# AI-Powered Resume Builder & ATS Optimization Agent

**Project Overview:**
This project focuses on developing an intelligent AI Agent designed to help users create ATS-optimized resumes with professional formatting and enhanced readability.
Users can either upload their existing resume or manually enter their details (personal information, education, skills, experience, and projects) to generate a fully optimized resume from scratch.

**The system then performs the following steps:**
1. Parses the uploaded resume or user-entered data.
2. Calculates the ATS (Applicant Tracking System) score using a free ATS API.
3. Enhances the content using OpenAI and Gemini APIs for improved phrasing, keyword optimization, and professional tone.
4. Offers pre-integrated LaTeX templates for professional formatting.
5. Generates the final resume in Word (.docx) and PDF formats.
6. Displays the updated ATS score after AI-based enhancement.

**Goal:**
To provide a fully automated, user-friendly platform that enables candidates to create high-quality, ATS-optimized resumes with minimal effort.

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**System Flow**
**Step 1: Input**
- Option 1: Upload an existing resume (PDF or Word).
- Option 2: Enter details manually, including:
  - Personal Information
  - Education
  - Skills & Certifications
  - Work Experience
  - Projects & Achievements

Step 2: ATS Scoring
- Extracts relevant data from the uploaded or manually entered resume.
- Sends the data to a Free ATS Score API to calculate the resume score and identify improvement areas.

Step 3: AI-Based Enhancement
- Uses OpenAI + Gemini APIs to:
  - Improve grammar and phrasing
  - Optimize keywords relevant to target job descriptions
  - Summarize experiences and achievements
  - Maintain readability and professional tone

Step 4: Template Selection
- The user selects from 2–3 pre-integrated LaTeX templates, such as:
  - Example: AutoCV Template
- Each template is optimized for ATS readability and professional presentation.

Step 5: Resume Generation
- AI-enhanced content is automatically formatted into the chosen template.
- Generates:
  - Word (.docx) file – editable format
  - PDF file – ready for submission
- Displays the final ATS score after enhancement.

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**Operations Performed**
1. Parsing: Extracts and structures text from uploaded or manual input.
2. ATS Scoring: Evaluates the resume using a Free ATS Score API.
3. Content Enhancement: Improves clarity, tone, and keyword density using OpenAI and Gemini APIs.
4. Template Application: Maps enhanced content into selected LaTeX templates.
5. Resume Generation: Produces final Word and PDF resumes.
6. Score Display: Shows the updated ATS score after enhancement.

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**Expected Deliverables**
1. Fully functional AI Resume Agent supporting both manual entry and file upload.
2. Integrated ATS scoring system with visible results.
3. AI-enhanced resume content with optimized keywords and improved readability.
4. Pre-integrated LaTeX templates for user selection.
5. Downloadable resumes in Word and PDF formats.
6. Deployed web application on Vercel or Render.

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**Scoring & Bonus Features**
- Live Preview: View real-time updates as AI enhances the resume.
- Comparison Mode: Compare the original vs enhanced version side by side.
- Score Improvement Tracker: Track how the ATS score changes after each enhancement.
- Feedback Chat: Integrated AI chat interface offering instant, personalized improvement suggestions.