WAPH-Web Application Programming and Hacking

Instructor: Dr. Phu Phung

Name: Sivani Chava

Email: chavasi@mail.uc.edu

Short-bio: Iam sivanichava.I have experience of an year as a data analyst. Intrested in solving sophisticated problems.Currently pursuing masters in University of Cincinnati.

Figure 1: Sivani Chava

Repository Information

Respository's URL: https://github.com/chavasi-uc/chavasi-uc.github.io/blob/main/Project-1/README.md

This is a public repository for Sivani Chava to store all code from the course. The organization of this repository is as follows.

Individual Project 1 – Front-end Web Development with a Professional Profile Website on github.io cloud service

Overview and Requirements

In this project, I have included the parts of functionality codes from previous labs that includes, analog clock, digital clock and Email, Joke API. I have also included 2 other API'S information namely Weather and react framework associated Exchange-rate API. My webpage in this project along with the aforementioned information showcases my resume which includes skills, experiences. Along with these elements i have included a page tracker, that counts and displays number of times the webpage was seen among different regions around the globe.

The link to access my website is: https://chavasi-uc.github.io/Project-1/index.html.

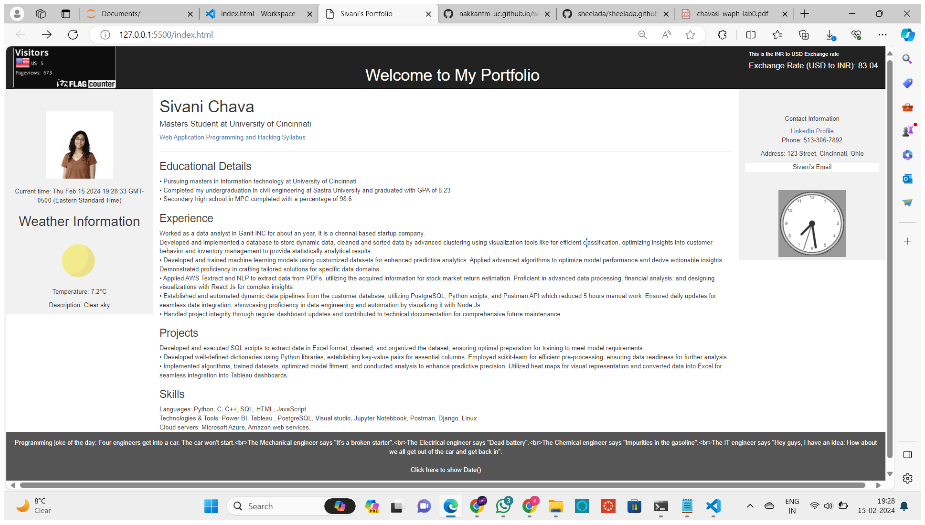
The link to access Individual Project-1 is: https://github.com/chavasi-uc/chavasi-uc.github.io.

General Requirements

Personal Website on Github.io

I created a new public repository with the name `chavasi-uc.github.io`. I developed a personal website hosted on GitHub Pages showcasing my resume, contact details, educational background, professional experiences, projects, certifications, and skills

The link to access my website is: https://chavasi-uc.github.io/Project-1/index.html.



Visitors
US 5
Pageviews: 673
FLAG counter

Welcome to My Portfolio

This is the INR to USD Exchange rate
Exchange Rate (USD to INR): 83.04

Current time: Thu Feb 15 2024 19:28:33 GMT-0500 (Eastern Standard Time)

Weather Information

Temperature: 7.2°C
Description: Clear sky

Sivani Chava
Masters Student at University of Cincinnati
Web Application Programming and Hacking Syllabus

Educational Details
• Pursuing masters in Information technology at University of Cincinnati
• Completed my undergraduation in civil engineering at Sastra University and graduated with GPA of 8.23
• Secondary high school in MPC completed with a percentage of 98.6

Experience
Worked as a data analyst in Ganit INC for about an year, It is a chennai based startup company.
Developed and implemented a database to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools like for efficient classification, optimizing insights into customer behavior and inventory management to provide statistically analytical results.
• Developed and trained machine learning models using customized datasets for enhanced predictive analytics. Applied advanced algorithms to optimize model performance and derive actionable insights. Demonstrated proficiency in crafting tailored solutions for specific data domains.
• Applied AWS Textract and NLP to extract data from PDFs, utilizing the acquired information for stock market return estimation. Proficient in advanced data processing, financial analysis, and designing visualizations with React Js for complex insights.
• Established and automated dynamic data pipelines from the customer database, utilizing PostgreSQL, Python scripts, and Postman API which reduced 5 hours manual work. Ensured daily updates for seamless data integration, showcasing proficiency in data engineering and automation by visualizing it with Node Js.
• Handled project integrity through regular dashboard updates and contributed to technical documentation for comprehensive future maintenance

Projects
Developed and executed SQL scripts to extract data in Excel format, cleaned, and organized the dataset, ensuring optimal preparation for training to meet model requirements.
• Developed well-defined dictionaries using Python libraries, establishing key-value pairs for essential columns. Employed scikit-learn for efficient pre-processing, ensuring data readiness for further analysis.
• Implemented algorithms, trained datasets, optimized model fitment, and conducted analysis to enhance predictive precision. Utilized heat maps for visual representation and converted data into Excel for seamless integration into Tableau dashboards.

Skills
Languages: Python, C, C++, SQL, HTML, JavaScript
Technologies & Tools: Power BI, Tableau , PostgreSQL, Visual studio, Jupyter Notebbook, Postman, Django, Linux
Cloud servers: Microsoft Azure, Amazon web services.

Contact Information
LinkedIn Profile
Phone: 513-306-7892
Address: 123 Street, Cincinnati, Ohio
Sivani's Email

Programming joke of the day: Four engineers get into a car. The car won't start.
The Mechanical engineer says "It's a broken starter".
The Electrical engineer says "Dead battery".
The Chemical engineer says "Impurities in the gasoline".
The IT engineer says "Hey guys, I have an idea: How about we all get out of the car and get back in".

Click here to show Date()

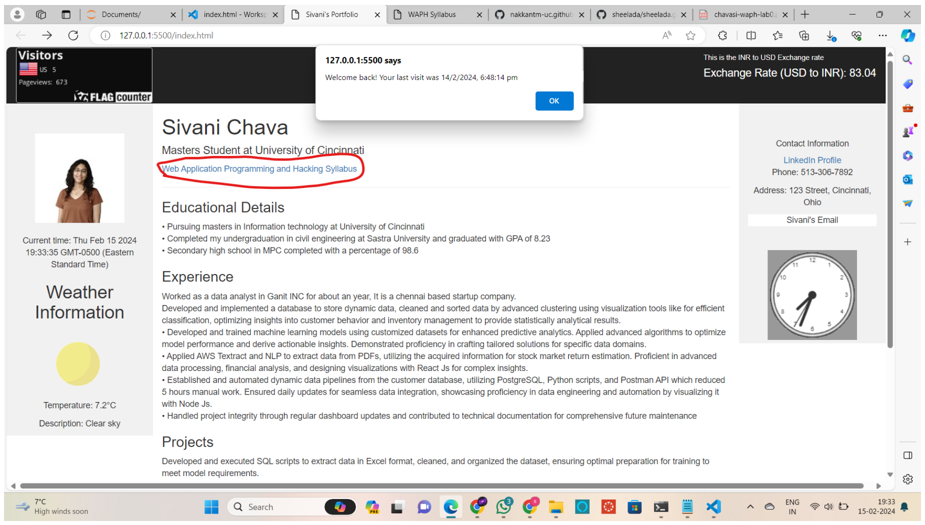
Figure 2: Portfolio Website

“Web Application Programming and Hacking” course and related hands-on projects on waph.html file

I’ve added a dedicated page named ‘waph.html’ to my repository, providing an introduction to the ‘Web Application Programming and Hacking’ course along with its associated hands-on projects. This includes summaries of Lab0, Lab1, Lab2, Hackathon 1, and Individual Project 1.

The link to access waph.html is: https://chavasi-uc.github.io/waph.html.

As shown below the page is accessible.



127.0.0.1:5500 says

Welcome back! Your last visit was 14/2/2024, 6:48:14 pm

This is the INR to USD Exchange rate

Exchange Rate (USD to INR): 83.04

Sivani Chava

Masters Student at University of Cincinnati

Web Application Programming and Hacking Syllabus

Current time: Thu Feb 15 2024 19:33:35 GMT-0500 (Eastern Standard Time)

Weather Information

Temperature: 7.2°C

Description: Clear sky

Educational Details

• Pursuing masters in Information technology at University of Cincinnati
• Completed my undergraduation in civil engineering at Sastra University and graduated with GPA of 8.23
• Secondary high school in MPC completed with a percentage of 98.6

Experience

Worked as a data analyst in Ganit INC for about an year, It is a chennai based startup company.
Developed and implemented a database to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools like for efficient classification, optimizing insights into customer behavior and inventory management to provide statistically analytical results.
• Developed and trained machine learning models using customized datasets for enhanced predictive analytics. Applied advanced algorithms to optimize model performance and derive actionable insights. Demonstrated proficiency in crafting tailored solutions for specific data domains.
• Applied AWS Textract and NLP to extract data from PDFs, utilizing the acquired information for stock market return estimation. Proficient in advanced data processing, financial analysis, and designing visualizations with React Js for complex insights.
• Established and automated dynamic data pipelines from the customer database, utilizing PostgreSQL, Python scripts, and Postman API which reduced 5 hours manual work. Ensured daily updates for seamless data integration, showcasing proficiency in data engineering and automation by visualizing it with Node Js.
• Handled project integrity through regular dashboard updates and contributed to technical documentation for comprehensive future maintenance

Projects

Developed and executed SQL scripts to extract data in Excel format, cleaned, and organized the dataset, ensuring optimal preparation for training to meet model requirements.

Contact Information

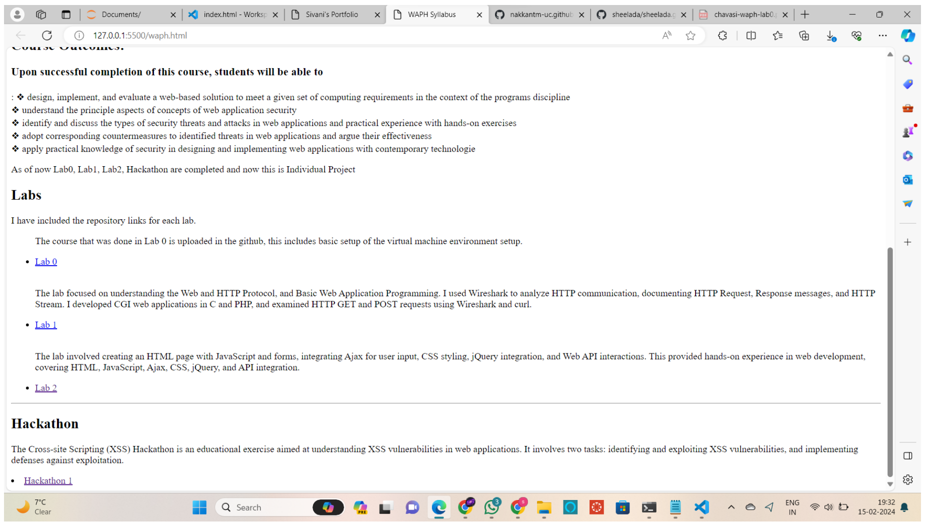
LinkedIn Profile

Phone: 513-306-7892

Address: 123 Street, Cincinnati, Ohio

Sivani's Email

Figure 3: HTML link in portfolio



Upon successful completion of this course, students will be able to

: ❖ design, implement, and evaluate a web-based solution to meet a given set of computing requirements in the context of the programs discipline
❖ understand the principle aspects of concepts of web application security
❖ identify and discuss the types of security threats and attacks in web applications and practical experience with hands-on exercises
❖ adopt corresponding countermeasures to identified threats in web applications and argue their effectiveness
❖ apply practical knowledge of security in designing and implementing web applications with contemporary technologie

As of now Lab0, Lab1, Lab2, Hackathon are completed and now this is Individual Project

Labs

I have included the repository links for each lab.

The course that was done in Lab 0 is uploaded in the github, this includes basic setup of the virtual machine environment setup.

- Lab 0

The lab focused on understanding the Web and HTTP Protocol, and Basic Web Application Programming. I used Wireshark to analyze HTTP communication, documenting HTTP Request, Response messages, and HTTP Stream. I developed CGI web applications in C and PHP, and examined HTTP GET and POST requests using Wireshark and curl.

- Lab 1

The lab involved creating an HTML page with JavaScript and forms, integrating Ajax for user input, CSS styling, jQuery integration, and Web API interactions. This provided hands-on experience in web development, covering HTML, JavaScript, Ajax, CSS, jQuery, and API integration.

- Lab 2

Hackathon

The Cross-site Scripting (XSS) Hackathon is an educational exercise aimed at understanding XSS vulnerabilities in web applications. It involves two tasks: identifying and exploiting XSS vulnerabilities, and implementing defenses against exploitation.

- Hackathon 1

Figure 4: syllabus page

Non-technical requirements

Bootstrap Template

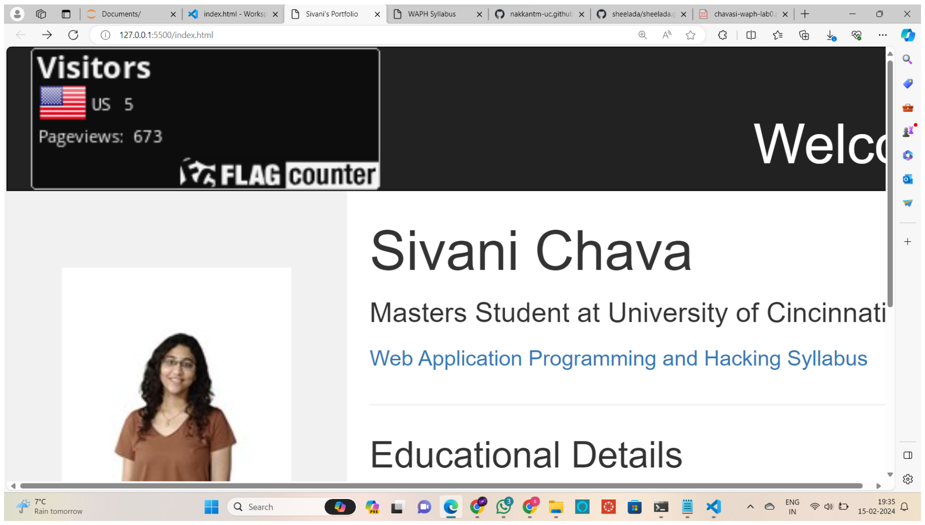
I have downloaded a bootstrap template from the website `https://www.w3schools.com/bootstrap/bootstrap_`
And added changes according to the professor instructions.

Page Tracker

I've incorporated Flag Counter as a page tracker to monitor website visits and engagement. After evaluating options, I selected `https://flagcounter.com/` as the platform. I obtained a key from the website and seamlessly integrated it into my code. Now, Flag Counter is visibly integrated into the homepage of my website, allowing for easy tracking of visits and engagement.

Code for integrating Flag Counter:

```
<div class="navbar-header text-center" id="headerwelcome">
      <a href="https://info.flagcounter.com/6f21"><img src="https://s11.flagcounter.com/coun
</div>
```



Sivani Chava

Masters Student at University of Cincinnati

Web Application Programming and Hacking Syllabus

Educational Details

Figure 5: Page tracker

Technical requirements

A digital clock; An analog clock; show/hide your email:

Same as lab 2, Implemented a digital clock and an analog clock using JavaScript to display current time and also added functionality to show/hide the email address based on user interaction.

Source Code for digital clock:

```
function displayTime() {
          document.getElementById('digital-clock').innerHTML = "current time:" + new Date()
        }
        setInterval(displayTime, 500);
```

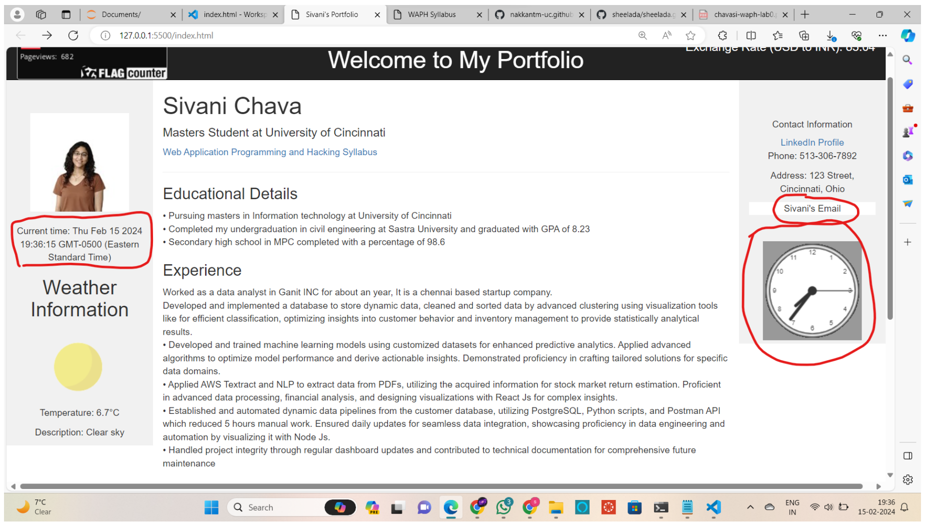
Source Code for Analog clock:

```
<canvas id="analog-clock" width="150" height="150" style="background-color:#999"></canvas>

      <script src="https://waph-uc.github.io/clock.js"></script>
      <script> 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, 10);

      function drawClock(){
          drawFace(ctx, radius);
          drawNumbers(ctx, radius);
          drawTime(ctx,radius);
      }
      </script>
```

Source Code for show/hide your email:

```
function showhideEmail() {
      if (shown) {
        document.getElementById('email').innerHTML = "Click here to show my email";
        shown = false;
      }
      else {
        var myemail = "<a href='mailto:chavasi-uc" + "@" + "mail.uc.edu'>chavasi-uc" + "@"
        document.getElementById('email').innerHTML = myemail;
        shown = true;
```

Screenshot Showing Digital clock, Analog Clock, Show/hide your email:



Welcome to My Portfolio

Exchange Rate (USD to INR): 83.04

Current time: Thu Feb 15 2024 19:36:15 GMT-0500 (Eastern Standard Time)

Weather Information

Temperature: 6.7°C

Description: Clear sky

Sivani Chava

Masters Student at University of Cincinnati

Web Application Programming and Hacking Syllabus

Educational Details

• Pursuing masters in Information technology at University of Cincinnati
• Completed my undergraduation in civil engineering at Sastra University and graduated with GPA of 8.23
• Secondary high school in MPC completed with a percentage of 98.6

Experience

Worked as a data analyst in Ganit INC for about an year, It is a chennai based startup company.
Developed and implemented a database to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools like for efficient classification, optimizing insights into customer behavior and inventory management to provide statistically analytical results.
• Developed and trained machine learning models using customized datasets for enhanced predictive analytics. Applied advanced algorithms to optimize model performance and derive actionable insights. Demonstrated proficiency in crafting tailored solutions for specific data domains.
• Applied AWS Textract and NLP to extract data from PDFs, utilizing the acquired information for stock market return estimation. Proficient in advanced data processing, financial analysis, and designing visualizations with React Js for complex insights.
• Established and automated dynamic data pipelines from the customer database, utilizing PostgreSQL, Python scripts, and Postman API which reduced 5 hours manual work. Ensured daily updates for seamless data integration, showcasing proficiency in data engineering and automation by visualizing it with Node Js.
• Handled project integrity through regular dashboard updates and contributed to technical documentation for comprehensive future maintenance

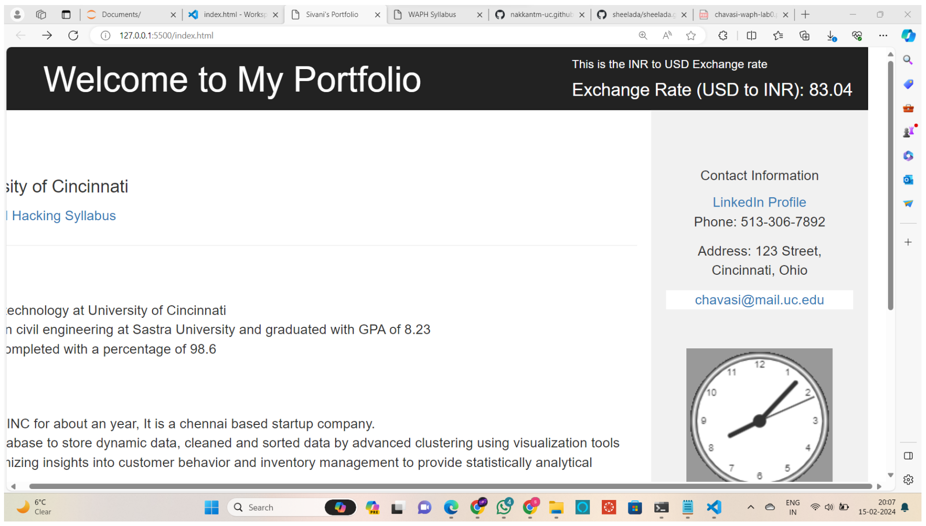
Contact Information

LinkedIn Profile
Phone: 513-306-7892

Address: 123 Street, Cincinnati, Ohio

Sivani's Email

Figure 6: Analog and digital Clocks, Clickable shown Email



Welcome to My Portfolio

This is the INR to USD Exchange rate

Exchange Rate (USD to INR): 83.04

sity of Cincinnati

Hacking Syllabus

echnology at University of Cincinnati
n civil engineering at Sastra University and graduated with GPA of 8.23
ompleted with a percentage of 98.6

INC for about an year, It is a chennai based startup company.
abase to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools
nizing insights into customer behavior and inventory management to provide statistically analytical

Contact Information

LinkedIn Profile

Phone: 513-306-7892

Address: 123 Street, Cincinnati, Ohio

chavasi@mail.uc.edu

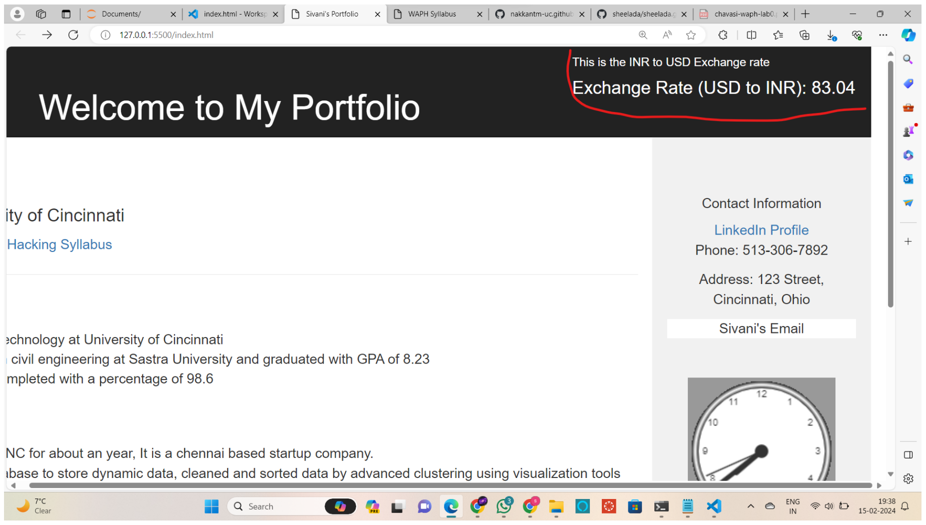
Figure 7: Email after clicking

One more Functionality of my choice

I have integrated Currency exchange rate Api using REACT.JS Framework. This Api displays current exchange rate of the currency, by default i have USD to INR.

Source code for Haacker news Api:

```
<script src="https://cdn.jsdelivr.net/npm/vue@2"></script>

<script type="text/babel">
   function ExchangeRate() {
     const [exchangeRate, setExchangeRate] = React.useState(null);
     const [error, setError] = React.useState(null);

     React.useEffect(() => {
       const apiKey = 'faa4bf4f162247c9a257f5fc07d1facd';

       axios.get("https://api.exchangerate-api.com/v4/latest/USD", {
         params: { access_key: apiKey }
       })
       .then(response => {
         const data = response.data;
         if (data && data.rates) {
           const exchangeRate = data.rates.INR.toFixed(2);
           setExchangeRate(exchangeRate);
         } else {
           setError("Unable to fetch exchange rate");
         }
       })
       .catch(error => {
         setError("Error occurred while fetching exchange rate");
       });
     }, []);

     return (
       <div id="root">
         {exchangeRate ? `Exchange Rate (USD to INR): ${exchangeRate}` : error}
       </div>
     );
   }

   ReactDOM.render(
     <ExchangeRate />,
     document.getElementById('root')
   );
 </script>
```



This is the INR to USD Exchange rate

Exchange Rate (USD to INR): 83.04

Welcome to My Portfolio

ity of Cincinnati

Hacking Syllabus

echnology at University of Cincinnati
civil engineering at Sastra University and graduated with GPA of 8.23
mpleted with a percentage of 98.6

NC for about an year, It is a chennai based startup company.
ibase to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools

Contact Information

LinkedIn Profile

Phone: 513-306-7892

Address: 123 Street, Cincinnati, Ohio

Sivani's Email

Figure 8: Currency Exchange-rate's USD to INR

Joke API

Integrated the jokeAPI to fetch a new joke every minute and display it on the website.

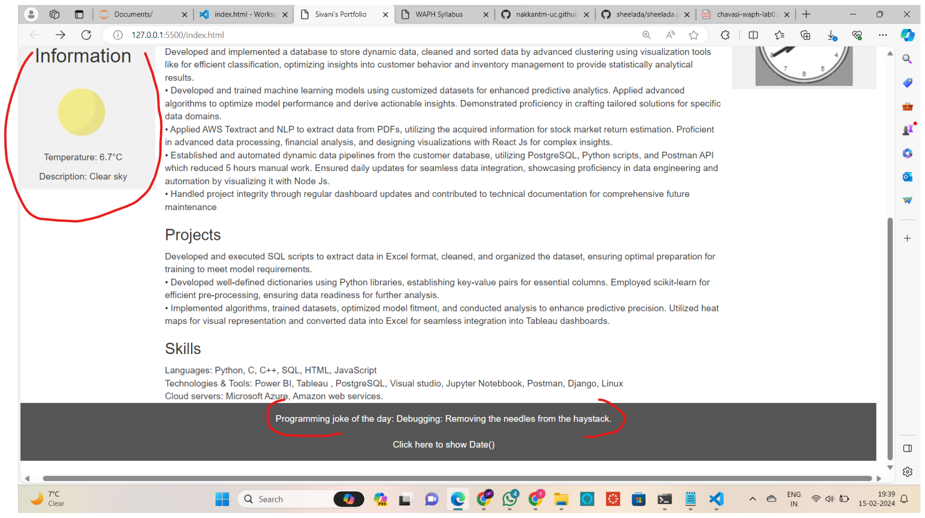
Source code for Joke API:

```
<script>
function JokeAPI(){

// function for JOKE API
function printResult(result) {
    $("#response").html(encodeInput(result));
   }
   function encodeInput(input){
    const encodeData=document.createElement('div');
    encodeData.innerText=input;
    return encodeData.innerHTML;
    }
$.get("https://v2.jokeapi.dev/joke/Programming?type=single",function(result) {
    console.log("from the joke api : "+ JSON.stringify(result));
    if (result && result.joke){
        var encodedJoke=encodeInput(result.joke);
        $("#response").text("Programming joke of the day: "+encodedJoke);
    }
else{
    $("#response").text("can't get the joke");

}});
}
JokeAPI();
setInterval(newJoke,60000);
</script>
```

Weather API

I've integrated the Weatherbit API to retrieve current weather data for Cincinnati and display it on my website. Visitors can now easily access up-to-date weather information directly from the homepage.

```
<h2>Weather Information</H2>
      <div id="weather-info">
        <!-- Weather icon will be displayed here -->
        <img id="weather-icon" src="" alt="Weather Icon">
        <div id="weather-details"></div>
      </div>
      <script>
        $(document).ready(function () {
        var apiKey = 'f85b577a771d49e990a4bb9613a29735';
        // Make a GET request to Weatherbit API for current weather data
        $.get("https://api.weatherbit.io/v2.0/current", {
            key: apiKey,
            city: 'Cincinnati' // Example city, you can change it to any city you want
        })
            .done(function (data) {
                // Check if the request was successful and data is available
                if (data && data.data && data.data.length > 0) {
                    var weatherData = data.data[0];
                    var temperature = weatherData.temp;
                    var description = weatherData.weather.description;
                    var iconCode = weatherData.weather.icon;

                    // Construct the URL for the weather icon
                    var iconUrl = "https://www.weatherbit.io/static/img/icons/" + iconCode 

                    // Display weather information on the webpage
                    $("#weather-icon").attr("src", iconUrl);
                    $("#weather-details").html("<p>Temperature: " + temperature + "°C</p>" 
                        "<p>Description: " + description + "</p>");
                } else {
                    $("#weather-info").html("<p>Unable to fetch weather data.</p>");
                }
            })
            .fail(function () {
                $("#weather-info").html("<p>Error occurred while fetching weather data.</p>
            });
    });
     </script>
    </div>
```



Information

Temperature: 6.7°C

Description: Clear sky

Developed and implemented a database to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools like for efficient classification, optimizing insights into customer behavior and inventory management to provide statistically analytical results.
• Developed and trained machine learning models using customized datasets for enhanced predictive analytics. Applied advanced algorithms to optimize model performance and derive actionable insights. Demonstrated proficiency in crafting tailored solutions for specific data domains.
• Applied AWS Textract and NLP to extract data from PDFs, utilizing the acquired information for stock market return estimation. Proficient in advanced data processing, financial analysis, and designing visualizations with React Js for complex insights.
• Established and automated dynamic data pipelines from the customer database, utilizing PostgreSQL, Python scripts, and Postman API which reduced 5 hours manual work. Ensured daily updates for seamless data integration, showcasing proficiency in data engineering and automation by visualizing it with Node Js.
• Handled project integrity through regular dashboard updates and contributed to technical documentation for comprehensive future maintenance

Projects

Developed and executed SQL scripts to extract data in Excel format, cleaned, and organized the dataset, ensuring optimal preparation for training to meet model requirements.
• Developed well-defined dictionaries using Python libraries, establishing key-value pairs for essential columns. Employed scikit-learn for efficient pre-processing, ensuring data readiness for further analysis.
• Implemented algorithms, trained datasets, optimized model fitment, and conducted analysis to enhance predictive precision. Utilized heat maps for visual representation and converted data into Excel for seamless integration into Tableau dashboards.

Skills

Languages: Python, C, C++, SQL, HTML, JavaScript
Technologies & Tools: Power BI, Tableau , PostgreSQL, Visual studio, Jupyter Notebbook, Postman, Django, Linux
Cloud servers: Microsoft Azure, Amazon web services.

Programming joke of the day: Debugging: Removing the needles from the haystack.

Click here to show Date()

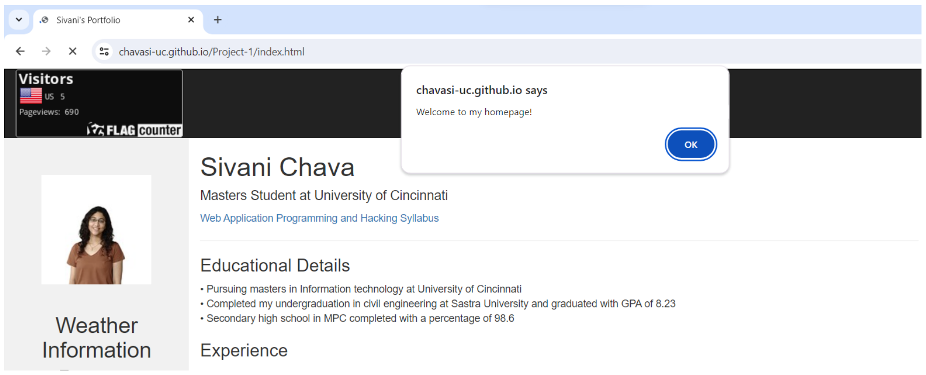
Figure 9: Joke API and weather API

Javascript Cookies

I've implemented JavaScript cookies to enhance user experience on my website. Now, when a user visits the site for the first time, they receive a warm welcome message: "Welcome to my homepage!". For returning visitors, a personalized message is displayed: "Welcome back! Your last visit was (last visit time and date)". This feature helps create a more engaging and personalized experience for users.

```
// Function to set or retrieve the value of a cookie
function setCookie(name, value, days) {
var expires = "";
if (days) {
  var date = new Date();
  date.setTime(date.getTime() + (days * 24 * 60 * 60 * 1000));
  expires = "; expires=" + date.toUTCString();
}
document.cookie = name + "=" + (value || "") + expires + "; path=/";
}

function getCookie(name) {
var nameEQ = name + "=";
var ca = document.cookie.split(';');
for (var i = 0; i < ca.length; i++) {
  var c = ca[i];
  while (c.charAt(0) === ' ') c = c.substring(1, c.length);
  if (c.indexOf(nameEQ) === 0) return c.substring(nameEQ.length, c.length);
}
return null;
}

// Function to display the welcome message
function displayWelcomeMessage() {
var lastVisit = getCookie("lastVisit");
if (!lastVisit) {
  // First-time visit
  setCookie("lastVisit", new Date().toISOString(), 30); // Set cookie to expire in 30 days
  alert("Welcome to my homepage!");
} else {
  // Returning visit
  var lastVisitDate = new Date(lastVisit);
  alert("Welcome back! Your last visit was " + lastVisitDate.toLocaleString());
}
}

// Call the function when the page loads
```

```
window.onload = displayWelcomeMessage;
```



chavasi-uc.github.io says

Welcome to my homepage!

Sivani Chava

Masters Student at University of Cincinnati

Web Application Programming and Hacking Syllabus

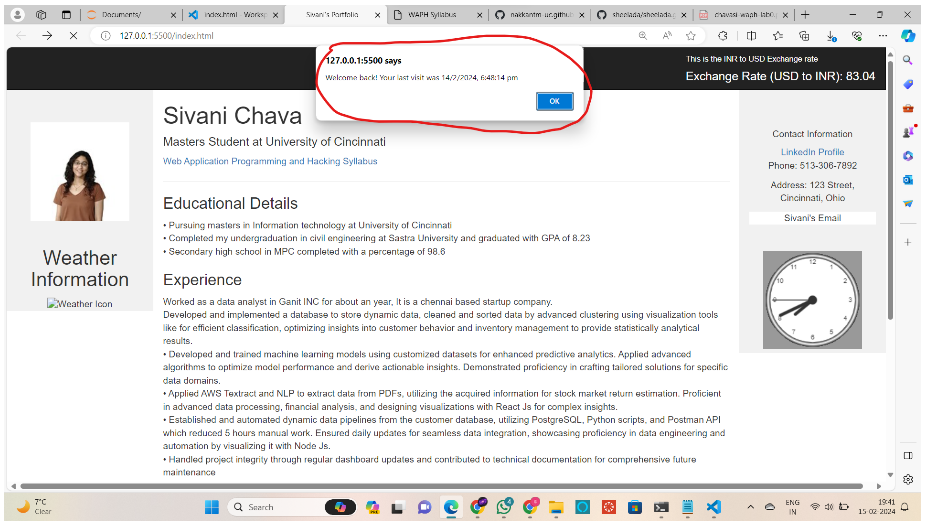
Educational Details

- Pursuing masters in Information technology at University of Cincinnati
- Completed my undergraduation in civil engineering at Sastra University and graduated with GPA of 8.23
- Secondary high school in MPC completed with a percentage of 98.6

Experience

Weather Information

Figure 10: Opened for the first time



127.0.0.1:5500 says

Welcome back! Your last visit was 14/2/2024, 6:48:14 pm

This is the INR to USD Exchange rate

Exchange Rate (USD to INR): 83.04

Sivani Chava

Masters Student at University of Cincinnati

Web Application Programming and Hacking Syllabus

Educational Details

• Pursuing masters in Information technology at University of Cincinnati
• Completed my undergraduation in civil engineering at Sastra University and graduated with GPA of 8.23
• Secondary high school in MPC completed with a percentage of 98.6

Experience

Worked as a data analyst in Ganit INC for about an year, It is a chennai based startup company.
Developed and implemented a database to store dynamic data, cleaned and sorted data by advanced clustering using visualization tools like for efficient classification, optimizing insights into customer behavior and inventory management to provide statistically analytical results.
• Developed and trained machine learning models using customized datasets for enhanced predictive analytics. Applied advanced algorithms to optimize model performance and derive actionable insights. Demonstrated proficiency in crafting tailored solutions for specific data domains.
• Applied AWS Textract and NLP to extract data from PDFs, utilizing the acquired information for stock market return estimation. Proficient in advanced data processing, financial analysis, and designing visualizations with React Js for complex insights.
• Established and automated dynamic data pipelines from the customer database, utilizing PostgreSQL, Python scripts, and Postman API which reduced 5 hours manual work. Ensured daily updates for seamless data integration, showcasing proficiency in data engineering and automation by visualizing it with Node Js.
• Handled project integrity through regular dashboard updates and contributed to technical documentation for comprehensive future maintenance

Weather Information

Weather Icon

Contact Information

LinkedIn Profile

Phone: 513-306-7892

Address: 123 Street, Cincinnati, Ohio

Sivani's Email

Figure 11: revisiting again