WAPH-Web Application Programming and Hacking

Instructor: Dr. Phu Phung

Name: Amaan Bilwar

Email: bilwarad@mail.uc.edu

Short-bio: Interested in backend software developement/devOps and enhancing cloud security

Figure 1: Amaan Bilwar's headshot

Repository Information

Respository's URL: https://github.com/amaan/amaanbilwar.github.io

This is a private repository for Amaan Bilwar to store all code from the course.

Individual Project 1

Front-end Web Development with a Professional Profile Website on github.io cloud service

Overview

In this project we expand our knowledge of frontend development by building a project and using github pages to host the website for free. this website is a portfolio website that will be graded as a professional in the industy would do for hiring. There are three types of requirements to meet for this project. They are "general", "technical" and "non-technical". There are also additional tasks to be displayed on teh website which have to do with cookies and API integration.

Everything for this website has been pushed to the repository down below:

https://github.com/amaanbilwar/amaan.github.io.

General Requirements

like mentioned above, there is a public repository mentioned with name `amaanbilwar.github.io` to be hosted on github pages. this website also contains a `waph.html` file to display the course information for Web Application Programming and Hacking. The `waph.html` website also contains links to all assignments completed throughout the course. https://amaanbilwar.github.io/waph.html.

On top of that, the main file is `index.html` which contains all my information including experience, skill, projects, certificates etc. It is currently hosted at https://amaanbilwar.github.io/.

For easier and a more clean layout of the website we were recommended to use a template from Bootstrap and tailor it according to our preferences.

After all the personal information displayed as my resume on the website we incorporate all the additional tasks/requirements for this project.

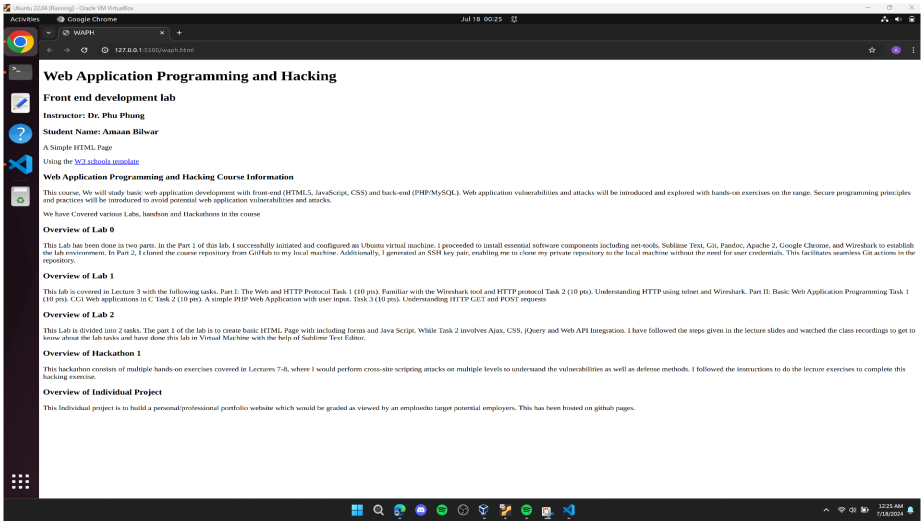
Non-Technical Requirements

For the non-technical requirements:

1. Use Boot Strap Template
2. Include a flag counter which monitors page visits and logs the countries from which the page is viewed from.

Technical Requirements

Regarding the technical criteria:



Web Application Programming and Hacking

Front end development lab

Instructor: Dr. Phu Phung

Student Name: Amaan Bilwar

A Simple HTML Page

Using the W3 schools template

Web Application Programming and Hacking Course Information

This course, We will study basic web application development with front-end (HTML5, JavaScript, CSS) and back-end (PHP/MySQL). Web application vulnerabilities and attacks will be introduced and explored with hands-on exercises on the range. Secure programming principles and practices will be introduced to avoid potential web application vulnerabilities and attacks.

We have Covered various Labs, handson and Hackathons in ths course

Overview of Lab 0

This Lab has been done in two parts. In the Part 1 of this lab, I successfully initiated and configured an Ubuntu virtual machine. I proceeded to install essential software components including net-tools, Sublime Text, Git, Pandoc, Apache 2, Google Chrome, and Wireshark to establish the lab environment. In Part 2, I cloned the course repository from GitHub to my local machine. Additionally, I generated an SSH key pair, enabling me to clone my private repository to the local machine without the need for user credentials. This facilitates seamless Git actions in the repository.

Overview of Lab 1

This lab is covered in Lecture 3 with the following tasks. Part I: The Web and HTTP Protocol Task 1 (10 pts). Familiar with the Wireshark tool and HTTP protocol Task 2 (10 pts). Understanding HTTP using telnet and Wireshark. Part II: Basic Web Application Programming Task 1 (10 pts). CGI Web applications in C Task 2 (10 pts). A simple PHP Web Application with user input. Task 3 (10 pts). Understanding HTTP GET and POST requests

Overview of Lab 2

This Lab is divided into 2 tasks. The part 1 of the lab is to create basic HTML Page with including forms and Java Script. While Task 2 involves Ajax, CSS, jQuery and Web API Integration. I have followed the steps given in the lecture slides and watched the class recordings to get to know about the lab tasks and have done this lab in Virtual Machine with the help of Sublime Text Editor.

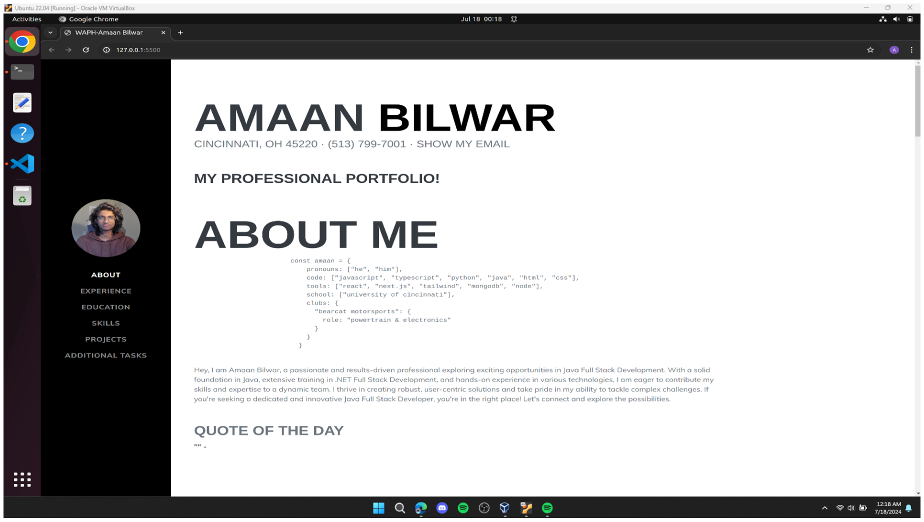
Overview of Hackathon 1

This hackathon consists of multiple hands-on exercises covered in Lectures 7-8, where I would perform cross-site scripting attacks on multiple levels to understand the vulnerabilities as well as defense methods. I followed the instructions to do the lecture exercises to complete this hacking exercise.

Overview of Individual Project

This Individual project is to build a personal/professional portfolio website which would be graded as viewed by an emploedto target potential employers. This has been hosted on github pages.

Figure 2: Screenshot of `waph.html`



AMAAN BILWAR

CINCINNATI, OH 45220 · (513) 799-7001 · SHOW MY EMAIL

MY PROFESSIONAL PORTFOLIO!

ABOUT ME

```
const amaan = {
    pronouns: ["he", "him"],
    code: ["javascript", "typescript", "python", "java", "html", "css"],
    tools: ["react", "next.js", "tailwind", "mongodb", "node"],
    school: ["university of cincinnati"],
    clubs: {
      "bearcat motorsports": {
        role: "powertrain & electronics"
      }
    }
  }
```

Hey, I am Amaan Bilwar, a passionate and results-driven professional exploring exciting opportunities in Java Full Stack Development. With a solid foundation in Java, extensive training in .NET Full Stack Development, and hands-on experience in various technologies, I am eager to contribute my skills and expertise to a dynamic team. I thrive in creating robust, user-centric solutions and take pride in my ability to tackle complex challenges. If you're seeking a dedicated and innovative Java Full Stack Developer, you're in the right place! Let's connect and explore the possibilities.

QUOTE OF THE DAY

"" -

Figure 3: Home Page of `index.html`

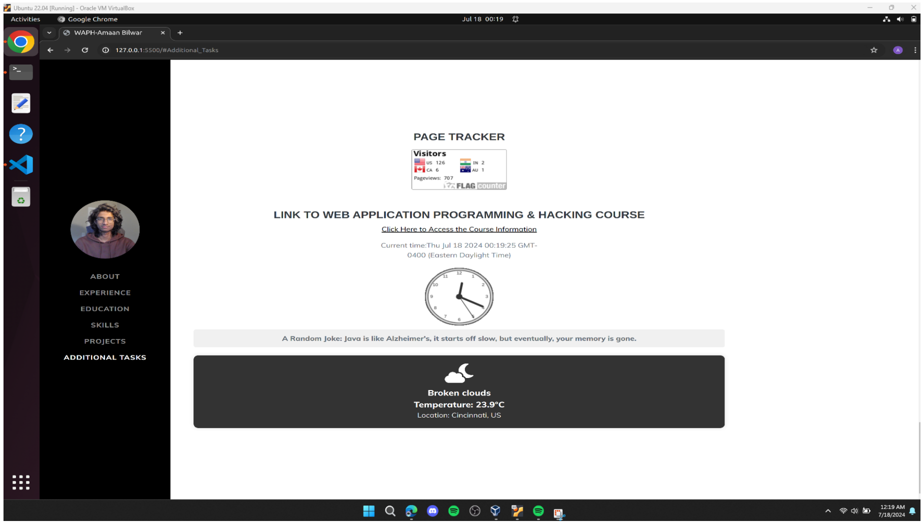
1. Usage jQuery and JavaScript code from Lab 2 to display a digital clock, an analog clock, and a toggle using onclick to show/hide my email.
2. Usage of Vue.js(JavaScript Framework was also a technical requirement) and integration of a public API to fetch and display random quotes and the weather.

This is the API integration code written in JavaScript

1. **Joke API Integration:** Used a joke API from https://v2.jokeapi.dev /joke/Any to display a random joke on the website. Jokes are timed at intervals every minute.

   ```
   function getJoke() {
       $.get("https://v2.jokeapi.dev/joke/Any?type=single", function (result) {
           $("#response").html("A Random Joke: " + result.joke);
       });
   }
   setInterval(getJoke, 60000);
   getJoke();
   ```

2. **Weather API Integration:** Integrated the Weatherbit API from https://www.weatherbit.io to display current weather information. After obtaining an API key, the data is returned in JSON which I formatted and styled using CSS.



PAGE TRACKER

Visitors

US 126	IN 2
CA 6	AU 1

Pageviews: 707

FLAG counter

LINK TO WEB APPLICATION PROGRAMMING & HACKING COURSE

Click Here to Access the Course Information

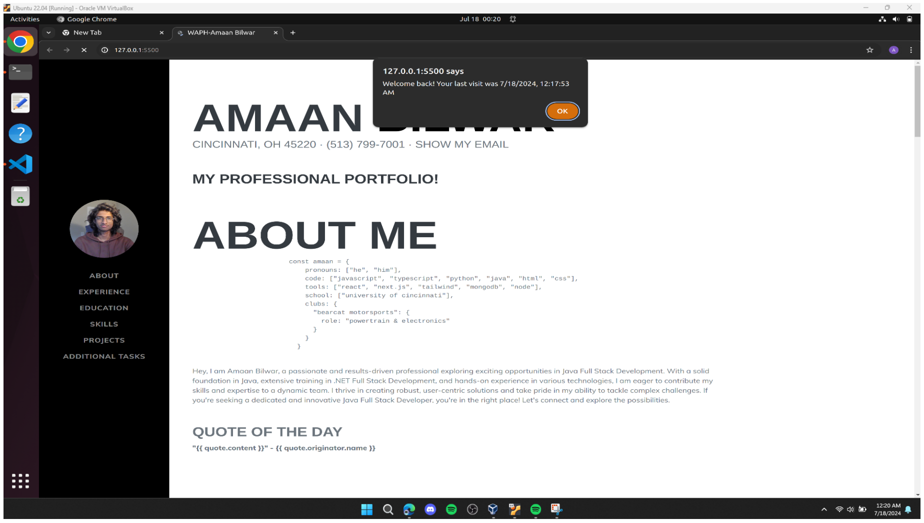
Current time:Thu Jul 18 2024 00:19:25 GMT-0400 (Eastern Daylight Time)

A Random Joke: Java is like Alzheimer's, it starts off slow, but eventually, your memory is gone.

Broken clouds
Temperature: 23.9°C
Location: Cincinnati, US

Figure 4: Screenshot of all above Technical Requirements

Additionally, as per the project requirements, we use cookies to remeber the user visit time and send out an alert. If the user is loading/accessing the website for the first time an alert message is sent out saying welcome and the cookies save the time each time the page is refreshed and show the last time the user was there with the current time and the time visited with a welcome back message.



127.0.0.1:5500 says

Welcome back! Your last visit was 7/18/2024, 12:17:53 AM

AMAAN

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MY PROFESSIONAL PORTFOLIO!

ABOUT ME

```
const amaan = {
    pronouns: ["he", "him"],
    code: ["javascript", "typescript", "python", "java", "html", "css"],
    tools: ["react", "next.js", "tailwind", "mongodb", "node"],
    school: ["university of cincinnati"],
    clubs: {
      "bearcat motorsports": {
        role: "powertrain & electronics"
      }
    }
  }
```

Hey, I am Amaan Bilwar, a passionate and results-driven professional exploring exciting opportunities in Java Full Stack Development. With a solid foundation in Java, extensive training in .NET Full Stack Development, and hands-on experience in various technologies, I am eager to contribute my skills and expertise to a dynamic team. I thrive in creating robust, user-centric solutions and take pride in my ability to tackle complex challenges. If you're seeking a dedicated and innovative Java Full Stack Developer, you're in the right place! Let's connect and explore the possibilities.

QUOTE OF THE DAY

"{{ quote.content }}" - {{ quote.originator.name }}

Figure 5: First Time User and Saved Cookies

They were implemented as follows:

```
new Vue({
    el: '#app',
    data: {
        quote: {
            content: '',
            originator: {
                name: ''
            }
        }
    },
    methods: {
        async fetchQuote() {
            const options = {
                method: 'GET',
                url: 'https://random-quote-generator2.p.rapidapi.com/randomQuote',
                headers: {
                    'X-RapidAPI-Key': 'b9b5a91c2emsh000a90d32a87145p1c5729jsne626d5f90d2
                    'X-RapidAPI-Host': 'random-quote-generator2.p.rapidapi.com'
                }
            };
            try {
                const response = await axios.request(options);
```

```
                    if (Array.isArray(response.data) && response.data.length > 0) {
                        const quote = response.data[0];

                        this.quote.content = quote.Quote;
                        this.quote.originator.name = quote.Author;
                    } else {
                        console.error('Invalid data received from the API:', response.data);
                    }
                } catch (error) {
                    console.error(error);
                }
            }
        },
        created() {
            // Fetch a quote when the app is created
            this.fetchQuote();

            // Fetch a new quote every 12 hours
            setInterval(this.fetchQuote, 12 * 60 * 60 * 1000);
        }
    });
```

Code in HTML to display the Quote:

```
<div class="mt-5">   <p>     <h3 class="text-success">Quote of the
day</h3>     <strong>"{{ quote.content }}"</strong>     <span
style="font-weight: bold;"> - {{ quote.originator.name }}</span>
</p> </div>
```

Html enitites added html entities used to prevent the wwebsite against vulnerabilities. 1. `textContext` instead of `innerHTML` to prevent potential XSS vulnerabilities. 2. Used `encodeURIComponent` and `decodeURIComponent` methods for cookie values. 3. Corrected HTML entities for special characters like `'` and `"` in text. 4. Ensured that JavaScript template literals are corectly used for dynamic content.