Web Application Programming and Hacking

WAPH Hackathon 1 – Cross-site Scripting Attacks and Defenses

Instructor Name : Dr. Phu Phung

Student Name : Arnab Singh

Email: singha105@udayton.edu

 GitHub Repository Link
Click here to view the full project folder on GitHub

Overview

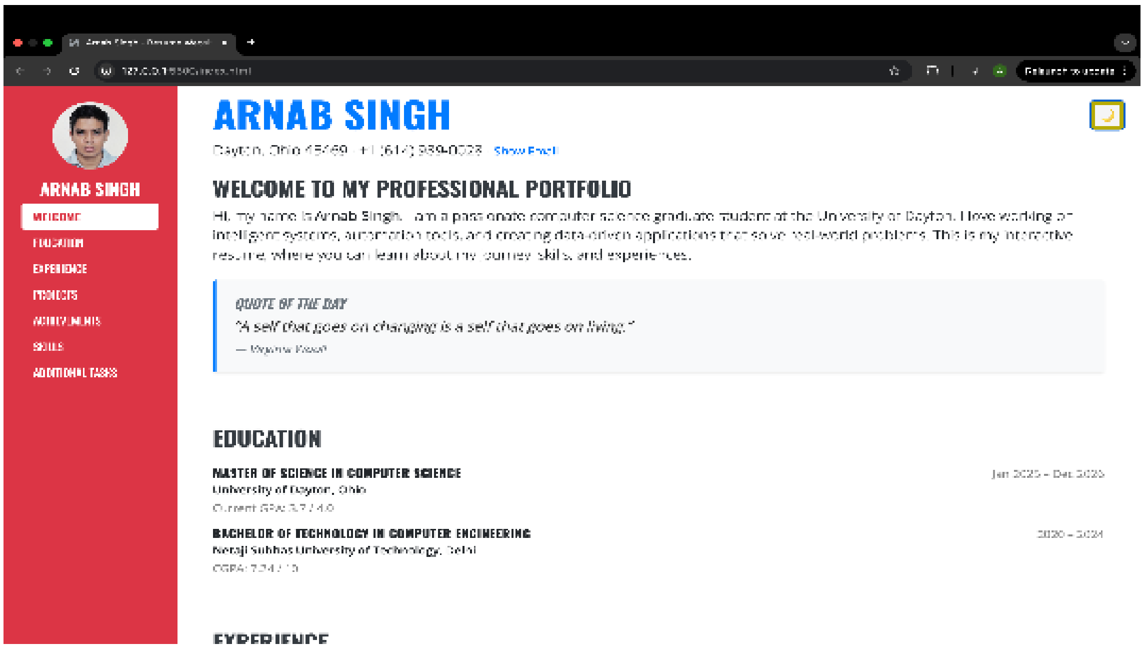
This project was part of the Web Application Programming and Hacking course aimed at building a professional portfolio website using HTML, CSS, Bootstrap, JavaScript, and public Web APIs. I developed a responsive resume website hosted on GitHub Pages. Throughout the project, I learned how to structure web content, apply dynamic effects, interact with APIs, and implement user tracking and cookies for interactivity.

General Requirements

Personal Website on GitHub

- Created `index.html` with personal details: name, photo, contact, education, experience, skills.
- Used Bootstrap for responsive layout.
- Website deployed successfully on GitHub Pages.

Screenshot: **Homepage with name visible.**



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WELCOME TO MY PROFESSIONAL PORTFOLIO

Hi, my name is Arnab Singh. I am a passionate computer science graduate student at the University of Dayton. I love working on intelligent systems, automation tools, and creating data-driven applications that solve real-world problems. This is my interactive resume where you can learn about my journey, skills, and experiences.

QUOTE OF THE DAY

"A self that goes on changing is a self that goes on living."

— Virginia Woolf

EDUCATION

MASTER OF SCIENCE IN COMPUTER SCIENCE — Jan 2025 – Dec 2026

University of Dayton, Ohio

Current GPA: 3.7 / 4.0

BACHELOR OF TECHNOLOGY IN COMPUTER ENGINEERING — 2020 – 2024

Netaji Subhas University of Technology, Delhi

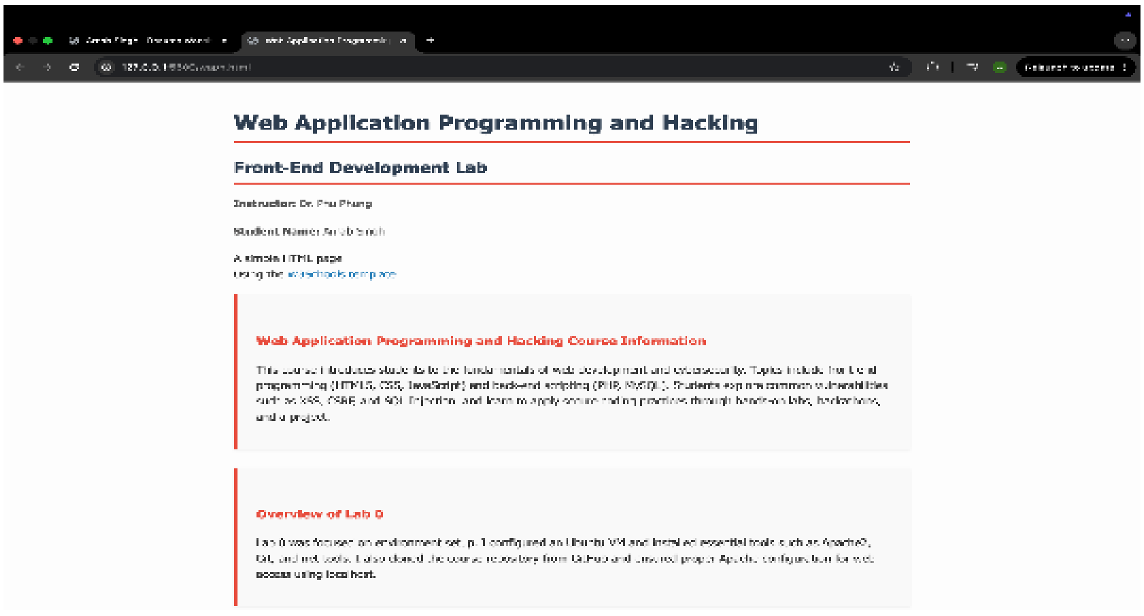
CGPA: 7.24 / 10

EXPERIENCE

WAPH Introduction Page

- Created `waph.html` to introduce the course and related projects.
- Linked from sidebar or additional section in main page.

Screenshot: **Page showing WAPH intro and overview of labs/projects.**



Web Application Programming and Hacking

Front-End Development Lab

Instructor: Dr. Phu Phung

Student Name: Arnab Singh

A simple HTML page
using the w3schools template

Web Application Programming and Hacking Course Information

This course introduces students to the fundamentals of web development and cybersecurity. Topics include front-end programming (HTML5, CSS, JavaScript) and back-end scripting (PHP, MySQL). Students explore common vulnerabilities such as XSS, CSRF, and SQL Injection, and learn to apply secure coding practices through hands-on labs, hackathons, and a project.

Overview of Lab 0

Lab 0 was focused on environment setup. I configured an Ubuntu VM and installed essential tools such as Apache2, Git, and net tools. I also cloned the course repository from GitHub and ensured proper Apache configuration for web access using localhost.

Non-Technical Requirements

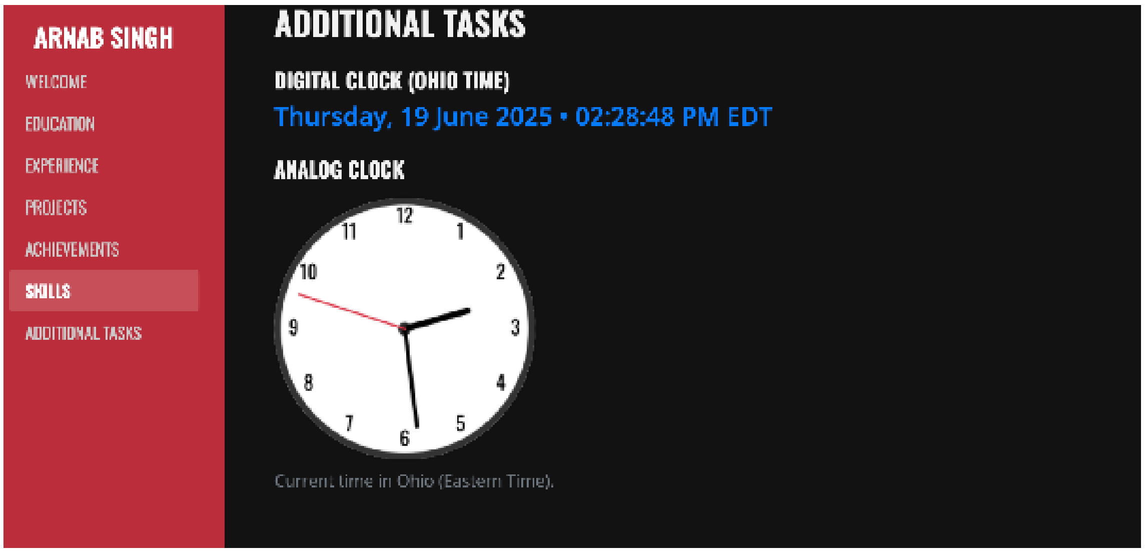
- Bootstrap 4.5 is used as the main CSS framework to ensure a responsive and professional layout.
- Layout and design are clean, consistent, and recruiter-friendly.
- Google Fonts used:
  - `Oswald` for headings
  - `Open Sans` for body text
- Consistent use of font sizes, padding, spacing, and color palette across all sections.
- Sidebar is fixed for easy navigation; main content area is scrollable and neatly segmented.
- Target audience: Potential employers, professors, and technical reviewers.

Technical Requirements – JavaScript Features

JavaScript Features (20 pts total)

- Digital Clock
  - Tool: `Luxon.js`
  - Displays current Ohio (EST) time and updates in real-time
  - Placed under "Additional Tasks" section
- Analog Clock
  - Tool: Plain JavaScript with `<canvas>`
  - Custom design, live-rendered clock hands, accurate second-by-second motion
  - Also in the "Additional Tasks" section
- Show/Hide Email
  - Tool: `jQuery`
  - A button toggles your email visibility, protecting it from spam bots
  - Located under your name in the header section
- Dark Mode Toggle
  - Tool: Plain JavaScript
  - Floating moon/sun button in the top-right corner
  - Button remembers theme using `localStorage`
  - Dark mode also updates colors for sidebar, highlights, and progress bars
  - Border color of the button set to yellow for visibility

Screenshot 1: Clocks



ADDITIONAL TASKS

DIGITAL CLOCK (OHIO TIME)

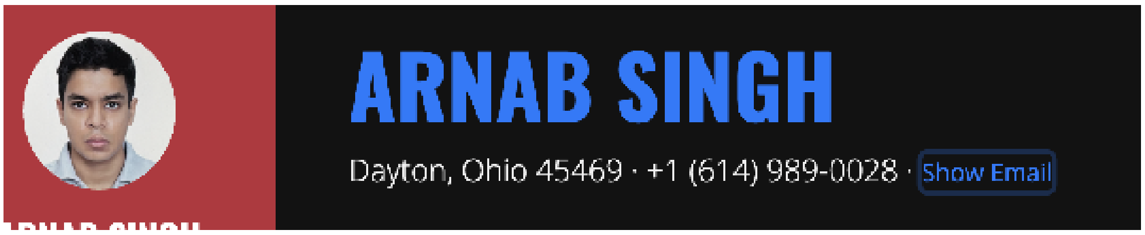
Thursday, 19 June 2025 • 02:28:48 PM EDT

ANALOG CLOCK

Current time in Ohio (Eastern Time).

Digital and Analog clocks built using JavaScript and Luxon

Screenshot 2: Show/Hide Email



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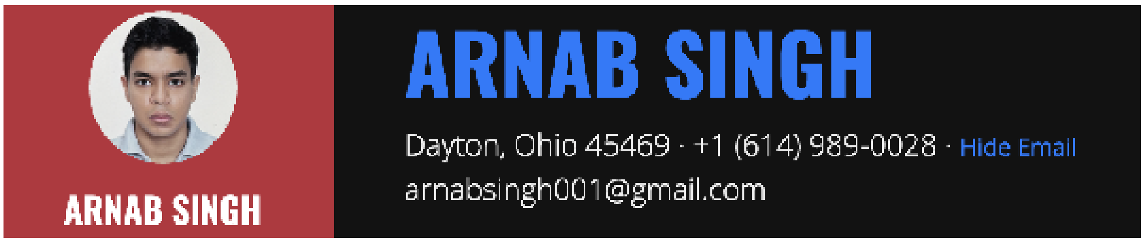

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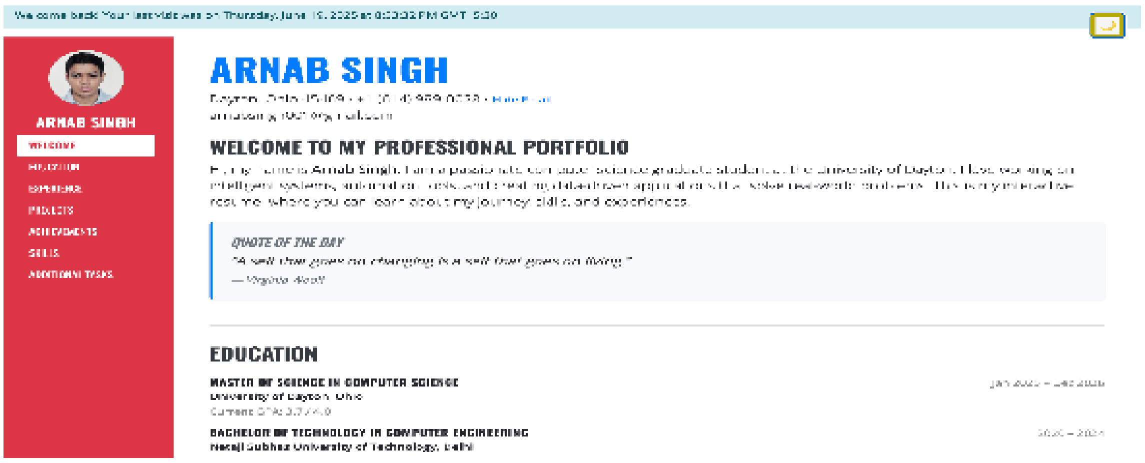
arnabsingh001@gmail.com

Email visibility toggled using jQuery

Screenshot 3: Dark Mode Active


Welcome back! Your last visit was on Thursday, June 19, 2025 at 8:33:32 PM GMT+5:30

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WELCOME
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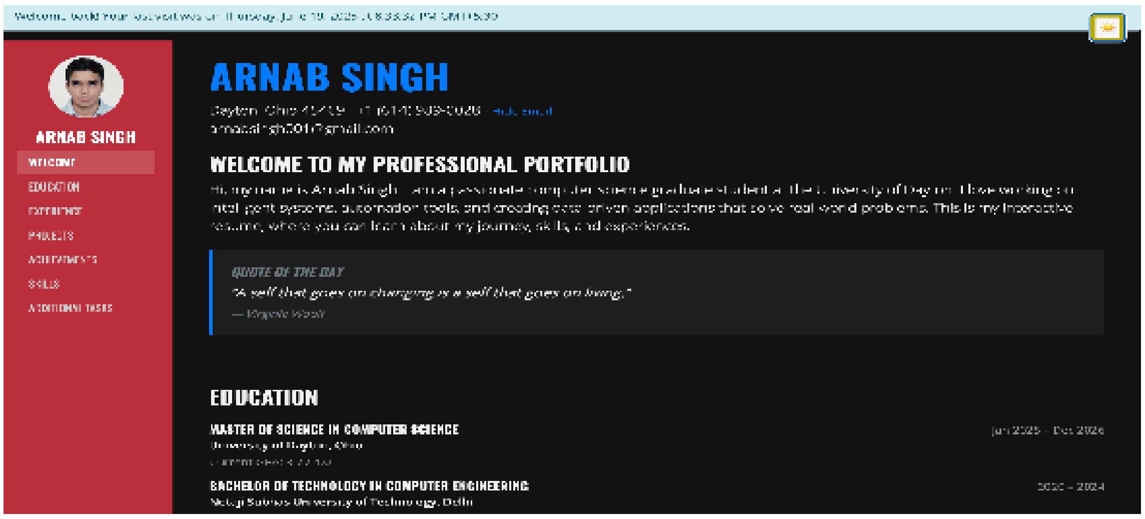
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Light / Dark mode UI with sidebar and theme toggle button

Public API Integrations (20 pts)

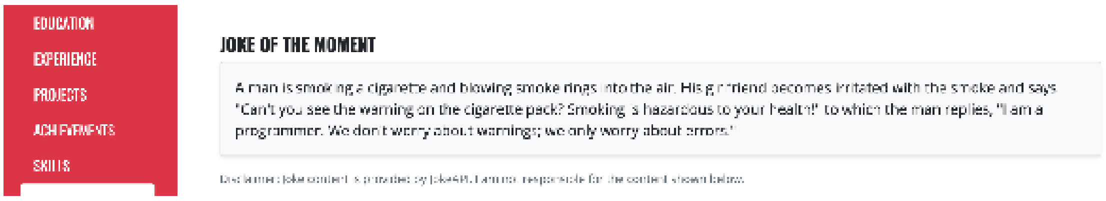
JokeAPI Integration – 10 pts

- Integrated the JokeAPI to **fetch and display a new joke every 60 seconds**.
- The joke is placed inside a **Bootstrap card** under the “Additional Tasks” section.
- The API call uses `fetch()` and updates the card content dynamically.
- Adds a fun, engaging real-time element to the page.

  Code Snippet Example:

```
fetch('https://v2.jokeapi.dev/joke/Any')
```

Screenshot 1 - The joke section while a joke is displayed:



JOKE OF THE MOMENT

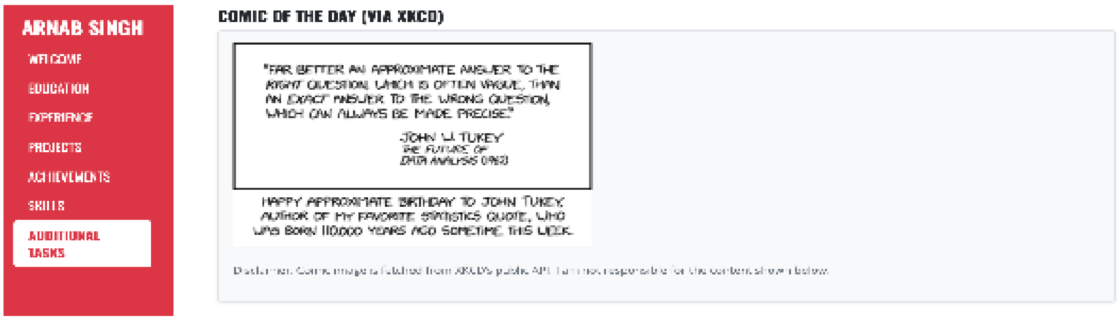
A man is smoking a cigarette and blowing smoke rings into the air. His girlfriend becomes irritated with the smoke and says "Can't you see the warning on the cigarette pack? Smoking is hazardous to your health!" to which the man replies, "I am a programmer. We don't worry about warnings; we only worry about errors."

Disclaimer: Joke content is provided by JokeAPI. I am not responsible for the content shown below.

Live joke fetched using JokeAPI (updates every 60 seconds)

- I also integrated the xkcd API to fetch and display the Comic of the Day. This comic is automatically updated and displayed as an image. It brings a fun visual aspect to the page, making the user experience more interactive and enjoyable. Like the joke section, a disclaimer is shown here as well.

  Screenshot 2 - The comic of the day section while a comic is displayed: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"FAR BETTER AN APPROXIMATE ANSWER TO THE RIGHT QUESTION, WHICH IS OFTEN VAGUE, THAN AN EXACT ANSWER TO THE WRONG QUESTION, WHICH CAN ALWAYS BE MADE PRECISE."
JOHN W. TUKEY
THE FUTURE OF DATA ANALYSIS (1962)
HAPPY APPROXIMATE BIRTHDAY TO JOHN TUKEY, AUTHOR OF MY FAVORITE STATISTICS QUOTE, WHO WAS BORN 110,000 YEARS AGO SOMETIME THIS WEEK.

COMIC OF THE DAY (VIA XKCD)

Disclaimer: Comic image is fetched from XKCD's public API. I am not responsible for the content shown below.

Live comic fetched using xkcd API.

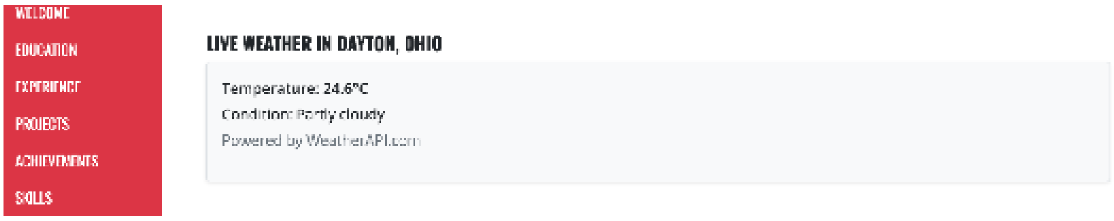
Weather API Integration – 10 pts

- Used **WeatherBit API** to fetch and display **live weather in Dayton, OH**.
- Displays temperature and condition inside a styled card under “Additional Tasks”.
- API is fetched via `fetch()` and the data is dynamically inserted into the page.
- API key used: `eb676bdc8fd54856b81184229251906`

  Code Snippet Example:

```
fetch(`https://api.weatherapi.com/v1/current.json?
key=${weatherAPIKey}&q=${city}&aqi=no`)
```

Screenshot - The weather box when the data is visible:



LIVE WEATHER IN DAYTON, OHIO

Temperature: 24.6°C
Condition: Partly cloudy
Powered by WeatherAPI.com

Live Dayton weather data powered by WeatherBit API

Disclaimer for API Use (Mandatory)

Disclaimer added below APIs:

"The content below is generated using third-party public APIs. I am not responsible for their accuracy or availability."

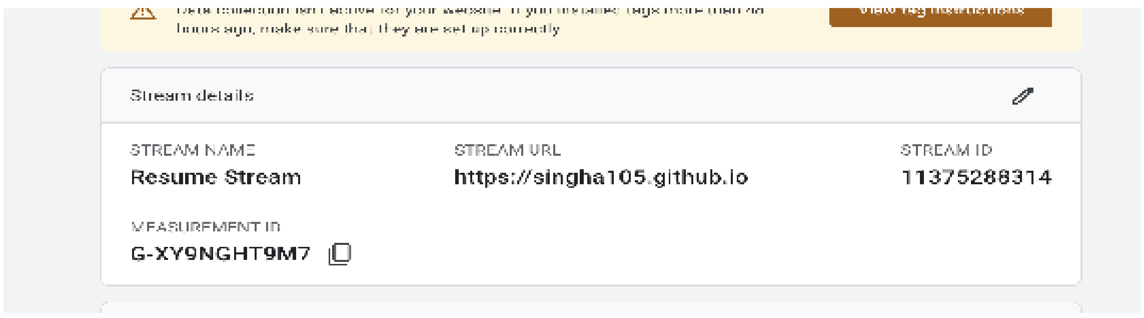
This fulfills the requirement to **clearly state responsibility disclaimer** for any public data.

Page Tracker (5 pts)

Google Analytics (Optional Tracker)

- **Google Analytics** was integrated using `gtag.js` script inside the `<head>` section.
- Tracks visits, sessions, and interactions for the deployed site.
- Set up via Google Analytics Console with proper stream ID (e.g., `G-XXXXXXX`).

  Screenshot - Google Analytics details :



Data collection isn't active for your website. If you installed tags more than 48 hours ago, make sure that they are set up correctly

Stream details

STREAM NAME
Resume Stream

STREAM URL
https://singha105.github.io

STREAM ID
11375288314

MEASUREMENT ID
G-XY9NGHT9M7

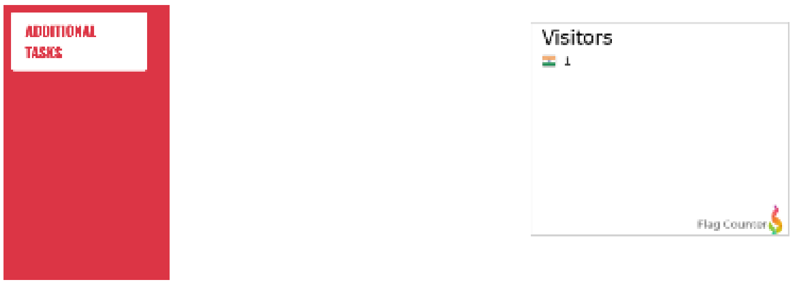
Google Analytics Web Stream setup for page tracking

FlagCounter – Visible Visitor Counter Widget (5 pts)

- Embedded a **FlagCounter** widget that shows:
  - Total visitor count
  - Country flags
  - Medium flag size
  - White background

- **Visible directly on the page**, does not require an external dashboard to check.

  Screenshot - FlagCounter :

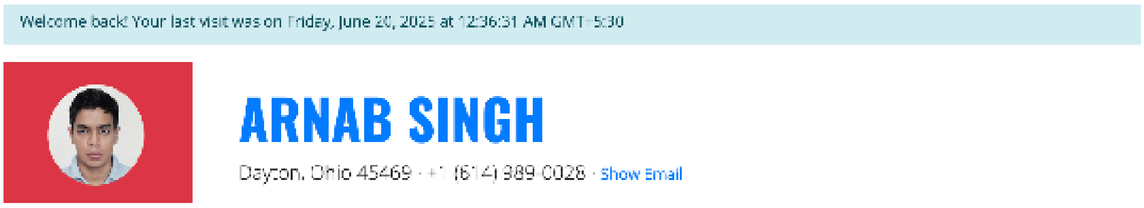


Live visitor tracker widget from FlagCounter.com

JavaScript Cookies

- On first visit: shows "Welcome to my homepage for the first time!"
- On repeat visit: shows "Welcome back! Your last visit was Sunday, June 23, 2025, 8:30 PM (IST)".

***Screenshot* - Cookie popup message visible :**


Welcome back! Your last visit was on Friday, June 20, 2025 at 12:36:31 AM GMT+5:30

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