WAPH-Web Application Programming and Hacking

Instructor: Dr. Phu Phung

Student

Name: Afroz Mohammad

Email: mohamaz@mail.uc.edu

Figure 1: Afroz Mohammad

Lab 2 - Front End Web Development

Overview: This lab focused on front-end development and provided an overview of basic HTML, JavaScript, AJAX, CSS, the jQuery JavaScript library, and web API integration. Part 1 involved designing an HTML web page using basic tags and forms. JavaScript was then integrated in 4 ways - inline, via script tags, from an external file, and from a remote code repository.

The HTML page was integrated with CSS, utilizing inline, internal, and external CSS to stylize the webpage elegantly. jQuery was used to make AJAX get and post calls to echo.php. Finally, two web services were integrated into the HTML - one to generate random jokes and another to guess age - using jQuery AJAX and the fetch method respectively.

Pandoc was utilized to generate a PDF file from the README.md.

Link to the repository: https://github.com/mohamammadafroz/waph-mohamaz/tree/main/labs/lab2

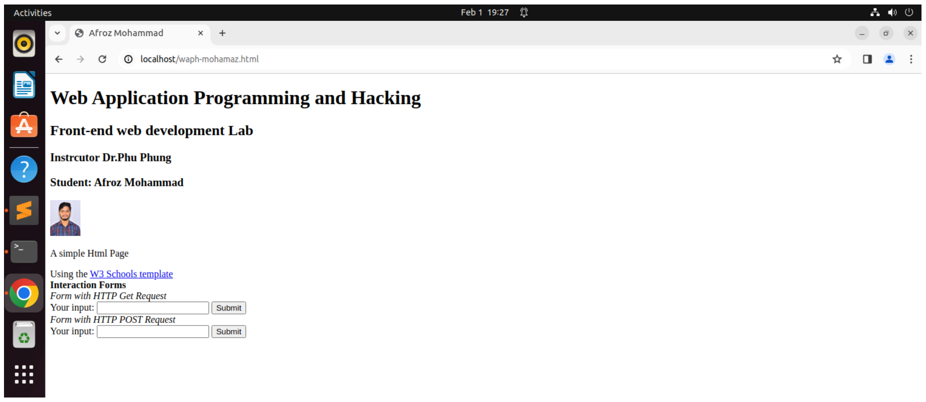
Part 1 : Basic HTML with forms, and JavaScript

Task 1. HTML

As part of this task, a simple HTML webpage was developed using basic tags like `<h1>`, `<h2>`, `<h3>`, `<a>`, `<img>`, `<form>` etc. Name of the file is waph-mohamaz.html

Included file `waph-mohamaz.html`:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<title>WAPH- Afroz Mohammad</title>
</head>
<body>
<div >
    <div id="top">
        <h1>Web Application Programming and Hacking</h1>
        <h2>Front End Development Lab </h2>
        <h3>Instructor : Dr Phu Phung</h3>
    </div>
    <div >
        <div id="menubar">
        <h3>Student : Afroz Mohammad</h3>
        <img src="images/headshot.jpg" alt="Afroz headshot" width="50">
        </div>
        <div id="main">
            <p>A Simple HTML Page</p>
            Using the <a href="https://www.w3schools.com/html">W3 Schools Template</a>
            <hr>
            <b>Interaction with HTTP Forms</b>
            <div>
                <i>Form with HTTP GET Request</i>
                <form action="/echo.php" method="GET">
                <lable for="data">Enter the input text</lable>
                <input type="text" name="data"
                onkeyup="console.log('you have clicked a Key')">
                <input type="submit" value="submit">
                </form>
            </div>
            <div>
                <i>This is a Form with HTTP POST Request</i>
                <form action="/echo.php" method="POST">
                <lable for="data">Enter the input text</lable>
                <input type="text" name="data"
                onkeyup="console.log('Key has been clicked')">
                <input type="submit" value="submit">
                </form>
            </div>
        </div>
    </div>
</div>
</body>
</html>
```



Web Application Programming and Hacking

Front-end web development Lab

Instrcutor Dr.Phu Phung

Student: Afroz Mohammad

A simple Html Page

Using the W3 Schools template
Interaction Forms
Form with HTTP Get Request
Your input: Submit
Form with HTTP POST Request
Your input: Submit

Figure 2: A simple HTML Page

Task 2. Simple JavaScript

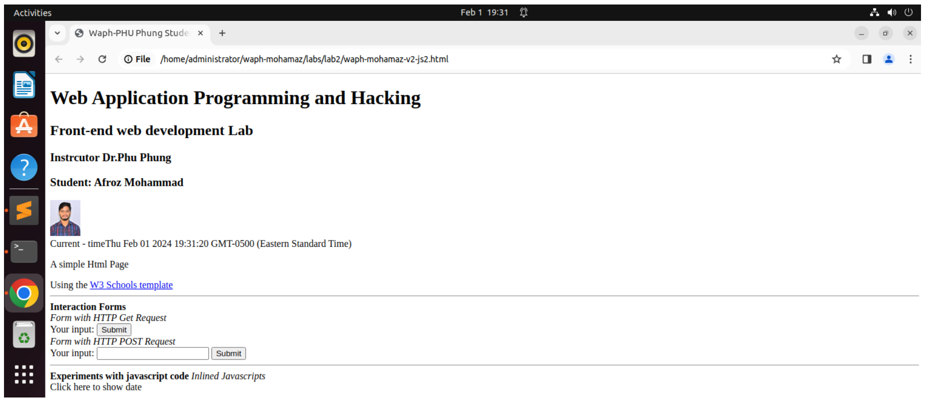
This task provided an overview of JavaScript syntax and different ways to integrate JavaScript code in an HTML file.

Inline JS code was written to display the current date and time on click, and to log the click event in the console.

```
     <div>
        <b>Experiments with JavaScript code</b><br>
        <i>Inlined JavaScript</i>
        <div id="inlineDate"
            onClick="document.getElementById('inlineDate').innerHTML=Date();
            console.log('you have clicked a Key');">
            Click to display time and date</div>
    </div>
```

-JavaScript code in a `<script>` tag to display a digital clock.

```
  <script>
        function displayTime() {
            document.getElementById('digital-clock').innerHTML=
```


Activities
Feb 1 19:31
Waph-PHU Phung Stude
File
/home/administrator/waph-mohamaz/labs/lab2/waph-mohamaz-v2-js2.html

Web Application Programming and Hacking

Front-end web development Lab

Instrcutor Dr.Phu Phung

Student: Afroz Mohammad

Current - timeThu Feb 01 2024 19:31:20 GMT-0500 (Eastern Standard Time)

A simple Html Page

Using the W3 Schools template

Interaction Forms
Form with HTTP Get Request
Your input: Submit
Form with HTTP POST Request
Your input: Submit

Experiments with javascript code Inlined Javascripts
Click here to show date

Figure 3: Console screen when clicked

```
                        " Current Time is : "+ Date();
        }
        setInterval(displayTime,500);
</script>
```

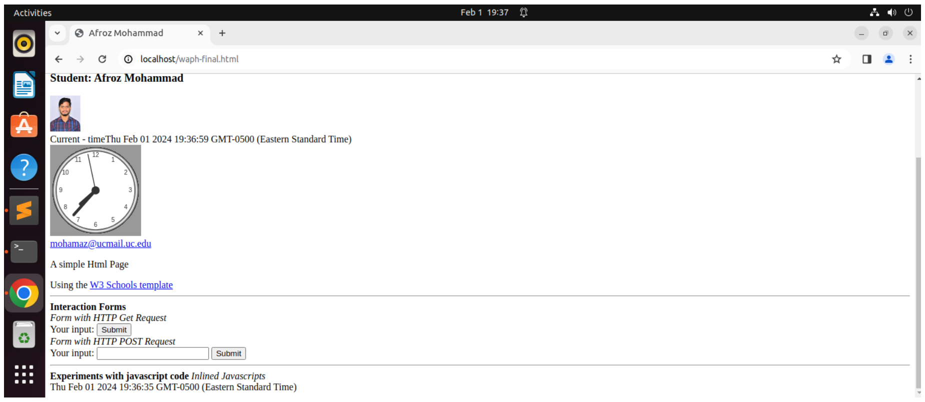
-JS code in JS file and and code in HTML page to show or hide email when clicked.

```
    var visible = false;
    function showOrHideEmail(){
     if (visible){
        document.getElementById('email').innerHTML=" Show my Email";
            visible=false;
         }
    else{
        var myEmail="<a href='mailto:mohamaz" +"@"+
                "mail.uc.edu'>mohamaz"+"@"+"mail.uc.edu</a>";
        document.getElementById('email').innerHTML=myEmail;
        visible= true;
        }
    }

    <div id="email" onclick="showOrHideEmail()">Display my Email</div>
    <script type="text/javascript" src="email.js"></script>
```

-The below code is for Displaying an Analog clock with an external Javascript code and code in HTML page.

```
<canvas id="analog-clock" width="150" height="150"
         style="background-color:#999"></canvas>
<script src="https://waph-uc.github.io/clock.js"></script>
<script type=text/javascript>
```

```
      var canvas=document.getElementById("analog-clock");
      var ctx=canvas.getContext("2d");
      var radius = canvas.height/2;
      ctx.translate(radius,radius);
      radius=radius*0.90;
      setInterval(drawClock,1000);
      function drawClock(){
          drawFace(ctx,radius);
          drawNumbers(ctx,radius);
          drawTime(ctx,radius);
          }
</script>
```



Student: Afroz Mohammad

Current - timeThu Feb 01 2024 19:36:59 GMT-0500 (Eastern Standard Time)

mohamaz@ucmail.uc.edu

A simple Html Page

Using the W3 Schools template

Interaction Forms
Form with HTTP Get Request
Your input: Submit
Form with HTTP POST Request
Your input: Submit

Experiments with javascript code *Inlined Javascripts*
Thu Feb 01 2024 19:36:35 GMT-0500 (Eastern Standard Time)

Figure 4: Webpage after adding JavaScript code

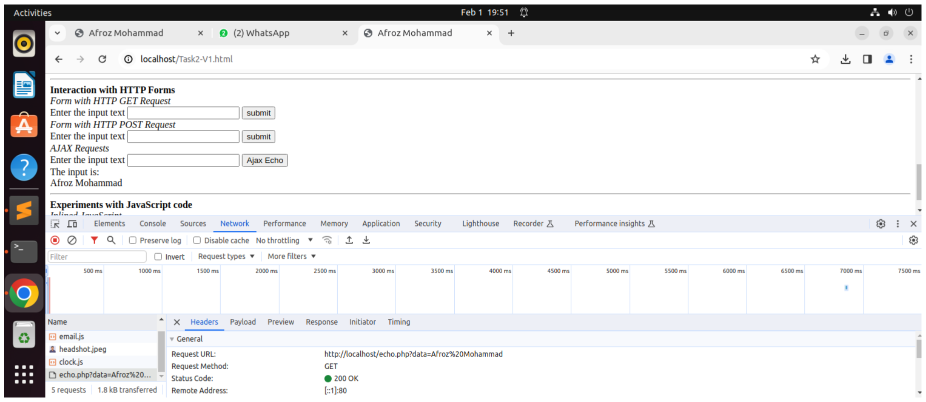
Part II - Ajax, CSS, jQuery, and Web API integration

Task 1: Ajax

HTML code was written to take user input and make a GET AJAX call to echo.php. The response received was displayed within a div. Since it was a GET call, the input was sent as a path variable in the URL to the webserver.

```
<div>
    <i>AJAX Requests</i><br>
    <lable for="data">Enter the input text</lable>
    <input type="text" name="data" id="data">
    <input type="submit" value="Ajax Echo" onclick="getEcho()">
    <div id="response"></div>
</div>
<script>
    function getEcho(){
        var input = document.getElementById("data").value;
        if(input.length==0){
        return ;
        }
        var xhttp = new XMLHttpRequest();
        xhttp.onreadystatechange = function(){
    //alert("readyState "+ this.readyState +", status "+this.status+",
    //statusText= "+this.statusText);
        if(this.readyState==4 && this.status==200){
            console.log("Received data= "+xhttp.responseText);
            document.getElementById("response").innerHTML= xhttp.responseText;
        }
        }
        xhttp.open("GET", "echo.php?data="+input, true);
        xhttp.send();
        document.getElementById("data").value="";
        }
</script>
```

The response for the AJAX call was analyzed in the inspect view. The request method was GET with a 200 OK status code, and the input data was passed in the URL.

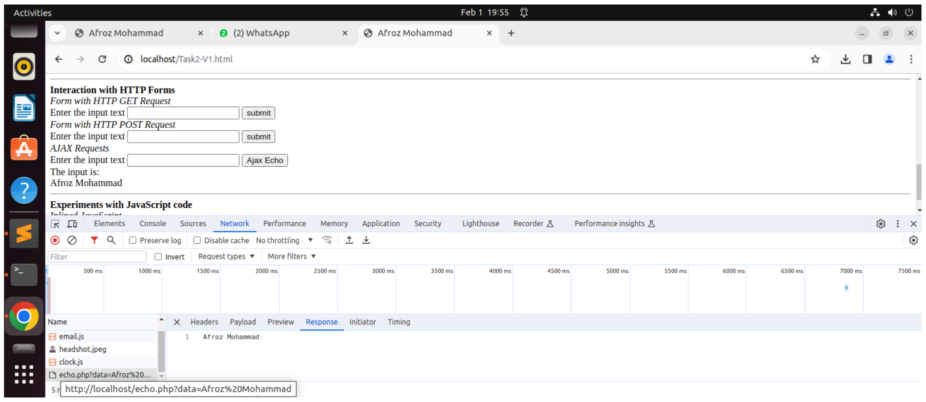


Interaction with HTTP Forms
Form with HTTP GET Request
Enter the input text [ ] submit
Form with HTTP POST Request
Enter the input text [ ] submit
AJAX Requests
Enter the input text [ ] Ajax Echo
The input is:
Afroz Mohammad

Experiments with JavaScript code

```
Name
email.js
headshot.jpeg
clock.js
echo.php?data=Afroz%20...
5 requests | 1.8 kB transferred

General
Request URL:      http://localhost/echo.php?data=Afroz%20Mohammad
Request Method:   GET
Status Code:      ● 200 OK
Remote Address:   [::1]:80
```

Figure 5: Making an Ajax get call



Interaction with HTTP Forms
Form with HTTP GET Request
Enter the input text [ ] submit
Form with HTTP POST Request
Enter the input text [ ] submit
AJAX Requests
Enter the input text [ ] Ajax Echo
The input is:
Afroz Mohammad

Experiments with JavaScript code

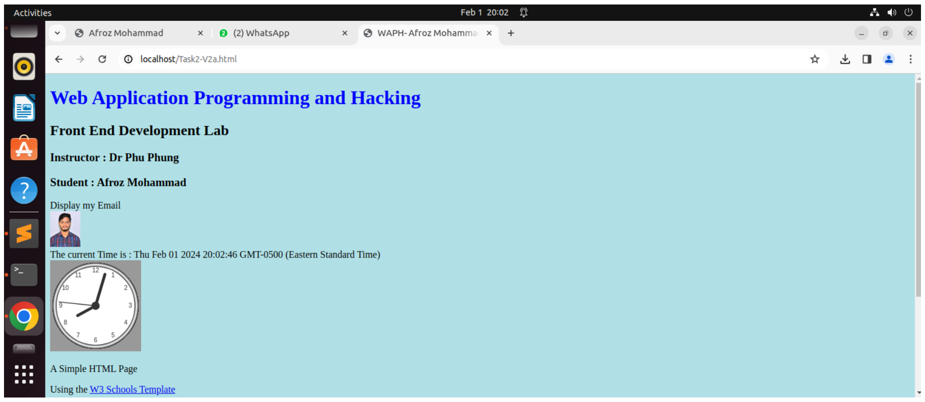
```
Name
email.js
headshot.jpeg
clock.js
echo.php?data=Afroz%20...
http://localhost/echo.php?data=Afroz%20Mohammad

Response
Afroz Mohammad
```

Figure 6: Inspecting the response of Ajax call

Task 2: CSS

a) Inline CSS

```
<body style="background-color: powderblue;">
<h1 style="color: blue;">Web Application Programming and Hacking</h1>
```



Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Afroz Mohammad

Display my Email

The current Time is : Thu Feb 01 2024 20:02:46 GMT-0500 (Eastern Standard Time)

A Simple HTML Page

Using the W3 Schools Template

Figure 7: modifed webpage after adding inline CSS

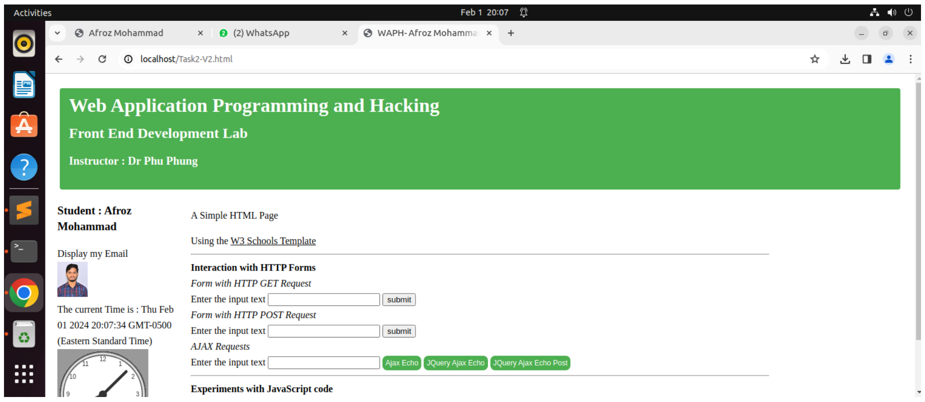
b) Internal CSS.

```
    <style>
        .button{
            background-color:#4CAF50;
            border:none;
            color:white;
            padding:5px;
            text-align:center;
            text-decoration:none;
            display:inline-block;
            font-size:12px;
            margin:4px2px;
            cursor:pointer;
        }
        .round{
            border-radius:8px;
        }
        #response{
            background-color:#ff9800;
        }
    <!-- HTML code -->
    </style>
    <input class="button round" type="submit" value="Ajax Echo" onclick="getEcho()">
    <input class="button round" type="submit"
```

```
        value="JQuery Ajax Echo" onclick="getJqueryAjax()">
    <input class="button round" type="submit"
        value="JQuery Ajax Echo Post" onclick="getJqueryAjaxPost()">
    <div id="response"></div>
```

c) External CSS from the remote repository provided in the lecture.https://waph-uc.github.io/style1.css.

```
    <link rel="stylesheet" type="text/css" href="https://waph-uc.github.io/style1.css">
    <!-- HTML code -->
    <div class="container wrapper">
    <!-- HTML code -->
        <div class="wrapper">
    <!-- HTML code -->
        </div>
    </div>
```



Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Afroz Mohammad

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The current Time is : Thu Feb 01 2024 20:07:34 GMT-0500 (Eastern Standard Time)

A Simple HTML Page

Using the W3 Schools Template

Interaction with HTTP Forms

Form with HTTP GET Request

Enter the input text [ ] submit

Form with HTTP POST Request

Enter the input text [ ] submit

AJAX Requests

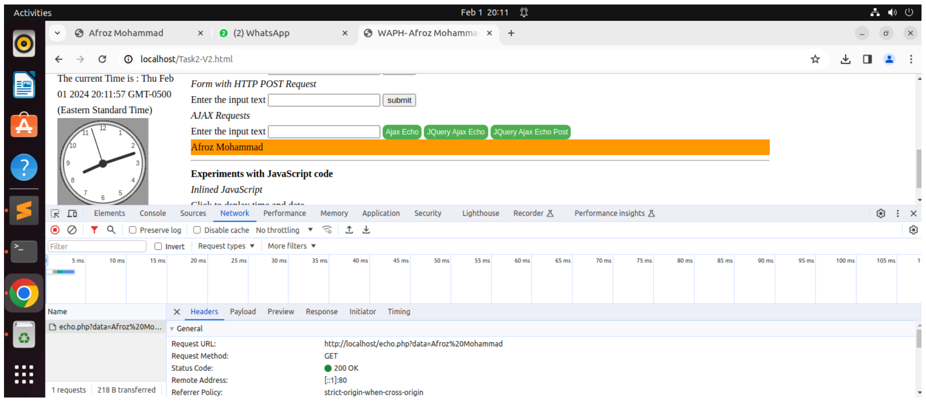
Enter the input text [ ] Ajax Echo JQuery Ajax Echo JQuery Ajax Echo Post

Experiments with JavaScript code

Figure 8: webpage after adding internal and external CSS

Task 3: JQuery

The jQuery library was added to the HTML code. 2 Two corresponding buttons for jQuery AJAX Get and Post were added to make GET and POST calls to echo.php using jQuery. **i**The AJAX GET request to echo.php was analyzed in the inspect view. The call was GET and the status code was 200 OK.



The current Time is : Thu Feb 01 2024 20:11:57 GMT-0500 (Eastern Standard Time)

Form with HTTP POST Request

Enter the input text

AJAX Requests

Enter the input text

Afroz Mohammad

Experiments with JavaScript code

Inlined JavaScript

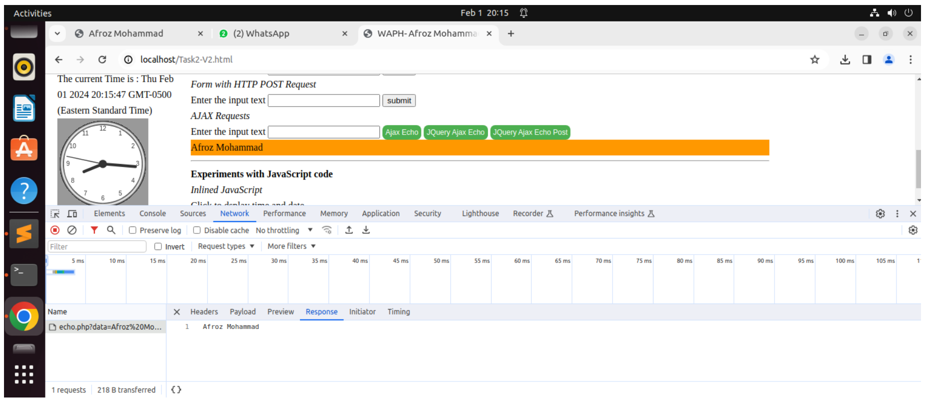
```
echo.php?data=Afroz%20Mo...
1 requests | 218 B transferred

Request URL:        http://localhost/echo.php?data=Afroz%20Mohammad
Request Method:     GET
Status Code:        ● 200 OK
Remote Address:     [::1]:80
Referrer Policy:    strict-origin-when-cross-origin
```

Figure 9: JQuery Ajax GET request to echo.php

```
<!-- HTML code -->
<input class="button round" type="submit" v
    alue="JQuery Ajax Echo" onclick="getJqueryAjax()">
<!-- HTML code -->
<script>
    function getJqueryAjax(){
        var input=$("#data").val();
            if(input.length==0)
                return;
        $.get("echo.php?data="+input,
                    function(result){
                        printResult(result);
                    });
        $("#data").val("");
        }
    function printResult(result){
        $("#response").html(result);
        }
</script>
```

ii. Ajax POST request to echo.php , the response is analyzed in the inpect view. The call was POST and status code was 200OK.

```
<!-- HTML code -->
<input class="button round" type="submit"
```


localhost/Task2-V2.html

The current Time is : Thu Feb 01 2024 20:15:47 GMT-0500 (Eastern Standard Time)

Form with HTTP POST Request

Enter the input text [submit]

AJAX Requests

Enter the input text [Ajax Echo] [JQuery Ajax Echo] [JQuery Ajax Echo Post]

Afroz Mohammad

Experiments with JavaScript code

Inlined JavaScript

```
Name                          Headers  Payload  Preview  Response  Initiator  Timing
echo.php?data=Afroz%20Mo...   1  Afroz Mohammad

1 requests | 218 B transferred
```

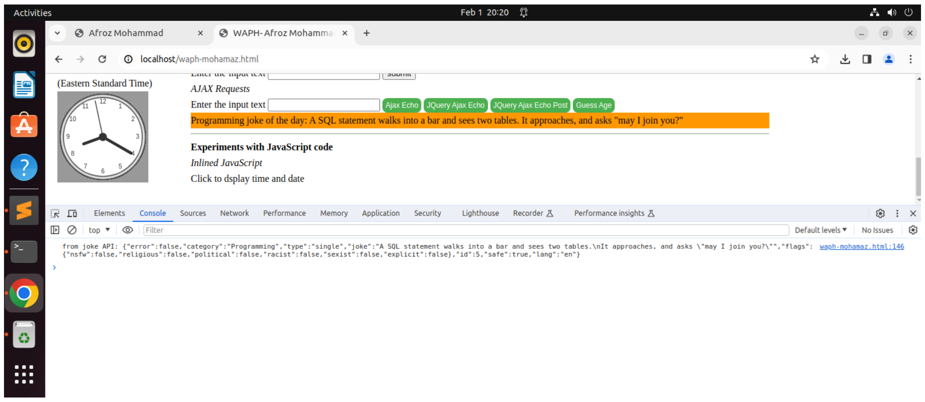
Figure 10: JQuery Ajax POST request to echo.php

```
    value="JQuery Ajax Echo Post" onclick="getJqueryAjaxPost()">
<!-- HTML code -->
<script>
    function getJqueryAjaxPost(){
        var input=$("#data").val();
        if(input.length==0)
            return;
        $.post("echo.php",{data:input},function(result){
                printResult(result);
                });
        $("#data").val("");
        }
    function printResult(result){
        $("#response").html(result);
        }
</script>
```

Task 4: WEB API Integration.

i. Using Ajax on https://v2.jokeapi.dev/joke/Programming?type=single

JavaScript code using jQuery Ajax was written to make a GET call to the web service. The response was in JSON format, so the JSON.stringify() method was used to convert it to a string and display it in the console.


(Eastern Standard Time)

AJAX Requests

Enter the input text

Programming joke of the day: A SQL statement walks into a bar and sees two tables. It approaches, and asks "may I join you?"

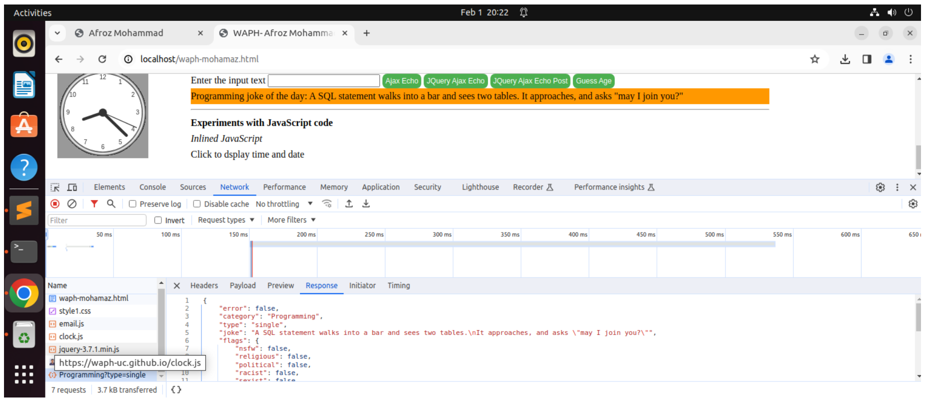
Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

```
from joke API: {"error":false,"category":"Programming","type":"single","joke":"A SQL statement walks into a bar and sees two tables.\nIt approaches, and asks \"may I join you?\"","flags": waph-mohamaz.html:146
{"nsfw":false,"religious":false,"political":false,"racist":false,"sexist":false,"explicit":false},"id":5,"safe":true,"lang":"en"}
```

Figure 11: Random Joke displayed when the page is loaded


Enter the input text

Programming joke of the day: A SQL statement walks into a bar and sees two tables. It approaches, and asks "may I join you?"

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

```
{
    "error": false,
    "category": "Programming",
    "type": "single",
    "joke": "A SQL statement walks into a bar and sees two tables.\nIt approaches, and asks \"may I join you?\"",
    "flags": {
        "nsfw": false,
        "religious": false,
        "political": false,
        "racist": false,
        "sexist": false
```

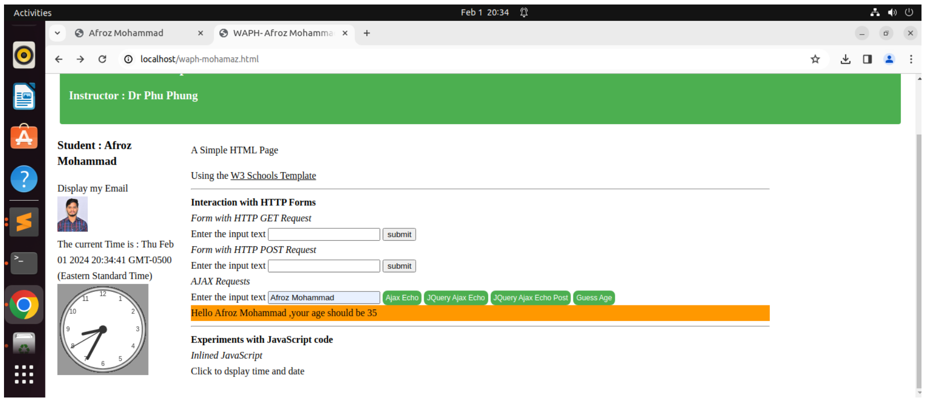
Figure 12: Response of the webservice in inspect view

From the JSON response, only the joke was filtered using result.joke. This service returns a random joke, which is displayed when the webpage loads.

Refreshing the webpage generates a new random joke each time.

```
<!-- HTML code -->
<script>
    $.get("https://v2.jokeapi.dev/joke/Programming?type=single",function(result){
        console.log("from joke API: "+ JSON.stringify(result));
    $("#response").html("Programming joke of the day: " +result.joke);
                });
</script>
<!-- HTML code -->
```

ii. The JavaScript fetch API was used to make an HTTP request to the https://api.agify.io/?name=input web service. Since fetch is asynchronous, the async keyword was used to define the function and await was used to synchronize the response. The HTTP request made was GET and the status code was 200 OK.



Instructor : Dr Phu Phung

Student : Afroz Mohammad

Display my Email

The current Time is : Thu Feb 01 2024 20:34:41 GMT-0500 (Eastern Standard Time)

A Simple HTML Page

Using the W3 Schools Template

Interaction with HTTP Forms

Form with HTTP GET Request

Enter the input text

Form with HTTP POST Request

Enter the input text

AJAX Requests

Enter the input text Afroz Mohammad

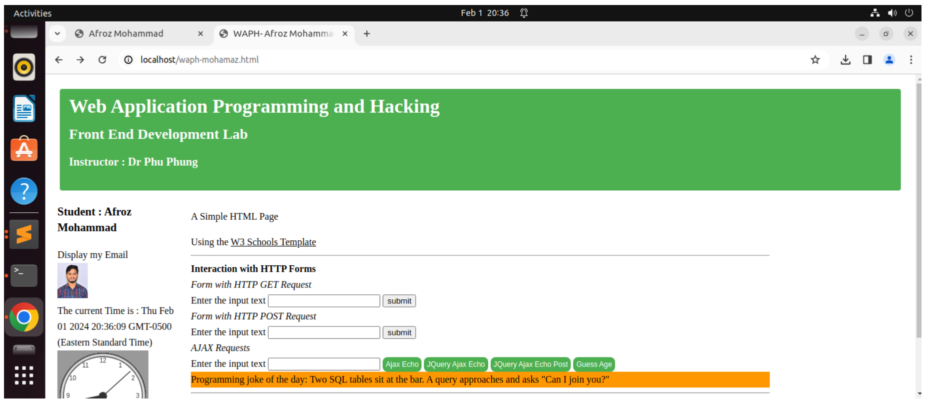
Hello Afroz Mohammad ,your age should be 35

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

Figure 13: HTTP request to api.agify.io



Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Afroz Mohammad

Display my Email

The current Time is : Thu Feb 01 2024 20:36:09 GMT-0500 (Eastern Standard Time)

A Simple HTML Page

Using the W3 Schools Template

Interaction with HTTP Forms

Form with HTTP GET Request

Enter the input text

Form with HTTP POST Request

Enter the input text

AJAX Requests

Enter the input text

Programming joke of the day: Two SQL tables sit at the bar. A query approaches and asks "Can I join you?"

Figure 14: Response from api.agify.io

```
<script>
async function guessAge(name){
            const response= await fetch("https://api.agify.io/?name="+name);
            const result= await response.json();
            $("#response").html("Hello "+name+" ,your age should be "+result.age);
        }
</script>
```

Below is the final webPage after completing all the tasks.

After this, a Labs/Lab2 folder was created to contain the project report. The changes were pushed. Pandoc tool was utilized to generate the project report from the README.md file.