

AI Resume Analyzer

Deep P. Kulkarni¹, Tanjila J. Shaikh², Aman A. Sutar³, Omkar B. Kamble⁴,
Sudarshan S. Patil⁵, Prof. Shruti A. Narde⁶

¹ Deep P. Kulkarni , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

² Tanjila J. Shaikh , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

³ Aman A. Sutar , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

⁴ Omkar B. Kamble , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

⁵ Sudarshan S. Patil , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

⁶ Prof. Shruti A. Narde , Computer Science & Dr. J. J. Magdum College of Engineering, Jaysingpur

Abstract: -

In today's dynamic job market, a well-crafted resume is paramount for securing employment opportunities. The AI Resume Analyzer is a comprehensive platform designed to assist job seekers in optimizing their resumes and increasing their chances of success. This paper provides an in-depth overview of the services offered by the AI Resume Analyzer, the technologies utilized, and the benefits it brings to users. The services provided by the AI Resume Analyzer include:

- **Resume Builder:** Users can input their details and preferences to create professional resumes efficiently. The platform offers customizable templates and formatting options to suit diverse career fields and individual preferences.
- **Resume Analyzer:** By uploading their resumes, users receive a detailed analysis and a resume score. This analysis covers aspects such as content relevance, formatting consistency, and keyword optimization, providing actionable insights for resume improvement.
- **Job Description Matching Score:** Users can compare job descriptions with their resumes to determine the matching rate. This feature evaluates the alignment between a user's skills, experience, and qualifications with the requirements specified in job postings, aiding in targeted applications.
- **Job Portal:** The platform features access to career portals of prominent companies, along with curated resources and tips for resume enhancement. Users can explore popular resume formats, industry-specific recommendations, and strategies for standing out in competitive job markets.

The AI Resume Analyzer leverages a range of technologies, including HTML, CSS, JavaScript, Python, NLP (Natural Language Processing), and MySQL. These technologies enable seamless functionality, efficient data processing, and personalized user experiences.

Keywords: Resume Builder, Resume Analyzer, Job Description Matching, Job Portal, AI Technology, NLP, Personalized Resumes, Career Advancement.

This paper aims to showcase the innovative features, user benefits, and technological foundations of the AI Resume Analyzer, highlighting its role in empowering job seekers and optimizing the job application process.

Introduction:

The contemporary job market is an arena of fierce competition, where job seekers must navigate a myriad of challenges to secure coveted positions. Central to this pursuit is the creation of a compelling resume that not only showcases one's skills and experiences but also resonates with recruiters and hiring managers. However, the process of crafting such a resume is often daunting, with candidates grappling with questions of formatting, content relevance, and keyword optimization.

In response to these challenges, we introduce the AI Resume Analyzer—an innovative platform that harnesses the power of Artificial Intelligence (AI), Natural Language Processing (NLP), and machine learning algorithms to revolutionize the resume creation and evaluation process. Our system is meticulously designed to empower job seekers with personalized feedback, actionable insights, and data-driven recommendations, thereby maximizing their chances of success in today's highly competitive job market. The AI Resume Analyzer

offers a comprehensive suite of services tailored to meet the diverse needs of job seekers:

1. **Resume Builder:** Our user-friendly interface allows job seekers to input their personal and professional details, career objectives, and accomplishments. With customizable templates, formatting options, and real-time previews, the Resume Builder ensures that users create impactful and visually appealing resumes that capture the attention of recruiters.
2. **Resume Analyzer:** Leveraging advanced AI and NLP technologies, our system conducts a deep analysis of uploaded resumes. It evaluates content relevance, keyword density, formatting consistency, and overall readability, providing users with a detailed resume score and actionable recommendations for improvement. From refining language to enhancing structure, the Resume Analyzer guides users towards creating resumes that stand out.
3. **Job Description Matching Score :** Our platform facilitates a seamless comparison between job descriptions and resumes. By analyzing the alignment between a candidate's skills, experiences, and qualifications with the requirements specified in job postings, the Job Description Matching Rate feature helps users tailor their resumes to specific job opportunities effectively. This ensures that resumes are not only comprehensive but also targeted and relevant.
4. **Job Portal:** Aspiring professionals can access our curated Job Portal, featuring career portals of leading companies and industry-specific resources. From expert tips on resume optimization to insights into recruiter preferences, the Job Portal equips users with the knowledge and tools needed to navigate the job search process strategically.

The technological backbone of the AI Resume Analyzer comprises HTML, CSS, JavaScript, Python, and a suite of advanced NLP libraries. This robust framework enables seamless integration, real-time analysis, and personalized user experiences, ensuring that job seekers can leverage the full potential of AI-driven insights to enhance their resumes and increase their competitiveness in the job market.

Through this paper, we delve into the intricacies of the AI Resume Analyzer, exploring its features, technological foundations, and user-centric approach. We aim to showcase how our platform empowers job seekers to create resumes that not only meet industry standards but also capture the essence of their professional journeys, thereby opening doors to new and exciting career opportunities.

I. Problem Statement :

To develop an advanced AI-powered Resume Analysis System aimed at streamlining the resume evaluation process and improving the accuracy of candidate classification and shortlisting for optimal hiring outcomes.

II. Methodology :

Data Collection and Preparation:

- **Data Collection:** Gather a diverse datasets of resumes from various sources such as job seekers, career portals, and industry databases using Python libraries like requests and BeautifulSoup for web scraping. Utilize APIs from job search platforms for structured data extraction.
- **Data Cleaning and Preprocessing:** Employ libraries like pandas and numpy for data cleaning tasks such as removing duplicates, handling missing values, and standardizing formats. Anonymize personal information using techniques from faker library to ensure data privacy.

Resume Parsing using pyresparser :

The module would return a list of dictionary objects with result as follows:

```
[
{
    'college_name': ['Dr. J. J. Magdum college of
Engineering Jaysingpur'],
    'company_names': None,
    'degree': ['B.E. IN COMPUTER ENGINEERING'],
    'designation': ['Manager',
                    'TECHNICAL CONTENT WRITER',
                    'DATA ENGINEER'],
    'email': 'sample@gmail.com',
    'mobile_number': '1234567890',
    'name': 'Abc Def',
    'no_of_pages': 3,
    'skills': ['Operating systems',
               'Linux',
               'Github',
               'Testing',
               'Content',
```

```
'Automation',  
'Python',  
'Css',  
'Website',  
'Django',  
'Opencv',  
'Programming',  
'C',  
...],  
'total_experience': 1.5  
}  
]
```

Natural Language Processing (NLP) Techniques:

- **Text Preprocessing:** Use libraries such as NLTK and spaCy for tokenization, stop word removal, lemmatization, and part-of-speech tagging. These libraries facilitate the transformation of raw text data into structured and analyzable formats.
- **Keyword Extraction:** Leverage NLP techniques to extract key phrases, skills, experiences, and education details from resumes using tools like Rake and TextBlob. Implement word frequency analysis and TF-IDF calculations using sklearn for feature extraction.

Feature Extraction and Representation:

- **Word Embeddings:** Utilize pre-trained word embeddings models like Word2Vec or GloVe from gensim or spacy libraries to represent resume text as dense numerical vectors capturing semantic relationships between words.
- **TF-IDF Vectorization:** Convert resume text into TF-IDF vectors using sklearn.feature_extraction.text.TfidfVectorizer to quantify the importance of words and phrases in resumes relative to the entire dataset. This enables meaningful comparison and analysis.

Algorithm Development:

- **Classification Models:** Develop machine learning models using libraries such as scikit-learn for categorizing resumes into qualified, borderline, and unqualified categories based on predefined criteria like skills relevance and experience alignment.

- **Clustering Algorithms:** Implement clustering algorithms using scipy or sklearn.cluster to group similar resumes together based on features extracted during preprocessing and feature extraction stages.

Resume Evaluation and Scoring:

The system analyzes resumes thoroughly, utilizing advanced algorithms to generate a comprehensive score based on factors such as skills relevance, experience level, educational qualifications, certifications, and other pertinent information. This scoring mechanism is designed to assess each candidate's overall suitability for a given job vacancy, taking into account nuanced evaluation criteria beyond simple metrics like precision, recall, and F1-score. By implementing custom scoring functions, the system ensures a nuanced and accurate assessment process tailored to the specific requirements of the job description, ultimately assisting employers in making informed hiring decisions.

Job Description Parsing and Matching:

- **Job Description Parsing:** Utilize NLP techniques to parse job descriptions and extract key requirements, responsibilities, and qualifications using spaCy or custom rule-based parsing methods.
- **Semantic Matching:** Implement semantic analysis and similarity measures (e.g., cosine similarity) using scipy.spatial.distance or sklearn.metrics.pairwise to match resumes with job descriptions based on the alignment of skills, experiences, and qualifications.

Feedback Generation and Enhancement:

- **Feedback Generation:** Design algorithms using NLTK and TextBlob for generating personalized feedback for job seekers based on resume analysis results. Provide actionable insights, suggestions for improvement, and recommendations to enhance resume content and presentation.
- **User Interface:** Develop a user-friendly interface using Streamlit or Dash to present feedback and analysis results visually, enabling interactive exploration and interpretation of resume evaluation outcomes.

User Testing and Validation:

- **Usability Testing:** Conduct usability testing with stakeholders, including recruiters, hiring managers,

and job seekers, to evaluate the system's performance, user experience, and effectiveness in aiding decision-making.

- **Feedback Iteration:** Gather feedback, iterate on system enhancements, and validate improvements through iterative testing cycles. Use pytest or unittest for automated testing and validation of system functionalities.

Deployment and Maintenance:

- **Deployment:** Deploy the finalized Resume Evaluation System using platforms like Docker and cloud services such as AWS or Azure. Ensure scalability, reliability, and security of the deployed system.
- **Monitoring and Maintenance:** Implement monitoring tools and alerts using Prometheus or Grafana for system performance, data accuracy, and compliance with regulatory standards. Conduct regular maintenance, updates, and security patches to optimize system functionality and reliability.

III. Proposed System:

In response to the challenges faced by job seekers and recruiters in the competitive job market, we propose the development of an innovative system called the "AI Resume Analyzer." This system integrates cutting-edge technologies and services to revolutionize the resume evaluation process, providing comprehensive solutions for both job seekers and recruiters. Proposed Services:

Resume Builder Service:

The Resume Builder service enables job seekers to create professional resumes efficiently. Users can input their personal details, work experience, education, skills, and certifications through an intuitive web interface. The service guides users in crafting well-structured resumes with standardized formats, ensuring clarity and effectiveness in showcasing their qualifications.

Resume Analyzer Service:

The core functionality of the system lies in the Resume Analyzer service. Job seekers can upload their resumes in various formats (e.g., PDF, DOCX), and the system leverages the pyresparser library to extract essential information such as name, contact details, skills, total experience, education, previous designations, and company names. This service ensures accurate and comprehensive extraction of key resume elements for further analysis.

Job Description Matching Service:

The Job Description Matching service enhances the recruitment process by comparing uploaded resumes with job descriptions. Recruiters can input job descriptions into the system, which then analyzes the text and provides a matching rate based on the alignment of skills, experiences, and qualifications. This service streamlines candidate selection, enabling recruiters to identify the most suitable candidates for specific job roles efficiently.

Job Portal Integration Service:

The Job Portal Integration service offers a comprehensive platform for job seekers to explore career opportunities and gain valuable insights. Users can access career portals of leading companies, curated job listings, industry trends, resume samples, and actionable tips for resume improvement. This service empowers job seekers with personalized recommendations and enhances their job search strategies.

IV. Literature review :

Sr. No.	Title of Paper	Description	Techniques Used	Merits / Demerits
1.	Smart Resume Analyzer	The goal of resume screening is to identify the top applicants for a position and to inform users of their resume score and areas for improvement.	Natural Language Processor, Term frequency inverse documentar y frequency (TF-IDF), Cosine Similarity, Latent Dirichlet allocation (LDA), Exploratory data allocation	MERITS: Objective: Removes bias by focusing on qualifications and skills rather than personal information. Accuracy: Reduces the likelihood of overlooking qualified candidates due to human error. DEMERI

				TS: Cost: Implement ation and mainten an ce can be expensive, especially for smaller organizati ons.		AI	that reduces the HR activities along with the technologi es used in it	Classificati on techniques	qualificati ons and skills, making the evaluation process more objective and data-driven. DEMERI TS: Continuou s monitorin g and updates are necessary to adapt to changing job requireme nts and evolving candidate pools.	
2.	Resume Screenin g Using Machine Learning and NLP	Resume Screening is a process that is majorly used in Big Tech companies where they receive a massive amount of resume strength or how much the resume is relevant to the job description and filtering them according to that.	NLP, Resume, CV,KNN, SVM, NER	MERITS: Data-Driven Insights: ML can provide valuable insights into hiring trends.can didate qualificati ons, and process optimizati on. DEMERI TS: Privacy Concerns: Accessing and processing personal data on resumes may raise privacy and complian ce issues, such as GDPR or CCPA		4.	Based on the applicati on of AI technolo gy in resume analysis and job recomme ndation	Developin g a system that can be applied in large job fairs, where numerous job applicants seek to match with the maximum of job vacancies provided by companies possible. The developed system conducts personal competitiv eness analysis.	Artificial intelligence , text mining, recommend ation system, data analysis	MERITS: Al analyzers can assess language proficienc y, ensuring that candidates meet language requireme nts for a particular job, which is crucial for positions that require strong communic ation skills. DEMERI
3.	Resume Evaluati on System based on	Smart and automated Resume Evaluation system.	Artificial Intelligence , Natural Language Processing.	MERITS: They focus on quantifiable						

		personality trait analysis, and gives job vacancy recommendations according to the electronic resumes job applicants submit.		TS: The automated nature of AI analyzers can lead to a lack of the human touch in the initial screening process, potentially missing out on candidates with non-traditional backgrounds who might bring valuable skills and perspectives.					evolving job requirements, industry-specific terminology, or variations in resume formatting, potentially causing qualified candidates to be overlooked.
5.	A Resume Evaluation System Based on Text Mining	Artificial intelligence (AI) technology is developing rapidly and is quickly becoming a part of daily life. AI can be adopted to help people in the workplace. For example, AI can be used to assist interviewers	Artificial intelligence, , big data, text mining,web crawler.	MERITS : Consistency: AI maintains a consistent evaluation process, reducing the risk of human error or variability in resume screening. DEMERITS: AI analyzers may not adequately account for unique or	6.	Career Mapper: An The Automated Resume Evaluation Tool.	The advent of the Web brought major changes in the way people search for jobs and companies look for suitable As more employers and recruitment firms turn to the Web for job candidate search, an increasing number of people turn to the Web for uploading and creating their online resumes. Resumes are often the first source of information	NLP, Resume, CV,KNN, SVM, NER	MERITS: AI analyzers generate data and insights about the candidate pool, helping organizations make data-driven decisions about their hiring process. DEMERITS: AI may struggle to grasp the context, such as explaining employment gaps, career changes, or achievements that

		about candidates and also the first item of evaluation in candidate selection.		aren't explicitly mentioned in the resume, potentially leading to unfair rejections.
--	--	--	--	--

V. Diagrams :

Workflow of the Resume Analyzer :



Fig.1. Workflow of the Resume Analyzer

System architecture :

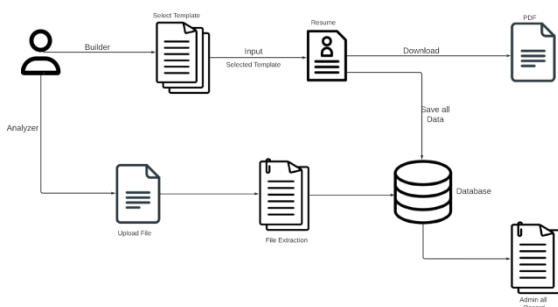


Fig.2. System architecture

Use case diagram :

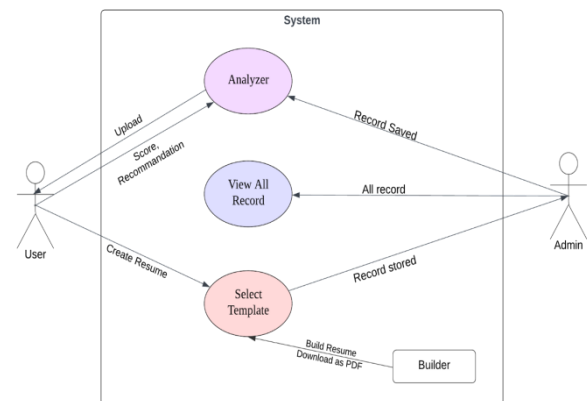
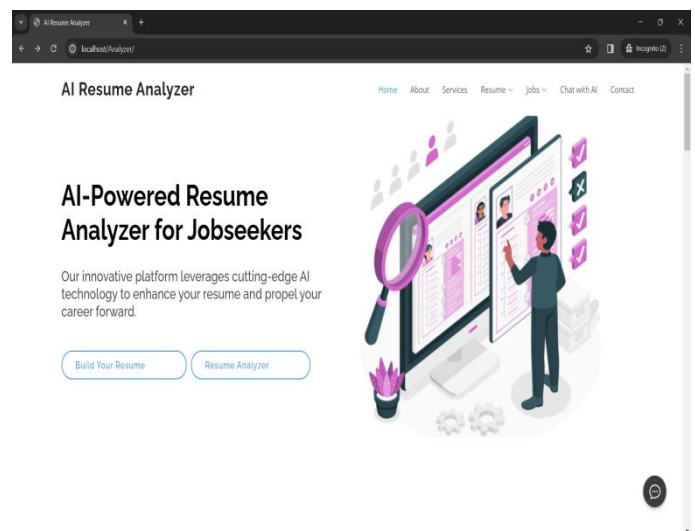


Fig. 3. Use case diagram

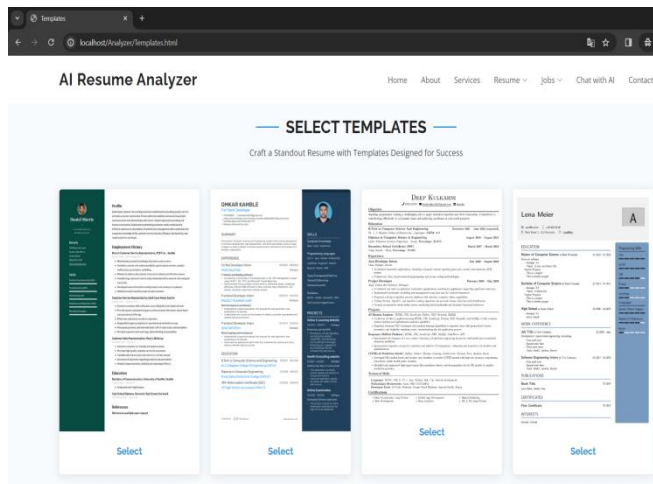
VI. Results :

The below image illustrates a homepage featuring user-friendly navigation options, designed to streamline task completion and enhance user experience.



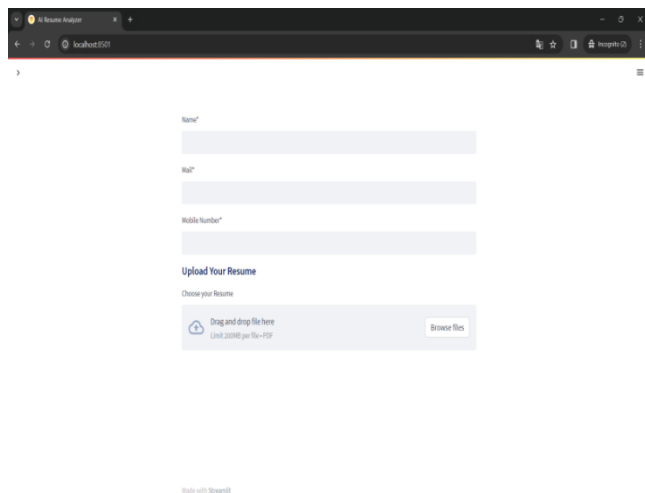
Img 1. Homepage

The following image showcases a resume builder page where users can select a template to create their resumes



Img 2.Resume builder templates

The image below displays a resume analyzer tool that provides an analysis of your resume.



Img 3.Resume Analyzer page

The image below depicts a resume analysis page where the results, including extracted information from the resume, suggestions, and scores, are displayed comprehensively.

Resume Analysis 🙌

Hello Deep Kulkarni

Your Basic info 🗒

Name: Deep Kulkarni

Email: deepkulkarni342@gmail.com

Contact: 9325442533

Degree: ['B.Tech in Computer Science And Engineering', 'Diploma in Computer Science

Resume pages: 1

You are at experience level!

Skills Recommendation 💡

Your Current Skills

Android X Interactive X Api X Analytics X C++ X Programming X
Linux X Scheduling X Ui X Mobile X Sql X User experience X Python X
Php X Github X Mysql X Technical X Cloud X Safety X Healthcare X
Computer science X Process X Java X Workflows X Opencv X Ai X
Html X Analysis X Design X Security X C# X Javascript X Marketing X
C X System X Css X Algorithms X Health X Digital marketing X
Tkinter X Pycharm X Data analytics X Machine learning X Engineering X
Coding X Seo X See our skills recommendation below

Img 4.Resume analysis

Recommended skills for you.

Android X Android development X Flutter X Kotlin X XML X Java X
Kivy X GIT X SDK X SQLite X Recommended skills generated from System

Adding this skills to resume will boost 🚀 the chances of getting a Job 📁

Courses & Certificates Recommendations 🎓

Choose Number of Course Recommendations:



- (1) [Android Development for Beginners \[Free\]](#)
- (2) [Android App Development Masterclass using Kotlin](#)
- (3) [Android App Development Specialization](#)
- (4) [Associate Android Developer Certification](#)
- (5) [Building an Android App with Architecture Components](#)

Resume Tips & Ideas 🗒

[+] Awesome! You have added Objective/Summary

[+] Awesome! You have added Education Details

[+] Awesome! You have added Experience

[-] Please add Internships. It will help you to stand out from crowd

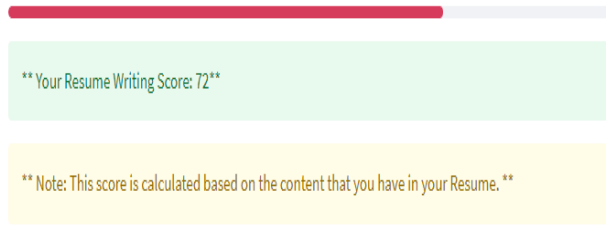
[+] Awesome! You have added Skills

[-] Please add Hobbies. It will show your personality to the Recruiters and give the assurance that you are fit for this role or not.

[-] Please add Interest. It will show your interest other than job.

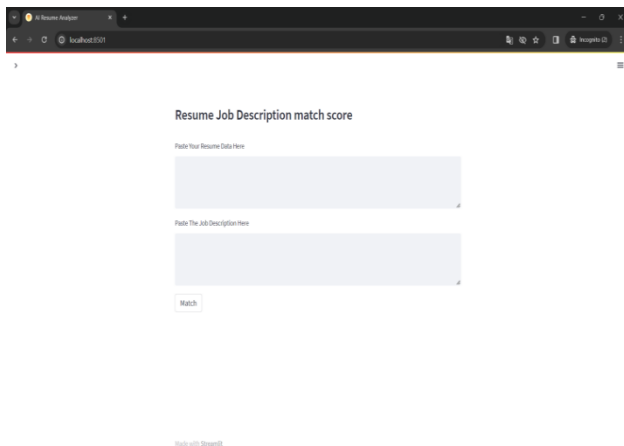
Img 4.1.Resume analysis

Resume Score



Img 4.2.Resume analysis

The image below illustrates a job description matching score tool, allowing users to input both the job description and resume data to obtain a matching score.



Img 5. Job description matching score

Resume Job Description match score

Paste Your Resume Data Here

- Employed advanced NLP techniques and machine learning algorithms to empower users with personalized resume generation and insightful matching scores, revolutionizing the job application process.
- Responsive EdTech Platform | HTML, CSS, JavaScript, PHP, MySQL, CodeMirror API
- Spearheaded development of a user-centric e-learning web platform supporting interactive multimedia and streamlined

Paste The Job Description Here

Document and maintain software functionality
Troubleshoot, debug and upgrade existing systems
Deploy programs and evaluate user feedback
Comply with project plans and industry standards
Ensure software is updated with latest features
Requirements and skills
Proven work experience as a Software Engineer or Software Developer

Match

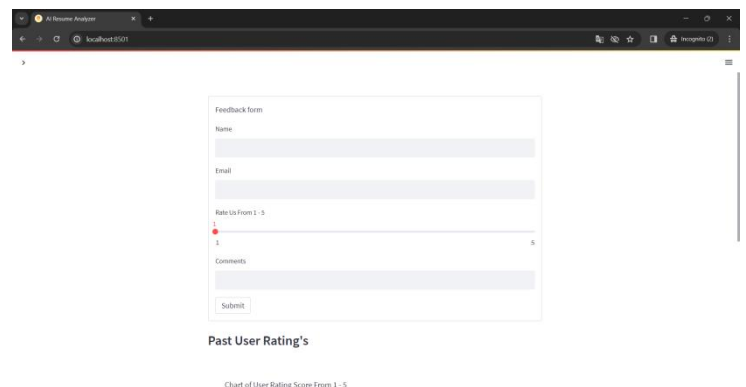
Match Percentage: 49.46%

Good match but can be improved.

Consider adding these key terms from the job description to your resume: document, field, produce, systems, passionate, specifications, preliminary, full, functional, designing, popular, identify, functionality, candidates, feedback, execute, standards, determine, spring, include, gwt, gathering, operational, engineer, troubleshoot, one, relational, testable, tests, industry, complies, writing, work, ultimately, plans, latest, jsf, features, rails, procedures, databases, maintain, build, brief, defining, deployment, install, integrate, write, proficiency, looking, layouts, flowcharts, orm, wicket, bsc, responsibilities, fully, documentation, feasibility, ruby, existing, technologies, evaluate, ability, assurance, quality, ideal, familiar, comply, proven, ensure, develop, cycle, knowledge, excellent, verification, software, debug, updated, requirements, relevant, various, upgrade, developing, performing, deploy, sdic, degree, life, programs, hibernate, mvc, least

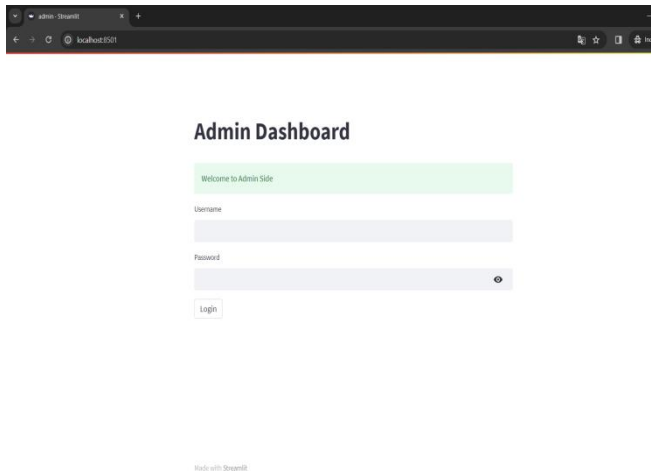
Img 5.1. Job description matching score output

The screenshot below shows a feedback page where users can provide feedback about the service to the website owner.



Img 6.Feedback page

"The following image displays an admin login page, providing access for administrators to log in securely.



Img 7.Admin Login Page

The screenshot showcases a builder user data section, an analyzed resume's user data section, and a feedback table.

Builder User's Data

Total 0 Users Have Used Resume Builder

ID	First Name	Middle Name	Last Name	Designation	Address	Email	Phone Number	Summary
empty								

User's Data

Total 1 User's Have Used Resume Analyzer

	ID	Token	IP Address	Name	Mail	Mobile Number
0	1	C2375a-YnuBI dG	102.168.14.111	dean.bulkrani	deanbulkrani343@gmail.com	0375482533

[Download Report](#)

User's Feedback Data

ID	Name	Email	Feedback Score	Comments	Timestamp

User Rating's

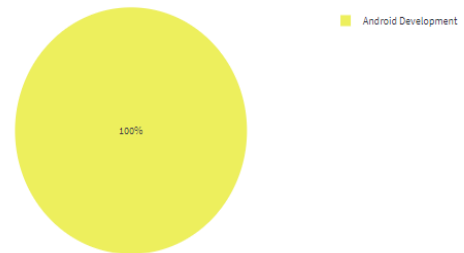
Chart of User Rating Score From 1 - 5 🍌

Img 8.user's data in table format

The pie chart below illustrates the distribution of fields including predicted field recommendation, user's experience level, and resume score.

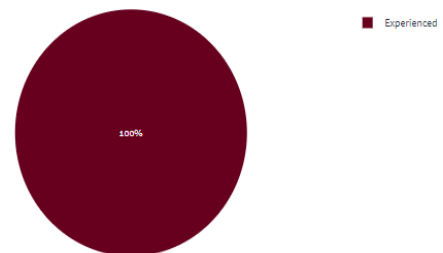
Pie-Chart for Predicted Field Recommendation

Predicted Field according to the Skills 🌱



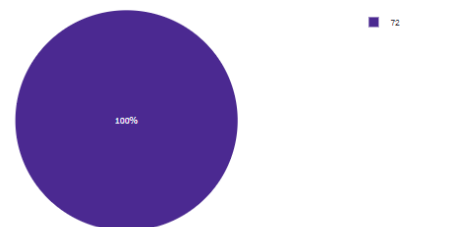
Pie-Chart for User's Experienced Level

Pie-Chart 🗨️ for User's 👤 Experienced Level



Pie-Chart for Resume Score

From 1 to 100 🍌

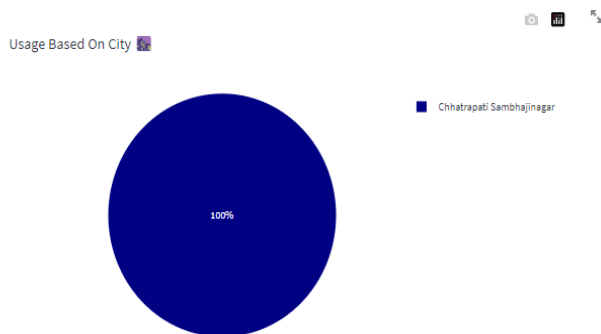


Img 9.Pie chart to display the data

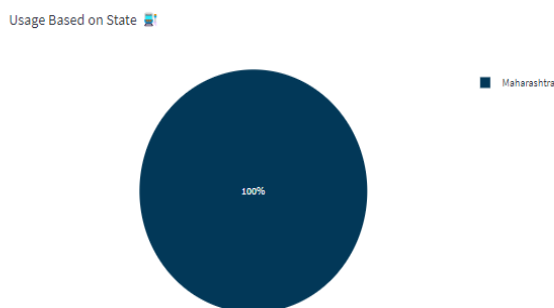
VII. Conclusion :

The pie chart below represents the distribution of users based on their city, state, and country.

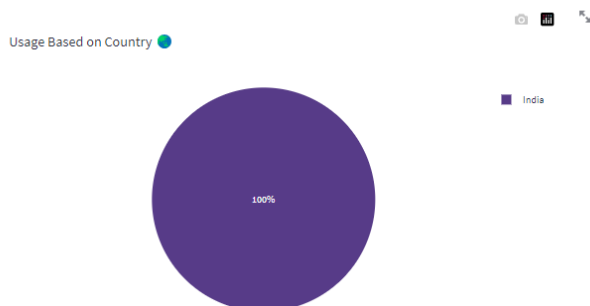
Pie-Chart for City



Pie-Chart for State



Pie-Chart for Country



Img 10. Pie char for user's data

The AI Resume Analyzer presented in this research represents a significant advancement in the field of talent acquisition and recruitment. By harnessing the power of artificial intelligence (AI) and machine learning (ML) technologies, this system offers a cutting-edge solution to the challenges faced by both job seekers and employers in the modern job market. Through its ability to analyze resumes with precision, extract relevant information, and provide personalized feedback, the AI Resume Analyzer streamlines the resume evaluation process, making it more efficient and effective.

The methodology employed in developing the AI Resume Analyzer involved a systematic approach that encompassed study design, data collection, and analytical techniques. By utilizing supervised learning methods and training the system with annotated data, we ensured its accuracy in identifying key elements such as skills, qualifications, and experiences from resumes. This rigorous methodology not only enhances the system's predictive capabilities but also ensures its reliability in matching resumes with job requirements accurately.

In conclusion, the AI Resume Analyzer has the potential to revolutionize how job seekers craft their resumes and how employers evaluate candidate profiles. Its scalability, feedback mechanisms, and analytical prowess make it a valuable tool for organizations of all sizes, facilitating a more streamlined and data-driven recruitment process. As AI continues to evolve, the AI Resume Analyzer represents a glimpse into the future of talent acquisition, where technology plays a pivotal role in bridging the gap between job seekers and employment opportunities.

IX. Acknowledgement :

The completion of this project and the development of the AI Resume Analyzer system would not have been possible without the support and guidance of several individuals and institutions. Firstly, we express our heartfelt gratitude to the management of Dr. J. J. Magdum college of engineering jaysingpur, for providing us with the necessary resources, infrastructure, and encouragement throughout this endeavor. Their unwavering support was instrumental in the successful completion of this project.

We extend our sincere thanks to Prof. S. A. Narde mam, our project guide and mentor, for her invaluable expertise, guidance, and continuous support during the development of the AI Resume Analyzer system. her proficiency in the fields of machine learning and natural language processing played a crucial role in shaping the direction and success of this project.

Lastly, we would like to express our gratitude to all the participants, contributors, and well-wishers who

supported us throughout this journey. Their involvement and belief in our project were integral to its completion and success.

X. References :

[1]Gupta R., Journey from data mining to Web Mining to Big Data, arXiv preprint arXiv:1404.4140, 2014.

[2]Gaikwad S V, Chaugule A, Patil P., Text mining methods and techniques, International Journal of Computer Applications, Volume 85(17), 2014.

[3]Amato F., Boselli R., Cesarini M., et al., Challenge: Processing web texts for classifying job offers, Semantic Computing (ICSC), 2015 IEEE International Conference on, Volume 460-463, 2015.

[4]Cafarella Michael J., Banko Michele, Etzioni Oren., Open information extraction from the web, US8938410, 2015-01-20.

[5]Rimitha, S. R., Abburu, V., Kiranmai, A., & Chandrasekaran, K., Ontologies to Model User Profiles in Personalized Job Recommendation, 2018 IEEE Distributed Computing, VLSI, Electrical Circuits and Robotics (DISCOVER), Volume pp. 98-103, 2018.

[6]NLP based Extraction of Relevant Resume using Machine Learning, Nirali Bhaliya, Jay Gandhi, Dheeraj Kumar Singh, International Journal of Innovative Technology and Exploring Engineering (IJITEE), Volume-9 Issue-7, May 2020.

[7]A Review Paper on Resume scanning using python, Panil Jain, Nandkishor Kamble, Risha Nadar, Shaikh Luqman, International Research Journal of Engineering and Technology (IRJET), Volume: 09 Issue: 04 — Apr 2022.

[8]Resume Recommendation using Machine Learning, Ramba S Naik, Shrinivas R Dhotre, International Journal of Creative Research Thoughts (IJCRT), Volume 10, Issue 7, July 2022.

[9]Resume Screening Using LSTM, Navale Sakshi, Doke Samiksha, Mule Divya3, Prof. Said S. K., International Journal of Research Publication and Reviews, April 2022.

[10]Suhas Tangadle Gopalakrishna, Vijayaraghavan Varadharajan Infosys Limited, Bengaluru, India, AUTOMATED TOOL FOR RESUME CLASSIFICATION USING SEMANTIC ANALYSIS, M. Young, The Technical Writer's Handbook, Volume 11, Issue 12, December 2023.

[11]Xavier Schmitt, Sylvain Kubler, Jer emy Robert, Mike Papadakis, Yves LeTraon, University of Luxembourg, Luxembourg, Replicable Comparison Study of NER Software:StanfordNLP, NLTK, OpenNLP, SpaCy, Gate.

[12]Abeer Zaroor, Jenin, Mohammed Maree, Muath Sabha, Information Technology Department, The Arab American University Jenin, Palestine, JRC: A Job Post and Resume Classification System for Online Recruitment, Volume 11, Issue 12, December 2023.