



# AI Resume and Cover Letter Generator

Harnessing OpenAI GPT for Professional Resume  
& Cover Letter Creation

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# Learning Objectives

- Understand integration of AI (OpenAI GPT) for document generation
- Apply Flask to build modular Python web apps
- Implement user forms and validation
- Generate ATS-compliant PDF resumes
- Maintain performance, browser compatibility, and security



# Tools & Technologies Used

- Backend: Python (Flask)
- Frontend: HTML5, CSS3, JavaScript
- AI Engine: OpenAI GPT API
- PDF Generation: ReportLab
- Styling: Custom CSS, Font Awesome
- Editor: Visual Studio Code
- Version Control: Git, GitHub

# Project Structure

```
ai_resume_generator/  
├── app.py                # Main Flask application  
├── requirements.txt      # Python dependencies  
├── README.md            # Project documentation  
├── .env                 # Environment variables (create this)  
├── templates/  
│   └── index.html       # Main HTML template  
└── static/  
    ├── css/  
    │   └── style.css    # Styling and responsive design  
    ├── js/  
    │   └── script.js    # Frontend JavaScript functionality  
    └──
```



# Methodology

## **1. Input Collection:**

Forms collect user's personal, academic, and professional details.

## **2. AI Processing (OpenAI API):**

Resume/Cover letter content is generated based on input & job description.

## **3. Output Generation:**

Preview available

PDF download and copy-to-clipboard features.

## **4. Web Stack Execution:**

Flask routes and templates render dynamic content.

Frontend handles UI/UX.



# Resume Generation

1. **Personal Information** : Fill in your basic contact details and target job role
2. **Skills** : List your technical and soft skills (comma-separated)
3. **Work Experience** : Add your professional experience with descriptions
4. **Education** : Include your educational background
5. **Job Description** : Paste the target job description for AI optimization
6. **Generate** : Click "Generate Resume" to create your personalized resume
7. **Download** : Save your resume as a PDF or copy the text



# Cover Letter Generation

1. **Job Information** : Enter company name, position, and job description
2. **Personal Information** : Provide your contact details and current role
3. **Achievements** : List key accomplishments relevant to the role
4. **Company Interest** : Explain why you're interested in the specific company
5. **Generate** : Click "Generate Cover Letter" to create your personalized letter
6. **Download** : Save as text file or copy to clipboard





# Features

## ❑ **AI-Powered Resume Summary :**

- Analyzes your skills and experience & creates ATS-optimized professional summaries.
- Incorporates keywords from job descriptions.

## ❑ **Cover Letter Personalization:**

- Tailors content to specific companies and roles.
- Demonstrates enthusiasm and cultural fit & Creates compelling calls to action.

## ❑ **Modern UI/UX:**

- Responsive design for all devices & Real-time form validation.
- Smooth animations and transitions & Intuitive tab-based navigation.

## ❑ **PDF Generation:**

- Clean, professional resume formatting & Download-ready documents.
- Proper spacing and typography & Consistent styling across sections.





# Performance, Browser Support & Security

## ❑ **Browser Support:**

- Chrome (recommended), Firefox, Safari, Edge, Mobile browsers (iOS Safari, Chrome Mobile)

## ❑ **Performance:**

- Optimized CSS and JavaScript & efficient API calls.
- Responsive images and icons & Fast loading times.

## ❑ **Security:**

- Environment variable protection for API keys & Input validation and sanitization.
- No persistent data storage (privacy-focused).

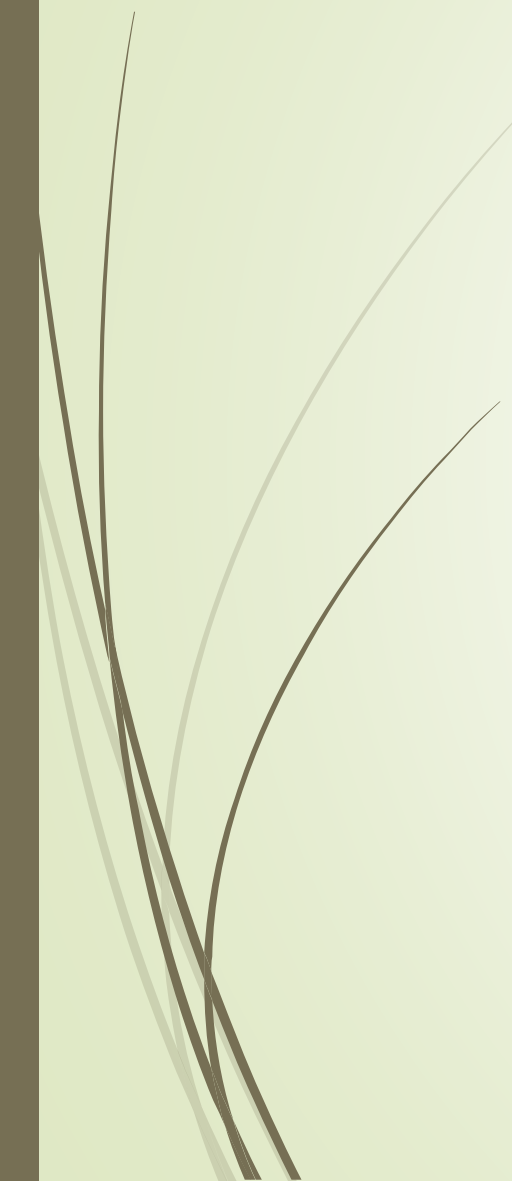


# Future Scope

- Multiple resume templates
- LinkedIn integration
- Job board API integration
- Cover letter templates
- Email integration
- User accounts and saved documents
- Analytics and optimization suggestions
- Multi-language support



# Conclusion

- Built a secure, AI-powered resume and cover letter generator
  - Explored Flask, OpenAI API, and ReportLab integration
  - Designed with modern UI principles and ATS-compliance
  - Demonstrated real-world AI application in career tools
  - Ready for deployment and future scaling
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Thank you !

