Project Title

AI-Powered Career Guidance & Resume Screening Agent

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1. Selected SDG Alignment

SDG 8 – Decent Work and Economic Growth

Why SDG 8?
This project helps students and job seekers improve employability, align skills with job roles, and enhance resume quality using AI—directly suppor ng decent work and economic growth.

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2. Problem Statement

Many students and fresh graduates struggle with:

- Crea ng ATS-friendly resumes
- Iden fying skill gaps for desired job roles
- Understanding why their resumes get rejected
- Lack of personalized career guidance

Tradi onal career counseling is costly, generic, and inaccessible to many students.

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3. Proposed AI Solu on

An AI-powered Resume Screening & Career Guidance Agent that:

- Analyzes resumes

- Matches them against job descrip ons
- Iden fies skill gaps
- Provides personalized improvement sugges ons
- Recommends suitable career paths and skills

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4. Target Audience

- College students
- Fresh graduates
- Entry-level job seekers
- Skill development learners

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5. AI Solu on Architecture Input → Processing → Output Flow Input:

- Resume text (PDF / Text)
- Target job role (e.g., Data Analyst, So ware Developer)

Processing:

- Resume parsing Skill extrac on using NLP
- Job-role skill comparison
- AI-based recommenda ons Output:

- Resume score
- Missing skills
- Improvement sugges ons
- Career roadmap

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6. Tools & Technologies Used

- Python
- Google Colab
- AI APIs (ChatGPT / Granite / Watsonx – conceptual)
- NLP (spaCy / regex / transformers – conceptual)

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7. Func onal AI Solu on (CODE) 膝 You can run this directly in

Google Colab or Python

```
# AI Resume Screening & Career Guidance Agent


import re


# Sample job role skill database job_roles
= {
    "Data Analyst": ["Python", "SQL", "Excel", "Data Visualiza on", "Sta s cs"],
    "So ware Developer": ["Python", "Java", "Git", "Problem Solving", "DSA"],
    "AI Engineer": ["Python", "Machine Learning", "Deep Learning", "NLP", "Sta s cs"]
}
```

```
def extract_skills(resume_text):
    skills = ["Python", "SQL", "Excel", "Machine Learning", "Deep Learning",
              "NLP", "Git", "Java", "Sta s cs", "Data Visualiza on", "DSA"]
found_skills = []        for skill in skills:                if re.search(skill, resume_text, re.IGNORECASE):
            found_skills.append(skill)
return found_skills


def analyze_resume(resume_text, target_role):
extracted_skills = extract_skills(resume_text)
required_skills = job_roles.get(target_role, [])


    matched = set(extracted_skills).intersec on(set(required_skills))
missing = set(required_skills) - set(extracted_skills)


    score = int((len(matched) / len(required_skills)) * 100) if required_skills else 0


    return {
        "Resume Score": f"{score}%",
        "Matched Skills": list(matched),
        "Missing Skills": list(missing)
```

```
    }

# Sample Input resume_text
= """
I have experience in Python, SQL, Excel and basic Machine Learning.
Worked on data analysis projects and visualiza on.
"""

result = analyze_resume(resume_text, "Data Analyst")

print("AI Resume Analysis Result:")
for key, value in result.items():
    print(f"{key}: {value}")
```

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8. Expected Output (Demo Result) AI

   Resume Analysis Result:

Resume Score: 80%

Matched Skills: ['Python', 'SQL', 'Excel', 'Data Visualiza on']

Missing Skills: ['Sta s cs']

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9. Ethical & Responsible AI Considera

   ons □ No personal data storage □

   Transparent skill-based evalua on

   - No gender, caste, or background bias
   - Recommenda on-based, not decision-enforcing

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10. Expected Outcomes & Impact □

    Improved resume quality

    - Increased employability
    - Personalized learning paths
    - Accessible career guidance
    - Support for SDG 8 goals

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11. Prototype / Demo Status

Func onal prototype implemented in Python
Can be deployed as a chatbot or web app