WAPH-Web Application Programming and Hacking

Instructor: Dr. Phu Phung

Student

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Lab 2 - Front End Web Development

Overview: This lab covers front-end development and provided an overview of web API integration, basic HTML, Javascript, Ajax, CSS, and the JQuery library in Java. The first lab task is to create an HTML webpage using the fundamental forms and tags. There are four methods to integrate Javascript: via inline JavaScript, via script tags, via external files, and via code retrieved from a remote repository. After that, CSS was incorporated into this HTML page. External, internal, and inline CSS have all been used to create an elegant webpage. Next, AJAX get and post calls to echo.php are made using Jquery. Finally, this HTML code incorporates two web services: one uses Jquery Ajax to generate a random joke, and the other uses the fetch method to guess age. The README.md file is converted to a PDF file using Pandoc.

Link to the repository: https://github.com/payyavsa/waph-payyavsa/tree/main/labs/lab2/README.md

Figure 1: Sumanth Naga Payyavula

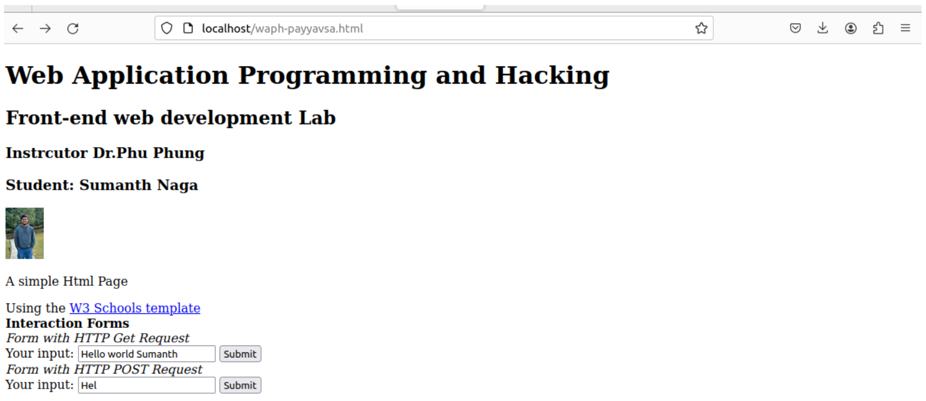
Part 1 : Basic HTML with forms, and JavaScript

Task 1. HTML

A simple HTML webpage was developed as part of this task which includes basic tags such as `<h1>`,`<h2>`,`<h3>`,`<a>`,`<img>` , `<form>` etc. The file created was named waph-payyavsa.html

Included file `waph-payyavsa.html`:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<title>WAPH- SUMANTH NAGA PAYYAVULA</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 : Sumanth Naga Payyavula</h3>
        <img src="images/headshot.jpg" alt="Sumanth 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>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('you have clicked a Key')">
                <input type="submit" value="submit">
                </form>
            </div>
        </div>
    </div>
</div>
</body>
</html>
```



localhost/waph-payyavsa.html

Web Application Programming and Hacking

Front-end web development Lab

Instrcutor Dr.Phu Phung

Student: Sumanth Naga

A simple Html Page

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

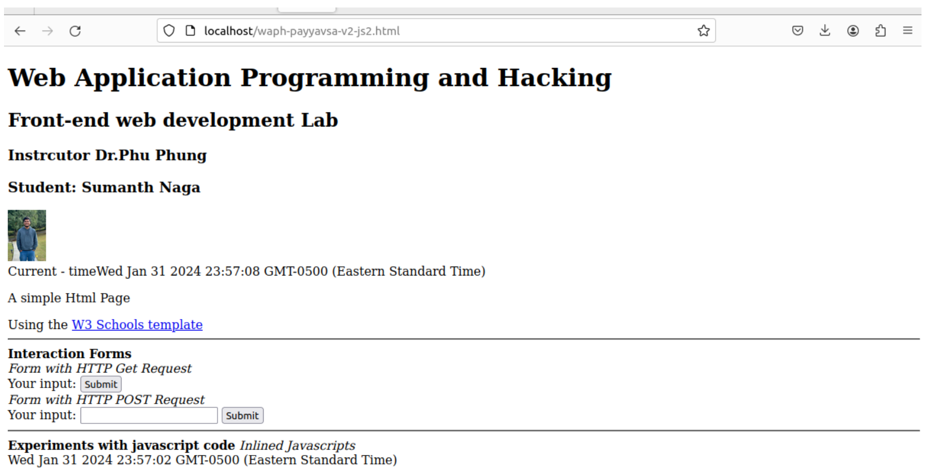
Figure 2: A simple HTML Page

Task 2. Simple JavaScript

This task has given a basic overview of JS syntax and different ways of integrating javaScript code in HTML file.

-Inline JS code was written to display current date and time when clicked ,as well as to log the on click event on 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>
```


localhost/waph-payyavsa-v2-js2.html

Web Application Programming and Hacking

Front-end web development Lab

Instrcutor Dr.Phu Phung

Student: Sumanth Naga

Current - timeWed Jan 31 2024 23:57:08 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
Wed Jan 31 2024 23:57:02 GMT-0500 (Eastern Standard Time)

Figure 3: Console screen when clicked

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

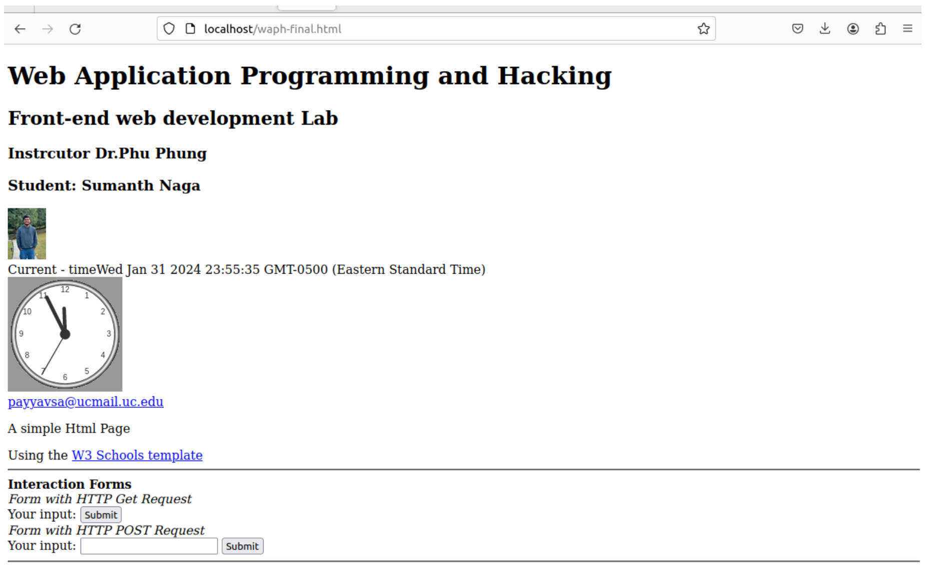
```
  <script>
        function displayTime() {
            document.getElementById('digital-clock').innerHTML=
                    " The current Time is : "+ Date();
        }
        setInterval(displayTime,500);
</script>
```

-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:payyavsa" +"@"+
                "mail.uc.edu'>payyavsa"+"@"+"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>
```

-Displaying an Analog clock using HTML page code and external Javascript code.

```
<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>
```



localhost/waph-final.html

Web Application Programming and Hacking

Front-end web development Lab

Instrcutor Dr.Phu Phung

Student: Sumanth Naga

Current - timeWed Jan 31 2024 23:55:35 GMT-0500 (Eastern Standard Time)

payyavsa@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

Figure 4: Webpage after adding JavaScript code

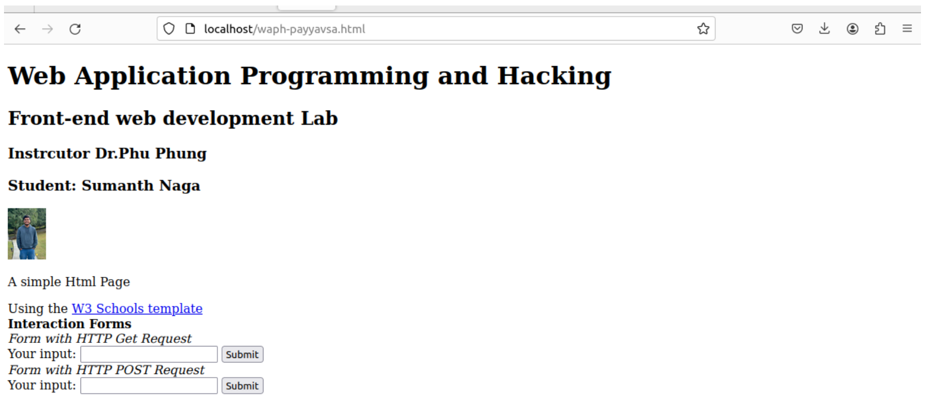
Part II - Ajax, CSS, jQuery, and Web API integration

Task 1: Ajax

HTML code is written to use AJAX to make a GET call to echo.php based on user input. The response that was received is then shown inside the division. The input was sent to the webserver as a path variable in the URL because it was a GET call.

```
<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 analyezed in the inspect view. The request method was GET and the status code is 200OK and the input data was passed within the URL.



localhost/waph-payyavsa.html

Web Application Programming and Hacking

Front-end web development Lab

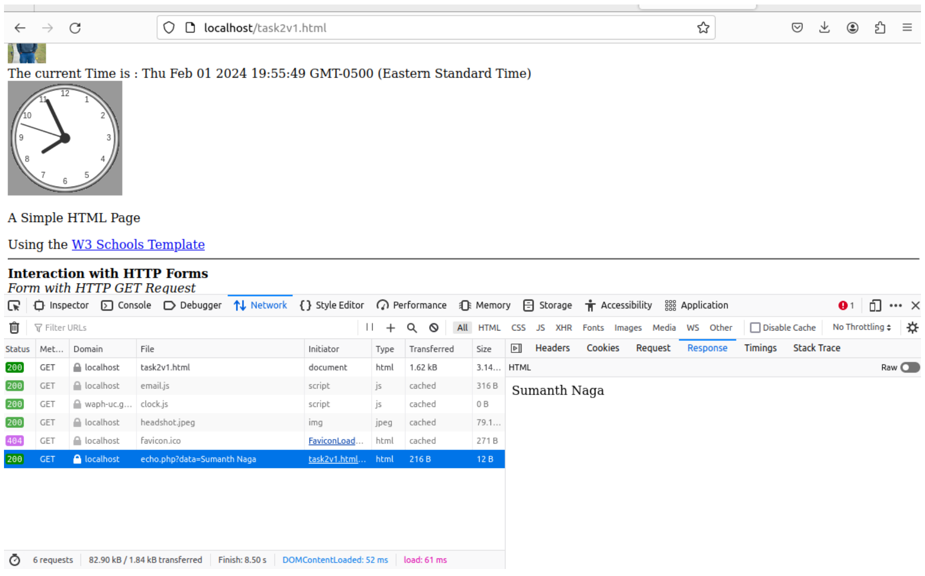
Instrcutor Dr.Phu Phung

Student: Sumanth Naga

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 5: Making an Ajax get call



localhost/task2v1.html

The current Time is : Thu Feb 01 2024 19:55:49 GMT-0500 (Eastern Standard Time)

A Simple HTML Page

Using the W3 Schools Template

Interaction with HTTP Forms
Form with HTTP GET Request

Status	Met...	Domain	File	Initiator	Type	Transferred	Size
200	GET	localhost	task2v1.html	document	html	1.62 kB	3.14...
200	GET	localhost	email.js	script	js	cached	316 B
200	GET	waph-uc.g...	clock.js	script	js	cached	0 B
200	GET	localhost	headshot.jpeg	img	jpeg	cached	79.1...
404	GET	localhost	favicon.ico	FaviconLoad...	html	cached	271 B
200	GET	localhost	echo.php?data=Sumanth Naga	task2v1.html...	html	216 B	12 B

HTML

Sumanth Naga

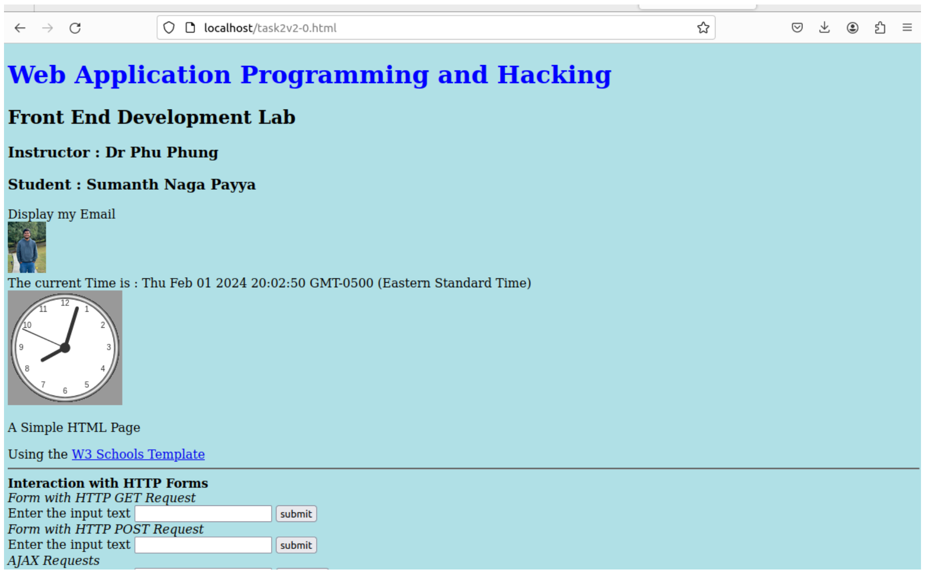
6 requests | 82.90 kB / 1.84 kB transferred | Finish: 8.50 s | DOMContentLoaded: 52 ms | load: 61 ms

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>
```



localhost/task2v2-0.html

Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Sumanth Naga Payya

Display my Email

The current Time is : Thu Feb 01 2024 20:02:50 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

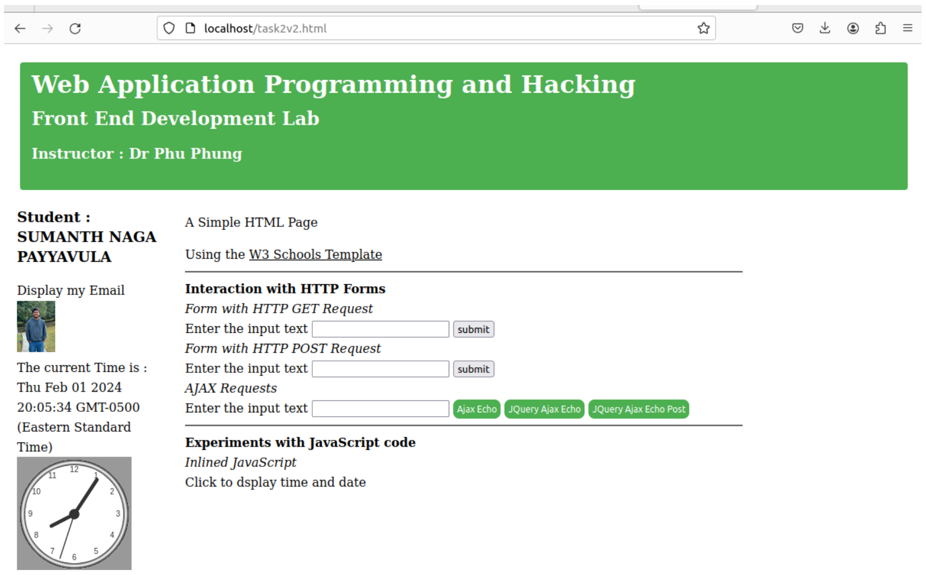
Figure 7: modifed webpage after adding inline CSS

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>
```



localhost/task2v2.html

Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : SUMANTH NAGA PAYYAVULA

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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

Experiments with JavaScript code

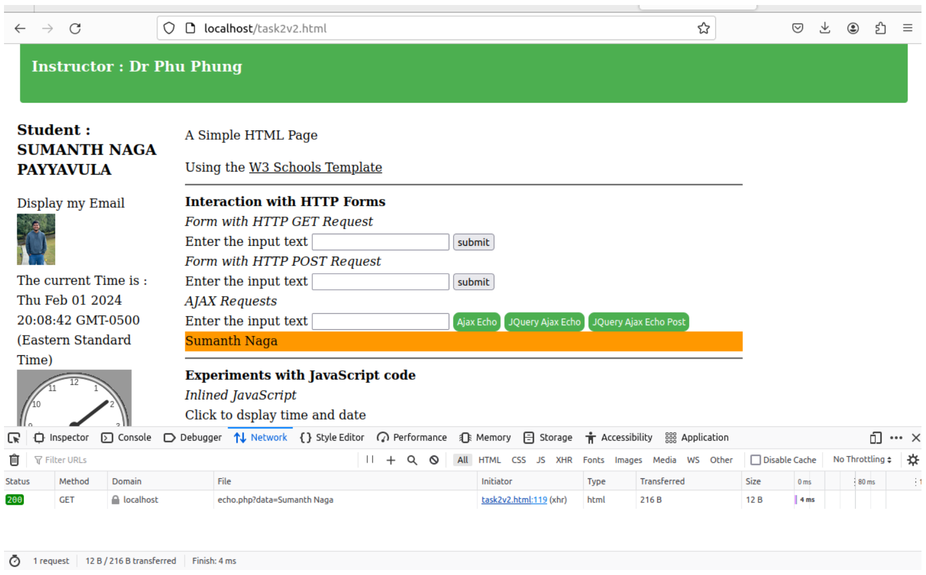
Inlined JavaScript

Click to dsplay time and date

Figure 8: webpage after adding internal and external CSS

Task 3: JQuery

The HTML code has been updated with the JQuery library. Jquery Ajax Post and Jquery Ajax Get are the two corresponding buttons that have been added to make Jquery to echo.php GET and POST calls, respectively. **i.** Ajax GET request to echo.php , the response is analyzed in the inpect view. The call was GET and status code was 200OK.



localhost/task2v2.html

Instructor : Dr Phu Phung

Student : SUMANTH NAGA PAYYAVULA

Display my Email

The current Time is : Thu Feb 01 2024 20:08:42 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]

Sumanth Naga

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

Status	Method	Domain	File	Initiator	Type	Transferred	Size	0 ms
200	GET	localhost	echo.php?data=Sumanth Naga	task2v2.html:119 (xhr)	html	216 B	12 B	4 ms

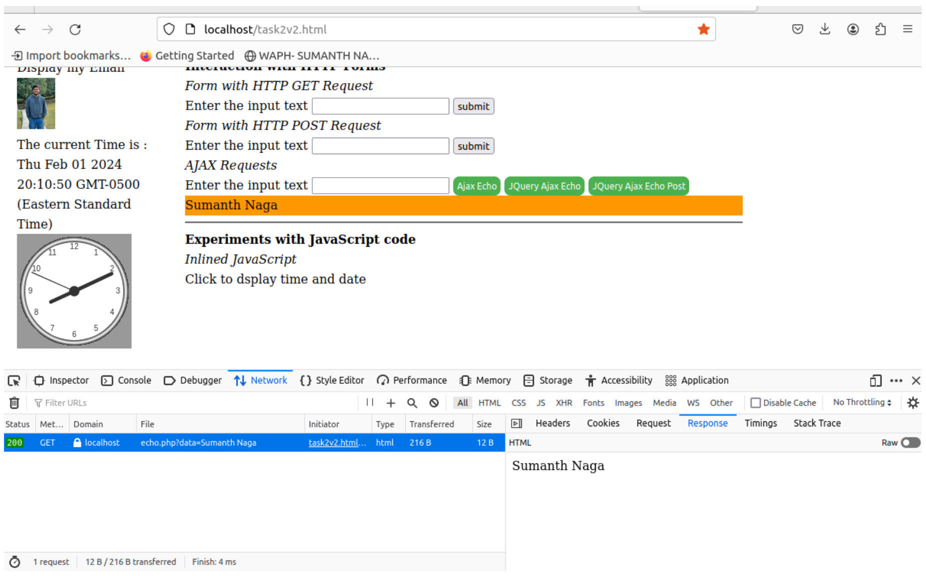
1 request | 12 B / 216 B transferred | Finish: 4 ms

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. The response is examined in the expect view after an Ajax POST request is made to echo.php. The status code was 200OK and the call was POST.



localhost/task2v2.html

Import bookmarks... Getting Started WAPH- SUMANTH NA...

The current Time is : Thu Feb 01 2024 20:10:50 GMT-0500 (Eastern Standard Time)

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]

Sumanth Naga

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

```
Status  Met...  Domain     File                          Initiator        Type  Transferred  Size
200     GET     localhost  echo.php?data=Sumanth Naga    task2v2.html...  html  216 B        12 B
```

Response — HTML

Sumanth Naga

1 request   12 B / 216 B transferred   Finish: 4 ms

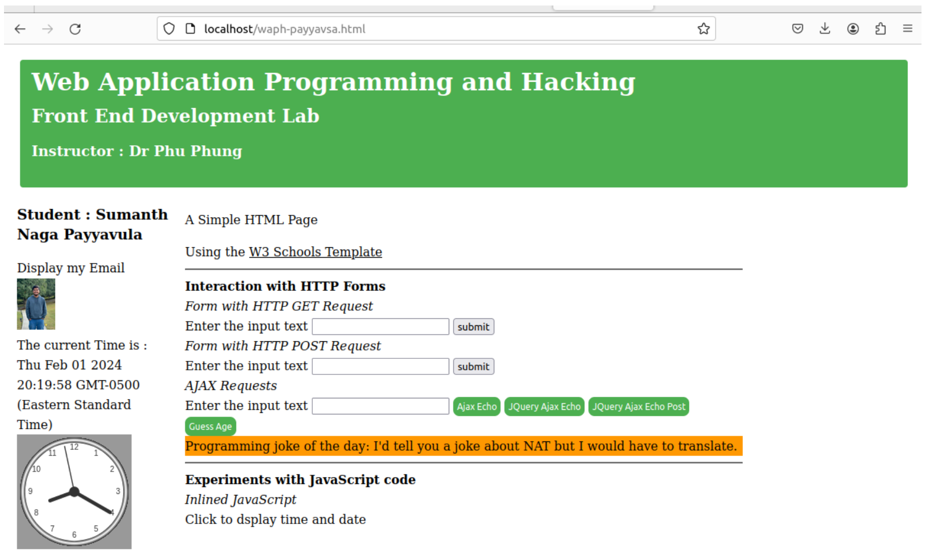
Figure 10: JQuery Ajax POST request to echo.php

```
<!-- HTML code -->
<input class="button round" type="submit"
    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 that makes use of JQuery To make a GET call to the aforementioned web service, Ajax has been written. The response was in JSON; it was shown in the console after being converted to a string using the JSON.stringify() function.


localhost/waph-payyavsa.html

Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Sumanth Naga Payyavula

Display my Email

The current Time is : Thu Feb 01 2024 20:19:58 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] [Guess Age]

Programming joke of the day: I'd tell you a joke about NAT but I would have to translate.

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

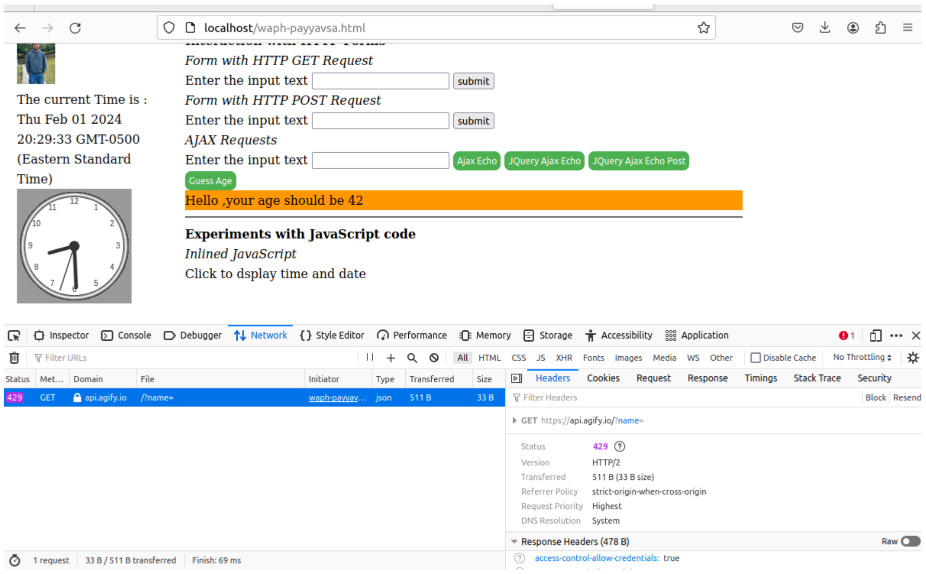
Figure 11: Random Joke displayed when the page is loaded

Response of the webservice in inspect view

Only the joke was filtered using result out of this JSON response.joke, this service provides a randomly selected joke that loads on the page. Every time you refresh the page, a random joke appears.

```
<!-- 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. Using the `fetch` API on https://api.agify.io/?name=input fetch method in Javascript is used to make HTTP request to the above webservice. as it is an asynchronous call the function is defined with the async keyword and the await is used to synchronize the response. The HTTP request made is GET and the status code is 200OK.



localhost/waph-payyavsa.html

The current Time is : Thu Feb 01 2024 20:29:33 GMT-0500 (Eastern Standard Time)

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

Guess Age

Hello ,your age should be 42

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

```
Status  Met...  Domain       File      Initiator      Type  Transferred  Size
429     GET     api.agify.io /?name=   waph-payyav... json  511 B        33 B

1 request   33 B / 511 B transferred   Finish: 69 ms
```

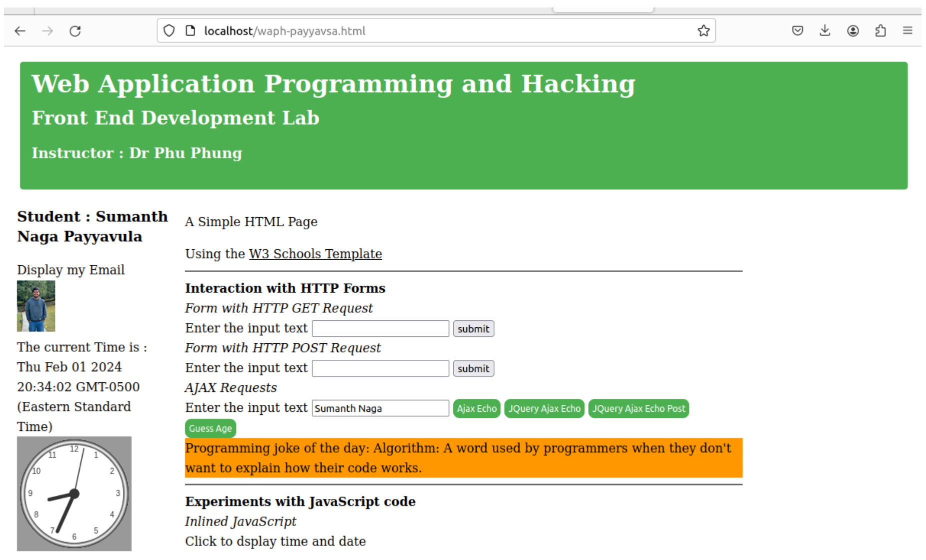
```
GET https://api.agify.io/?name=

Status            429
Version           HTTP/2
Transferred       511 B (33 B size)
Referrer Policy   strict-origin-when-cross-origin
Request Priority  Highest
DNS Resolution    System

Response Headers (478 B)
access-control-allow-credentials: true
```

Figure 12: HTTP request to api.agify.io

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.



Web Application Programming and Hacking

Front End Development Lab

Instructor : Dr Phu Phung

Student : Sumanth Naga Payyavula

Display my Email

The current Time is : Thu Feb 01 2024 20:34:02 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 Sumanth Naga Ajax Echo JQuery Ajax Echo JQuery Ajax Echo Post Guess Age

Programming joke of the day: Algorithm: A word used by programmers when they don't want to explain how their code works.

Experiments with JavaScript code

Inlined JavaScript

Click to dsplay time and date

Figure 13: Lab 2 waph-payyavsa.html

Post this Labs/Lab2 folder was created to accomodate the project report and the changes were pushed. Pandoc tool was used to generate the project report from the README.md file