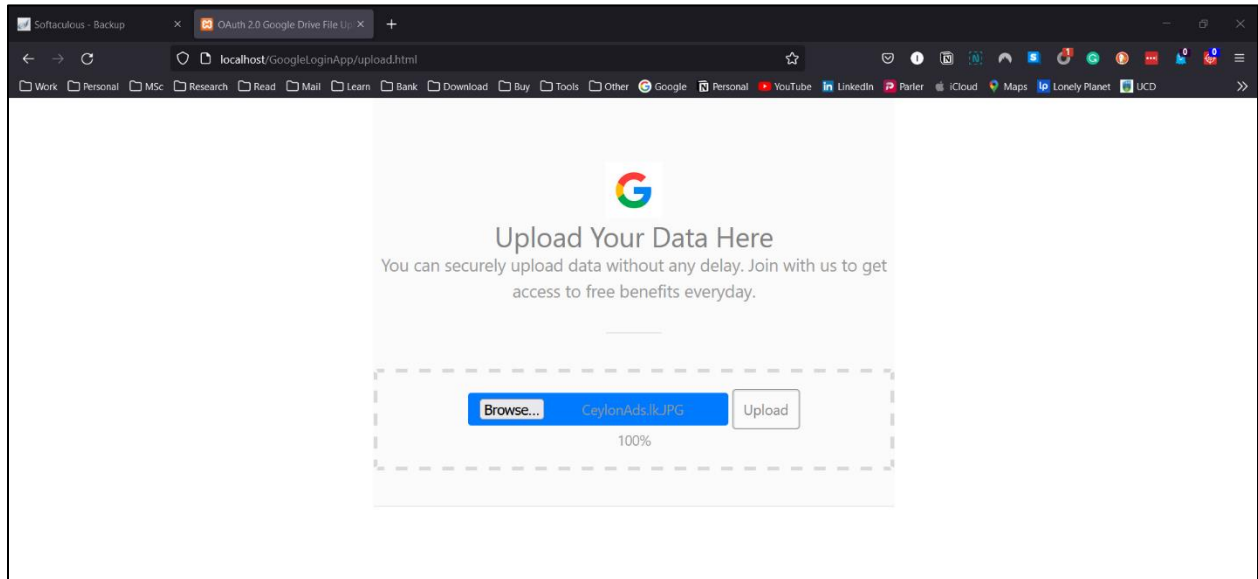


After providing requested access permission you can continue by clicking continue button.

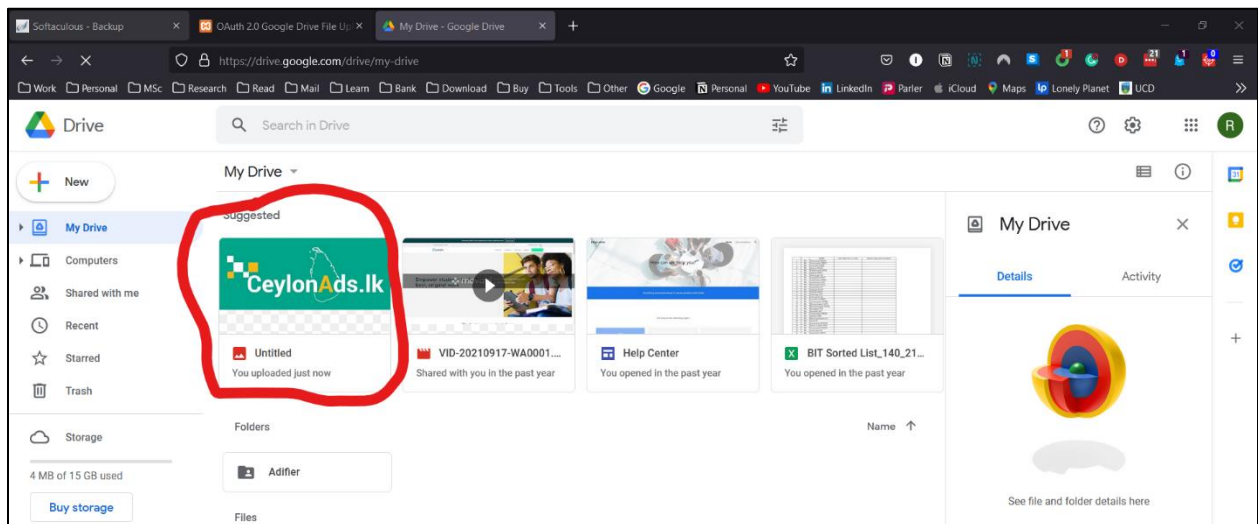


Next you will redirect to File Upload page.

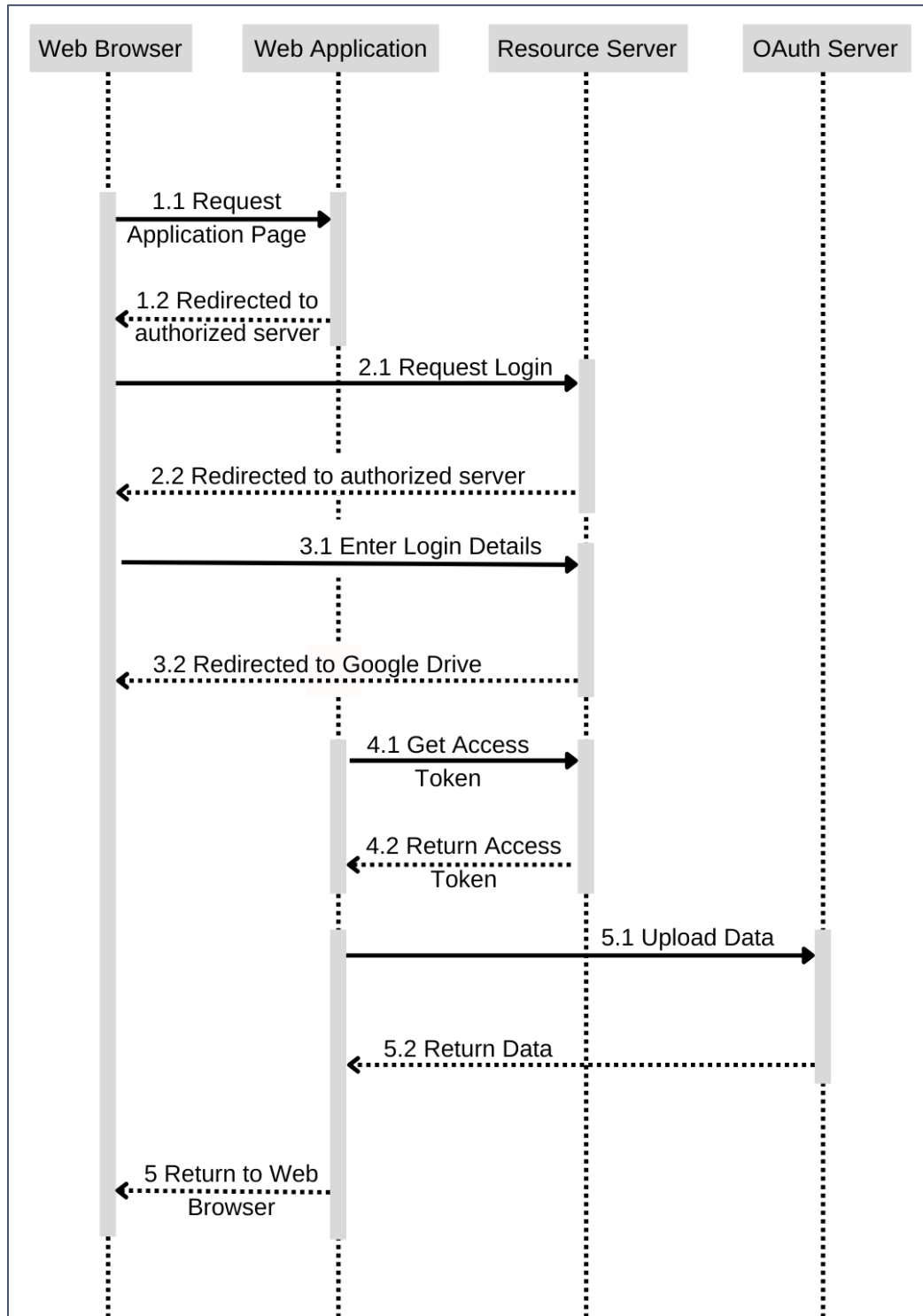
Here, browse the computer and select a file and perform the upload.



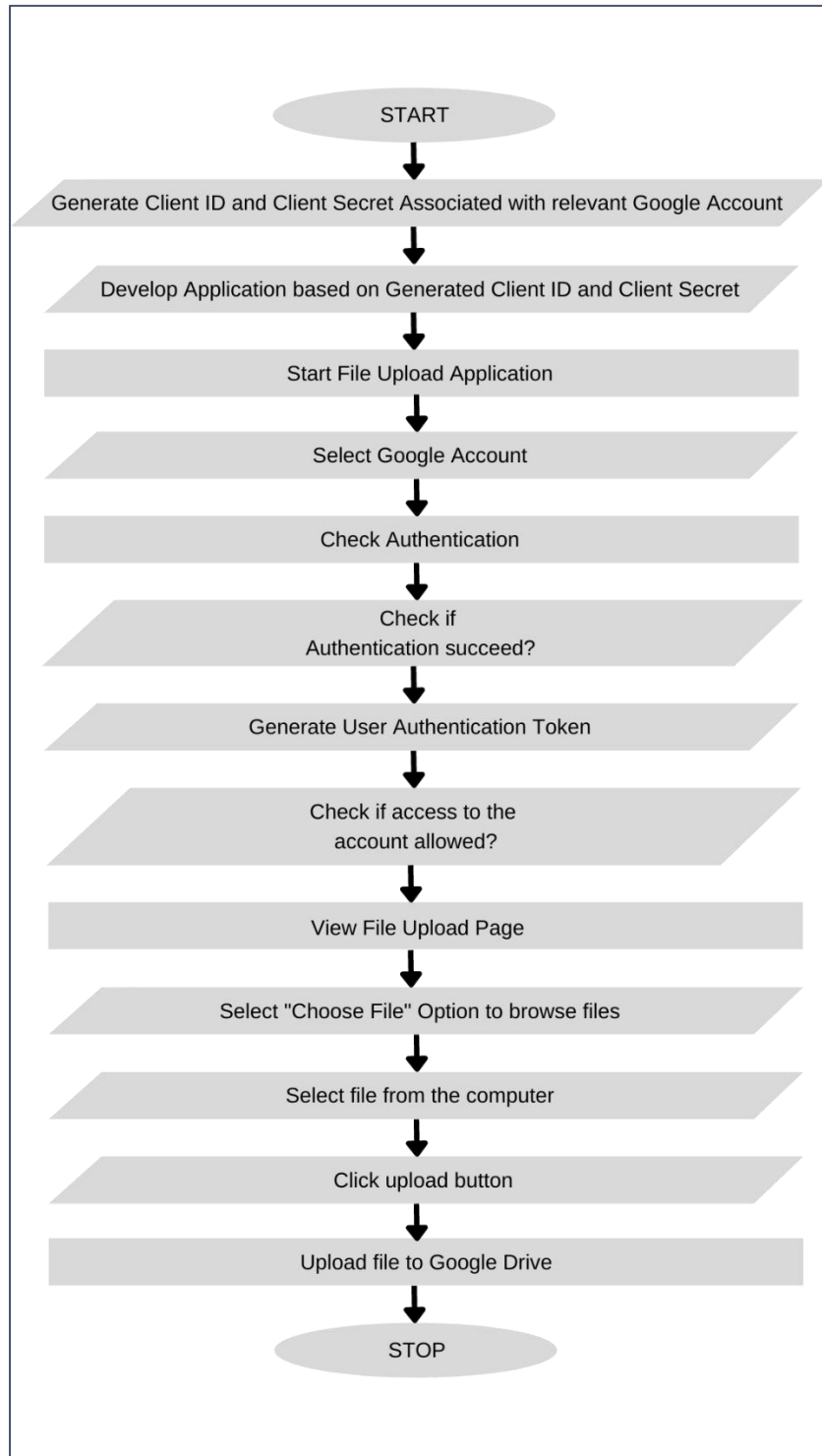
Finally, you can see the uploaded file in your Google drive as follows.



SECTION III : Sequential Diagram for the Process of OAuth Authorization using Web Application

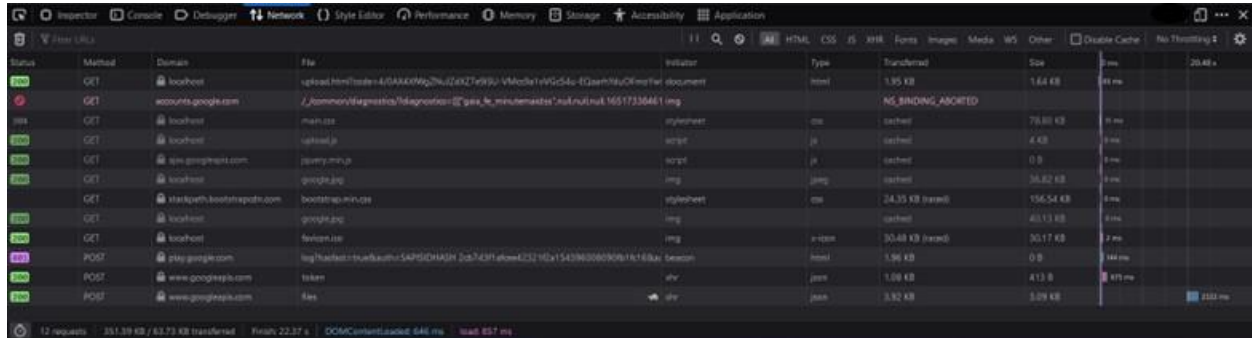


SECTION IV : Sequential Diagram for the Process of OAuth Authorization using Web Application



SECTION V : Reports:

1. Generated access token




Status	Method	Domain	File	Initiator	Type	Transferred	Size	Time	Size
200	GET	localhost	upload.html?code=4/GAMXWp2WuZ2XZ7v9SU-VMoch1vV5d4u-EGaemHbUOfmrtw	document	html	1.95 KB	1.64 KB	88 ms	20.48 x
200	GET	accounts.google.com	/common/imgres?hl=en&prod=22&ga_h_minutemaster=auk.nu.nuk.1651733661	img	NO_BINDING_ABORTED				
200	GET	localhost	main.css	stylesheet	css	cached	79.80 KB	0 ms	
200	GET	localhost	upload.js	script	js	cached	4 KB	0 ms	
200	GET	ajax.googleapis.com	jquery.min.js	script	js	cached	0 B	0 ms	
200	GET	localhost	google.jpg	img	img	cached	36.82 KB	0 ms	
200	GET	staticpath.bootstrap.com	bootstrap.min.css	stylesheet	css	24.35 KB (cached)	156.54 KB	0 ms	
200	GET	localhost	google.jpg	img	img	cached	40.13 KB	0 ms	
200	GET	localhost	favicon.ico	img	favicon	30.48 KB (cached)	30.17 KB	0 ms	
200	POST	play.google.com	log?upload=upload&auth=SAPSDCHASH_2pN7Z0Tpkaw4232102x15	beacon	html	1.96 KB	0 B	164 ms	
200	POST	www.googleapis.com	token	xhr	json	1.00 KB	413 B	475 ms	
200	POST	www.googleapis.com	file	xhr	json	3.92 KB	3.09 KB	233 ms	



Key	Value
access_token	ya29AACWdaMgpmfBua2q3CR2LH5U4H8BwUcMGBwK0Puf-3xUuM3uRwVhN9Y8L7Cp6RfuUwF0XW7BwJAwRyKufhRQO8_x0fpmZ7u6yglPPT-10D3dwBwUuuygFUnB6Ud
expires_in	3599
refresh_token	undefined

2. Uploaded file



Status	Method	Domain	File	Initiator	Type	Transferred	Size	Time	Size
200	GET	localhost	upload.html?code=4/GAMXWp2WuZ2XZ7v9SU-VMoch1vV5d4u-EGaemHbUOfmrtw	document	html	1.95 KB	1.64 KB	88 ms	20.48 x
200	GET	accounts.google.com	/common/imgres?hl=en&prod=22&ga_h_minutemaster=auk.nu.nuk.1651733661	img	NO_BINDING_ABORTED				
200	GET	localhost	main.css	stylesheet	css	cached	79.80 KB	0 ms	
200	GET	localhost	upload.js	script	js	cached	4 KB	0 ms	
200	GET	ajax.googleapis.com	jquery.min.js	script	js	cached	0 B	0 ms	
200	GET	localhost	google.jpg	img	img	cached	36.82 KB	0 ms	
200	GET	staticpath.bootstrap.com	bootstrap.min.css	stylesheet	css	24.35 KB (cached)	156.54 KB	0 ms	
200	GET	localhost	google.jpg	img	img	cached	40.13 KB	0 ms	
200	GET	localhost	favicon.ico	img	favicon	30.48 KB (cached)	30.17 KB	0 ms	
200	POST	play.google.com	log?upload=upload&auth=SAPSDCHASH_2pN7Z0Tpkaw4232102x15	beacon	html	1.96 KB	0 B	164 ms	
200	POST	www.googleapis.com	token	xhr	json	1.00 KB	413 B	475 ms	
200	POST	www.googleapis.com	file	xhr	json	3.92 KB	3.09 KB	233 ms	

Response Headers (846 B)

- access-control-allow-credentials: true
- access-control-allow-origin: http://localhost
- access-control-expose-headers: Content-Length, Content-Type, Date, Etag, Server, Transfer-Encoding, Vary, X-Upload-Upload-ID, X-Google-Trace
- alt-svc: h3="443" ma=2592000,h3-29="443" ma=2592000,h3-Q050="443" ma=2592000,h3-Q046="443" ma=2592000,h3-Q043="443" ma=2592000,quic="443" ma=2592000;v="46,43"
- cache-control: no-cache, no-store, max-age=0, must-revalidate
- content-length: 3164
- content-type: application/json; charset=UTF-8
- date: Thu, 05 May 2022 06:58:25 GMT

SECTION VI : Appendix

CODES:

a. INDEX.html

```
<!DOCTYPE html>

<html>

<head>

<meta charset ="utf-8" />

<meta http-equiv ="X-UA-Compatible" content ="IE=edge" />

<title>Google Drive File Upload</title>

<meta name="viewport" content="width=device-width, initial-scale=1" />

<link rel="stylesheet" type="text/css" media="screen" href="main.css" />

<script
src = "https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script
>

<script src ="main.js"></script>

<link

rel = "stylesheet"

href = "https:// path.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"

integrity="sha384-
xJcKb8q3iqJ61gNV9KGb8tXhSsNjpsSzL0n8PARn9HuZ0nIxN0hoP+VmmDGMN5t9UJ0Z"

crossorigin="anonymous"

/>

<noscript><link rel="stylesheet" href="assets/css/noscript.css" /></noscript>

</head>

<body>

<header id="header">

<div class="content">

<h1><a href="#">Upload Data </a></h1>

<p>Just a simple, easy data upload for Google Drive<br />
```

```

        Join Us today to enjoy the benefits from Us</p>

        <ul class="actions">

            <li ><center ></center></li>

            <li ><a href="#" class="button primary icon solid fa-upload"
id="login">Sign into Google to upload files</a></li>

        </ul >

    </div >

    <div class="image phone"><div class="inner"></div></div>

</header>

<!-- Footer -->

<footer id="footer">

    <ul class="icons">

        <li ><a href="#" class="icon brands fa-facebook-f"><span
class="label ">Facebook</span></a></li>

        <li><a href="#" class="icon brands fa-twitter"><span
class="label">Twitter</span></a></li>

        <li ><a href="#" class="icon brands fa-instagram"><span
class="label">Instagram</span></a></li>

    </ul >

    <p class="copyright">&copy; 2022. Credits: <a href="https://sliit.lk">MSC
Cyber Security SLIIT</a></p>

</footer>

</div>

</div>

</body>

</html>

```

b. UPLOAD.html

```
<!DOCTYPE html>

<html>

<head>

<meta charset ="utf-8" />

<meta http-equiv="X-UA-Compatible" content="IE=edge" />

<title>OAuth 2.0 Google Drive File Upload</title>

<meta name ="viewport" content ="width=device-width, initial-scale=1" />

<link rel="stylesheet" type ="text/css" media ="screen" href ="main.css" />

<script
src ="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

<script src="upload.js"></script>

<link

rel ="stylesheet"

href ="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"

integrity ="sha384-
JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnIxN0hoP+VmmDGMN5t9UJ0Z"

crossorigin ="anonymous"

/>

<noscript><link rel ="stylesheet" href ="assets/css/noscript.css" /></noscript>

</head>

<body>

<section id ="three" class ="wrapper style2 special">

<header class="major">

<center><img src ="google.jpg" width ="70" height ="70" /></center>

<h2>Upload Your Data Here</h2>

<p>You can securely upload data without any delay. Join with us to get
access to free benefits everyday.</p>

</header>

<div class="border-container">
```

```
<input
class ="btn btn-primary "
id ="files "
type ="file "
name ="files[] "
multiple
/>

<button class="btn btn-secondary " id ="upload ">Upload</button>

<div id ="progress-wrp ">
<div class ="progress-bar "></div>
<div class ="status ">0%</div>
</div>
<div id ="result "></div>
</div>

    </section>

</body>

</html>
```

c. UPLOAD.js

```
$(document).ready(function(){
  const urlParams = new URLSearchParams(window.location.search);
  const code = urlParams.get ('code');
  const redirect_uri = "http://localhost/ProjectGoogle/upload.html"
  const client_secret = "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";
  const scope = "https://www.googleapis.com/auth/drive";
  var access_token= "";
  var client_id = "669597444449-
9t9obna11vkdghk980prb56t670ukc7p.apps.googleusercontent.com"
  $.ajax ({
    type : 'POST',
    url : "https://www.googleapis.com/oauth2/v4/token",
    data : {code:code
    ,redirect_uri :redirect_uri,
    client_secret :client_secret,
    client_id :client_id,
    scope :scope,
    grant_type : "authorization_code"},
    dataType : "json",
    success : function(resultData) {
      localStorage.setItem ("accessToken",resultData.access_token);
      localStorage.setItem ("refreshToken",resultData.refreshToken);
      localStorage.setItem ("expires_in",resultData.expires_in);
      window.history.pushState({}, document.title, "/GoogleLoginApp/" + "upload.html");
    }
  });
  function stripQueryStringAndHashFromPath(url) {
    return url.split("?")[0].split("#")[0];
```

```

}

var Upload = function (file) {
  this.file = file;
};

Upload.prototype.getType = function() {
  localStorage.setItem("type",this.file.type);
  return this.file.type;
};

Upload.prototype.getSize = function() {
  localStorage.setItem("size",this.file.size);
  return this.file.size;
};

Upload.prototype.getName = function () {
  return this.file.name ;
};

Upload.prototype.doUpload = function () {
  var that = this;
  var formData = new FormData();
  formData.append("file", this.file, this.getName());
  formData.append("upload_file", true);
  $.ajax({
    type : "POST",
    beforeSend: function(request) {
      request.setRequestHeader("Authorization", "Bearer" + " " +
        localStorage.getItem("accessToken"));
    },
    url : "https://www.googleapis.com/upload/drive/v2/files",
    data : {
      uploadType:"media"
    }
  });
}

```



```

},
xhr: function () {
var myXhr = $.ajaxSettings.xhr();
if (myXhr.upload) {
myXhr.upload.addEventListener('progress', that.progressHandling, false);
}
return myXhr;
},
success : function (data) {
console .log(data);
},
error : function (error) {
console.log(error);
},
async : true,
data : formData,
cache : false,
contentType: false,
processData: false,
timeout : 50000
});
};
Upload.prototype.progressHandling = function (event) {
var percent = 0;
var position = event.loaded || event.position;
var total = event.total;
var progress_bar_id = "#progress-wrp";
if (event.lengthComputable) {
percent = Math.ceil(position / total * 100);

```

```
}  
$ (progress_bar_id + " .progress-bar").css("width", +percent + "%");  
$ (progress_bar_id + " .status").text(percent + "%");  
};  
$ ("#upload").on("click", function (e) {  
var file = $("#files")[0].files[0];  
var upload = new Upload(file);  
upload.doUpload();  
});  
});
```

d. MAIN.js

```
$(document).ready(function(){  
  
  var clientId ="669597444449-  
9t9obna11vkdghk980prb56t670ukc7p.apps.googleusercontent.com"  
  
  var redirect uri="http://localhost/ProjectGoogle/upload.html"  
  
  var scope="https://www.googleapis.com/auth/drive"  
  
  var url=""  
  
  $("#login").click (function(){  
    signIn(clientId,redirect_uri,scope,url);  
  })  
  
  function signIn (clientId,redirect_uri,scope,url){  
    url = "https://accounts.google.com/o/oauth2/v2/auth?redirect\_uri="+redirect\_uri  
    + "&prompt=consent&response_type=code&client_id="+clientId+ "&scope="+scope  
    + "&access_type=offline";  
    window.location  = url;  
  }  
});
```

SECTION VII : References

GITHUB Link : <https://github.com/iamravindra/Google-OAuth-2.0>

YouTube Video Link : <https://youtu.be/AzssMPdtsqo>