

## Detailed Solution

### 1. Create a Personal Portfolio Webpage

#### Objective

Develop an interactive, visually appealing portfolio webpage that showcases your skills, experience, and contact information.

#### Key Sections

##### 1. Introduction:

- Write a concise overview of yourself, including your professional background, interests, and career goals.
- Example: "Hi, I'm Abhishek Yadav., a passionate software developer specializing in Data Science and DevOps. I enjoy solving complex problems using innovative technologies."

##### 2. Skills:

- List your technical skills with emphasis on Data Science and DevOps.
- Example:
  - Data Analysis (Python, R, SQL)
  - DevOps Tools (Docker, Kubernetes, Jenkins)
  - Cloud Platforms (AWS, Azure, GCP)
  - Version Control (Git/GitHub)

##### 3. Resume Overview:

- Provide a downloadable link to your resume in PDF format.
- Example: `<a href="resume.pdf" download>Download My Resume</a>`

##### 4. Contact:

- Add interactive buttons for LinkedIn, GitHub, and email communication.
- Example:

```
<a href="https://linkedin.com/in/yourprofile" target="_blank">LinkedIn</a>
<a href="https://github.com/yourprofile" target="_blank">GitHub</a>
<a href="mailto:your.email@example.com">Email Me</a>
```

## Technical Implementation

- Use **HTML** for structure, **CSS** for styling, and **JavaScript** for interactivity.
- Ensure responsiveness using CSS frameworks like Bootstrap or TailwindCSS.
- Optimize for both desktop and mobile devices.

## Sample Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>My Portfolio</title>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <header>
    <h1>Welcome to My Portfolio</h1>
    <p>Hi! I'm [Your Name], a developer specializing in Data Science and DevOps.</p>
  </header>
  <section id="skills">
    <h2>Skills</h2>
    <ul>
      <li>Data Analysis (Python, SQL)</li>
      <li>DevOps Tools (Docker, Kubernetes)</li>
      <li>Cloud Platforms (AWS, Azure)</li>
      <li>Git Version Control</li>
    </ul>
  </section>
  <section id="resume">
    <h2>Resume</h2>
    <a href="resume.pdf" download>Download Resume</a>
  </section>
  <section id="contact">
    <h2>Contact</h2>
    <a href="https://linkedin.com/in/yourprofile" target="_blank">LinkedIn</a>
    <a href="https://github.com/yourprofile" target="_blank">GitHub</a>
    <a href="mailto:your.email@example.com">Email Me</a>
  </section>
</body>
</html>
```

## 2. Integrate a Chatbot

### Objective

Develop a chatbot using an open-source LLM (e.g., Hugging Face GPT models) to answer questions about your resume, skills, projects, and certifications.

### Steps to Implement

#### 1. Select an Open-Source LLM:

- Use Hugging Face's GPT models or Together AI.

#### 2. Fine-Tune the Model:

- Train the model with structured prompts related to your resume content.
- Example Prompt:

User: What are your key skills?

Bot: My key skills include Data Analysis (Python, SQL), DevOps tools like Docker

#### 3. Backend Implementation:

- Use Python with Flask or Django to create an API endpoint for chatbot queries.
- Example Code:

```
from flask import Flask, request, jsonify
from transformers import pipeline

app = Flask(__name__)
chatbot = pipeline("text-generation", model="gpt-neo")

@app.route("/chat", methods=["POST"])
def chat():
    user_input = request.json["message"]
    response = chatbot(user_input)
    return jsonify({"response": response[0]["generated_text"]})

if __name__ == "__main__":
    app.run(debug=True)
```

#### 4. Frontend Integration:

- Use JavaScript to make AJAX calls to the backend API.
- Embed the chatbot UI into your portfolio webpage.

#### 5. Deployment:

- Host the chatbot backend on Groq Cloud or another platform (e.g., AWS Lambda).

### 3. Demonstrate DevOps Skills

#### Objective

Showcase proficiency in version control and deployment strategies.

#### Steps

##### 1. Version Control Using Git:

- Initialize a Git repository for your project.
- Commit changes regularly with meaningful messages.
- Create branches for new features (e.g., chatbot-integration).

##### 2. Deploy the Webpage:

- Choose a deployment platform like AWS S3/EC2, Azure App Service, Google Cloud Platform (GCP), or Netlify.
- Example Deployment on Netlify:
  1. Push your code to GitHub.
  2. Connect Netlify to your GitHub repository.
  3. Enable automatic deployment on every push.

##### 3. Document Deployment Steps:

- Write a detailed README file explaining how to run the project locally and access the deployed version online.

#### Example README File Content

```
# Portfolio Webpage

### Overview
This is my personal portfolio webpage showcasing my skills in Data Science and DevOps.

### Features
- Responsive design
- Integrated chatbot powered by Hugging Face GPT
- Hosted on Netlify

### How to Run Locally
1. Clone this repository: `git clone https://github.com/yourusername/portfolio.git`
2. Open `index.html` in any browser.

### Deployment URL
Access the live webpage here: [https://yourportfolio.netlify.app](https://yourportfolio.r

### Contact
For inquiries or feedback: [your.email@example.com](mailto:your.email@example.com)
```

## Evaluation Criteria

### 1. Quality and Responsiveness:

- Test responsiveness across devices using Chrome DevTools or similar tools.
- Ensure all links/buttons are functional.

### 2. Chatbot Integration:

- Validate that the chatbot answers questions accurately.
- Test its functionality thoroughly before submission.

### 3. Version Control & Deployment Strategy:

- Ensure proper branching in Git (e.g., `main` for production).
- Document all deployment steps clearly.

## Submission Details

Provide the following links via the web form mentioned in the assignment:

1. Deployed Portfolio Webpage URL (e.g., Netlify/AWS).
2. GitHub Repository Link containing source code and documentation.

This detailed solution ensures that all requirements are addressed comprehensively while demonstrating technical expertise effectively!