

AI-Powered Job Application Analyzer & Resume Enhancer:
ResuMate

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Repository link:

<https://github.com/CMPT-276-SPRING-2025/final-project-lakes>

OVERVIEW AND THE PROBLEM OUR PROJECT SOLVES

What is This Project About?

This application is designed to help job seekers improve their job applications by providing **AI-powered resume analysis, cover letter generation, and job matching**. Many applicants struggle with optimizing their resumes for **Applicant Tracking Systems (ATS)** and tailoring their cover letters for specific job postings. As a result, even highly qualified candidates may get rejected before a recruiter sees their application.

Our platform **bridges this gap** by using AI to analyze resumes, suggest improvements, generate professional cover letters, and match applicants with the most relevant job postings. Additionally, it provides **company insights, salary data, and hiring trends** to help users make informed career decisions. With an intuitive interface built using **React and ShadCN UI**, job seekers can efficiently create **stronger applications, increase their interview chances, and find the right opportunities faster**.

The Problem It Aims to Solve

1. **Low ATS Compatibility** – Many job applications get rejected before reaching a recruiter because they lack **relevant keywords or proper formatting** for ATS systems. Our platform ensures **resumes are ATS-friendly** by analyzing job descriptions and suggesting improvements.
2. **Generic Cover Letters** – Most applicants struggle to write compelling cover letters that are **customized for each job**. Our AI **generates tailored cover letters** to match job descriptions, increasing the likelihood of catching a recruiter's attention.
3. **Time-Consuming Job Search** – Manually browsing job listings can be overwhelming. Our platform **matches users with jobs that fit their skills and experience**, streamlining the search process.
4. **Lack of Resume Feedback** – Many job seekers are unaware of **how to improve their resumes**. Our AI-powered resume scoring system provides **instant feedback and suggestions**, making resumes more appealing to employers.
5. **Uninformed Company Choices** – Applicants often apply to companies without knowing their **work culture, salary expectations, or employee reviews**. By integrating company insights from APIs like **Glassdoor or JSearchAPI**, our platform **helps users make better career decisions**.

PERSONALITY FOR THE USERS

Persona 1: Recent Graduate / Student

Name: Sarah Johnson

Background: Just graduated with a **Bachelor's in Computer Science**. Looking for an **entry-level software engineering** position.

Goals:

- Land a job in **tech** but struggles to make a **strong resume & cover letter**.
- Unsure how to **highlight school projects & internships** effectively.

Challenges:

- No professional work experience.
- Doesn't know how to **format her resume for ATS systems**.
- Spends **too much time searching** for relevant jobs.

How This App Helps:

- ✓ AI feedback **optimizes her resume** by suggesting improvements & formatting tips.
 - ✓ AI generates a **personalized cover letter** for each job posting.
 - ✓ Job matching feature **suggests best-fit entry-level positions**.
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Persona 2: Mid-Career Professional

Name: David Lee

Background: 7 years of experience as a **Marketing Manager**, looking for a **higher-paying role in a new company**.

Goals:

- Wants to **switch jobs but stay in marketing**.
- Needs to tailor his resume for **senior-level roles**.

Challenges:

- Struggles to **showcase leadership skills & accomplishments** on his resume.
- Lacks **ATS-friendly formatting and modern keywords**.

How This App Helps:

- ✓ AI enhances resume with **powerful, results-driven statements**.

- ✓ AI suggests **stronger industry keywords** to improve ATS ranking.
 - ✓ Job search tool **helps him filter senior roles** efficiently.
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Persona 3: Job Seeker Struggling with ATS

Name: Lisa Patel

Background: Experienced **HR professional**, but her applications **keep getting rejected** without response.

Goals:

- Wants to understand **why ATS keeps rejecting her applications**.
- Needs to **fix her resume formatting & keyword optimization**.

Challenges:

- Uses **generic resume templates** that may not be ATS-friendly.
- Doesn't know which **keywords are missing** for her target roles.

How This App Helps:

- ✓ AI **analyzes ATS compatibility** and suggests missing keywords.
- ✓ AI provides **resume restructuring tips** to improve readability.
- ✓ AI-powered **keyword optimization tool** boosts ATS score

List chosen APIs (4 total) and a brief description of each:

Chosen APIs & Features Overview & User Stories

For this project, we have selected four APIs to power AI-driven resume analysis, job search, and company insights. Two are primary APIs, while two serve as backups in case of access limitations.

Primary APIs

1 OpenAI API (GPT-4) – AI Resume Analysis & Cover Letter Generation

- Evaluates resumes and provides improvement suggestions to enhance hiring chances.
- Generates tailored cover letters based on job descriptions.
- Optimizes resumes for Applicant Tracking Systems (ATS) by suggesting relevant keywords from job postings.

- *As a job seeker, I want to upload my resume and receive an AI-generated score with improvement suggestions so that I can enhance my resume and increase my chances of getting hired.*
- *As a job applicant, I want to input a job description and generate a tailored cover letter so that I can apply to jobs with a personalized and professional cover letter.*
- *As a job seeker, I want the AI to analyze job postings and suggest relevant keywords for my resume so that I can improve my chances of passing applicant tracking systems (ATS).*

② JSearch API – Job Search & Matching

- Retrieves job listings based on role, location, and industry preferences.
- Matches users' resumes with relevant job postings.
- Provides company insights, including salary and description.
- *As a job seeker, I want to search for jobs based on role, location, and industry so that I can find job listings that match my skills and preferences.*
- *As a job applicant, I want the system to analyze my resume and suggest job listings that align with my experience so that I can apply to the most relevant positions.*
- *As a job seeker, I want to see detailed job salary, descriptions, qualifications, and responsibilities so that I can make informed decisions about the positions I am interested in.*

Backup APIs

③ Indeed API – Alternative Job Search & Company Reviews

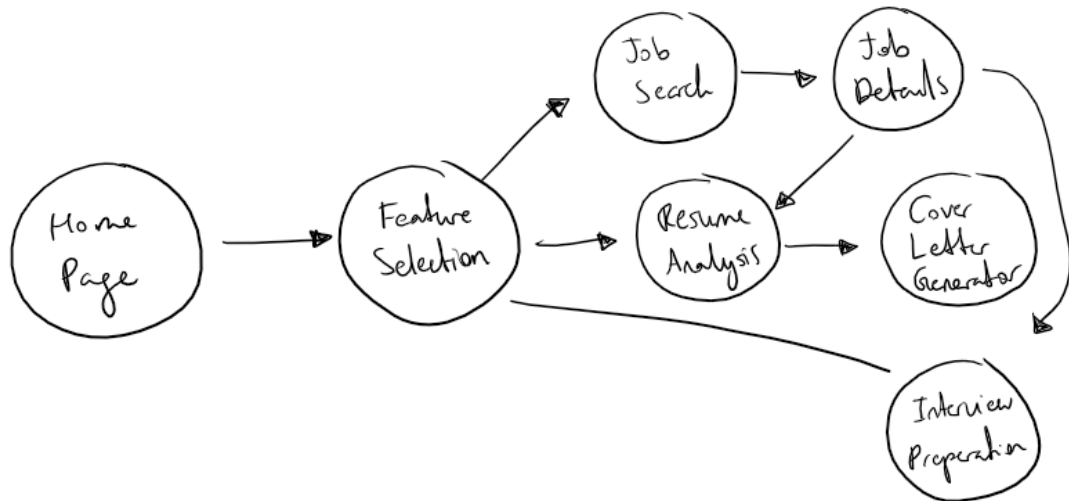
- Fetches job listings, salary data, and employer ratings if LinkedIn API is unavailable.
- Helps users find remote, full-time, or hybrid roles efficiently.
- Offers company reviews and salary estimates to assist in career decision-making.
- *As a job seeker, I want to filter job listings by title, location, and job type (remote, full-time, part-time) so that I can find jobs that fit my needs.*
- *As a job applicant, I want the system to suggest jobs based on my resume so that I can quickly find the best opportunities for me.*
- *As a job seeker, I want to see salary estimates and employee reviews for different companies so that I can apply to companies that align with my career goals.*

④ Glassdoor API – Alternative Company Insights & Salary Data

- Provides salary estimates and compensation trends for various roles and locations.
- Offers insights into company culture, employee experiences, and hiring trends.
- Helps job seekers make informed career choices based on employee feedback and market analysis.
- *As a job seeker, I want to compare salaries for different job titles and locations so that I can negotiate a fair salary offer.*

- *As a job applicant, I want to read employee reviews and insights about company culture so that I can determine if a company is the right fit for me.*
- *As a job seeker, I want to see industry hiring trends and in-demand skills so that I can tailor my resume to match current market needs.*

A low-fidelity storyboard of the application interface/features



User Flow:

1. **Home Screen** – Users select which feature they want to use.
2. **Upload Resume** – Users either upload their resume or paste text manually.
3. **AI Resume Analysis** – The system evaluates the resume, provides **ATS compatibility scores** and suggestions.
4. **AI Cover Letter Generator** – Users input a job description, and AI generates a **tailored cover letter**.
5. **Keyword Optimization** – AI suggests **missing skills & keywords** from job descriptions.
6. **Job Search** – Users can search for relevant jobs based on **title, location, and skills**.
7. **Job Matching System** – AI **ranks job listings** based on how well they fit the user's resume.
8. **Company Insights** – Users can view **company details, reviews, and hiring trends** before applying.

Choose a front-end technology stack that this project will be based on

For this project, we have chosen **React** as the front-end framework, paired with **ShadCN UI** for the user interface components.

Why React?

- **Component-Based Architecture:** React allows us to build reusable components, making the UI modular and easy to manage.
- **Performance & Efficiency:** React uses a **virtual DOM**, ensuring smooth performance and fast updates.
- **Strong Ecosystem & Community Support:** React has a vast ecosystem of libraries and tools, making development faster and more efficient.
- **Seamless API Integration:** Since our project relies on APIs (OpenAI, LinkedIn, Indeed, Glassdoor), React's **fetch/Axios** capabilities make it easy to consume and display API data dynamically.

Why ShadCN UI?

- **Modern & Aesthetic Design:** ShadCN UI provides **pre-built, accessible, and customizable** components, ensuring a clean and professional look.
- **Rapid UI Development:** Using ShadCN components speeds up UI implementation without compromising flexibility.
- **Tailwind CSS Integration:** ShadCN is built on **Tailwind CSS**, allowing easy styling and customization.

Additional Tools & Libraries:

- **Vite** – For faster development and build performance.
- **React Router** – To manage navigation between different pages (e.g., resume analysis, job search, insights).
- **Axios** – For handling API requests efficiently.

Change Log :

- 1) Merged A brief description of the features you plan to implement.. and User stories, addressing the first feedback “Make sure you're not repeating the user stories for each API feature. The sections "A brief description of the features you plan to implement.." and "User stories..." have almost the same content written down. Maybe merge these two under one section.”
- 2) Change API keys since LinkedIn API has some restrictions making it difficult to use. We decided to use OpenAI API & JSearch API instead.

- 3) Created a new low-fidelity website prototype and made connections to address the 2nd feedback “Do more research on how to design low-fidelity storyboards. You need to draw your website's prototype and make connections between pages wherever needed”.