

RESUME PARSER FOR ATS WITH JOB ROLE RECOMMENDATION

Department of Data Science

**15- YASHVI GHUMRE
27 - PRIYANKA LAMKOTI**

GUIDE - DR. SANTOSHI POTE

CONTENT

01

INTRODUCTION

02

LITERATURE REVIEW

03

BLOCK DIAGRAM

04

METHODOLOGY

05

EXPECTED RESULTS

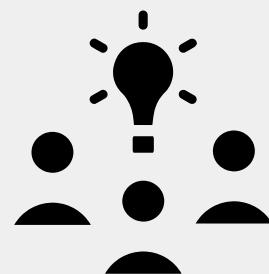
06

CONCLUSION AND FUTURE SCOPE

07

REFERENCES

INTRODUCTION



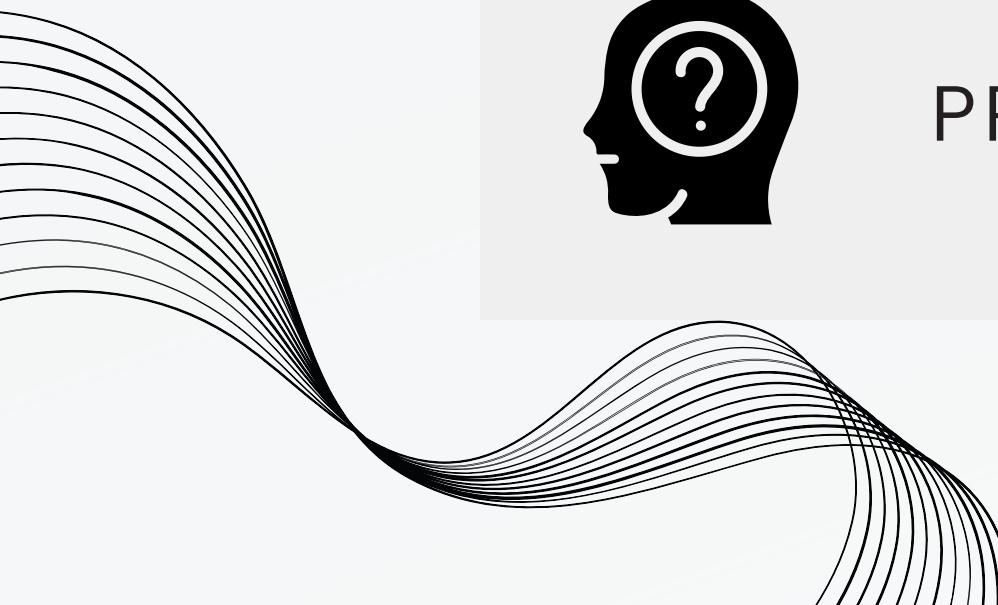
APPLICANT TRACKING SYSTEMS



RESUME PARSERS



PROBLEM STATEMENT

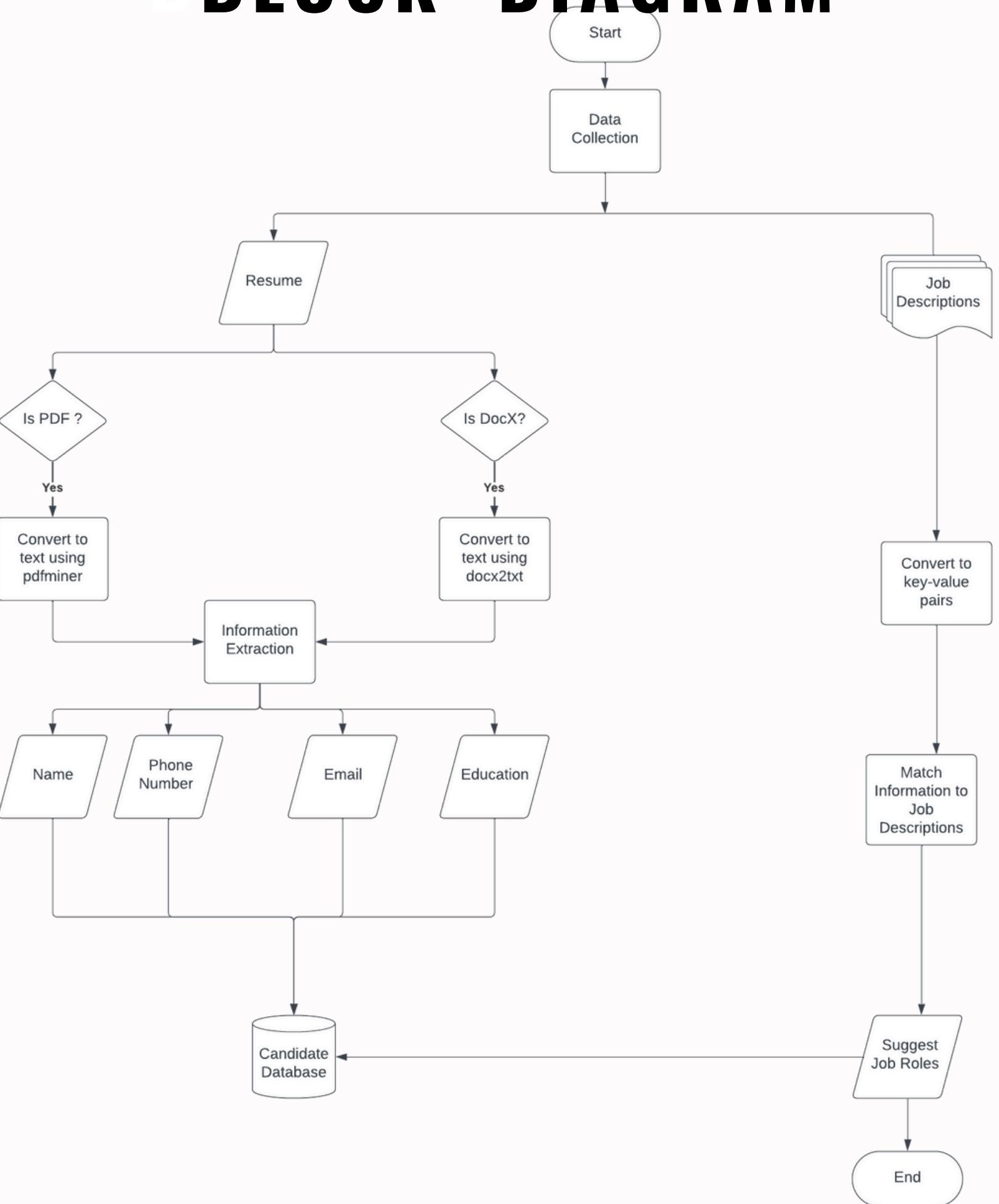


LITERATURE REVIEW

NAME OF THE PAPER AUTHORS	METHODOLOGY / TECHNOLOGY USED	REMARKS AND OBSERVATIONS
<ul style="list-style-type: none"> • Name of Paper: A Resume Analyzer Application for Matching Candidates with Job Requirements, Using a Parsing Algorithm • Authors: Ali, A.A., Olow, F.H., Dahir, A.A., Hassan, A. and Mohamud, M., 2021. 	<p>Data Extraction – Pyresparser. Front-end – HTML, CSS, JavaScript and Bootstrap. Server side – Django Framework, Python Programming and PostgreSQL.</p>	<p>Pyresparser is a module designed specifically for screening resumes and we will be experimenting with it in the coming phase. However, it has low accuracy when tested for professional uses.</p>
<ul style="list-style-type: none"> • Name of Paper: "ATS BREAKER"- A System for Comparing Candidate Resume and Company Requirements • Authors: Lino Mathew, Nithin C George, Nikitha Linet, Nithin K Thomas (2020) 	<p>NLP methods and NER in the ATS breaker. Model – python, deployment – Heroku app. Flask, a web framework – connects the user-end and back-end. SQLAlchemy library- access the read/write operation in PostgreSQL database. UI – React.</p>	<p>Name Entity Recognition it works for predefined categories such as organizations, location and medical codes. It doesn't prove useful to extract specific requirements.</p>
<ul style="list-style-type: none"> • Name of Paper: RESUME PARSER USING ML AND NLP Volume:05/Issue:11 • Authors: Prof. P.R. Kulkarni, Yash Vaidya, Akshad Shelare, Narayan Attarde, Meet Sali (2023) 	<p>The proposed system utilizes natural language processing (NLP) techniques, machine learning algorithms, and recommendation systems to automate the resume building process .</p>	<p>It has a user centric design that has a reverse approach. It scans the job description and suggests improvements in the resume.</p>

NAME OF THE PAPER AUTHORS	METHODOLOGY / TECHNOLOGY USED	REMARKS AND OBSERVATIONS
<ul style="list-style-type: none"> • Name of Paper: End-to-End Resume Parsing and Finding Candidates for a Job Description using BERT • Authors: Vedant Bhatia, Prateek Rawat, Ajit Kuma, Rajiv Ratn Shah (2019) 	<p>Resume parsers – complete details extracted. BERT sentence pair classification to perform ranking based on their suitability to the job description.</p>	<p>This system parses resumes and converts them to LinkedIn format. Sentence Pair Classification is used to approximate the job description, using description of past job experiences by a candidate.</p>
<ul style="list-style-type: none"> • Name of Paper: NLP Based Resume Parser Analysis Vol.10, Issue 5. • Authors: Mhaske Harshada, A. N. Kshirsagar, Nevase Sonali, Pimparkar Ankita (2023) 	<p>This paper suggest restarting the parser in project using NLP to help the hiring manager or human resources department get accurate information from the resume. (SVM, Random Forest, KNN to train the model)</p>	<p>Using keyword matching and NLP , the company will receive the best CV possible based on its keywords.</p>
<ul style="list-style-type: none"> • Name of Paper: Resume Parser with Natural Language Processing. • Authors: Pornphat Sroison, Jonathan H. Chan: December 29, 2021 	<p>PyMuPDF – convert PDF files to text format. python-docx to convert doc, docx file to text. Named Entity Recognition (NER) for training model. Regular Expression to extract data. The percentage of similarity will be displayed as the result.</p>	<p>Data Extraction limitation : Year of Graduation and Date of Birth difficult to extract. Cosine Similarity used to calculate how similar candidate profile is to job profile.</p>

BLOCK DIAGRAM



METHODOLOGY

Research Design

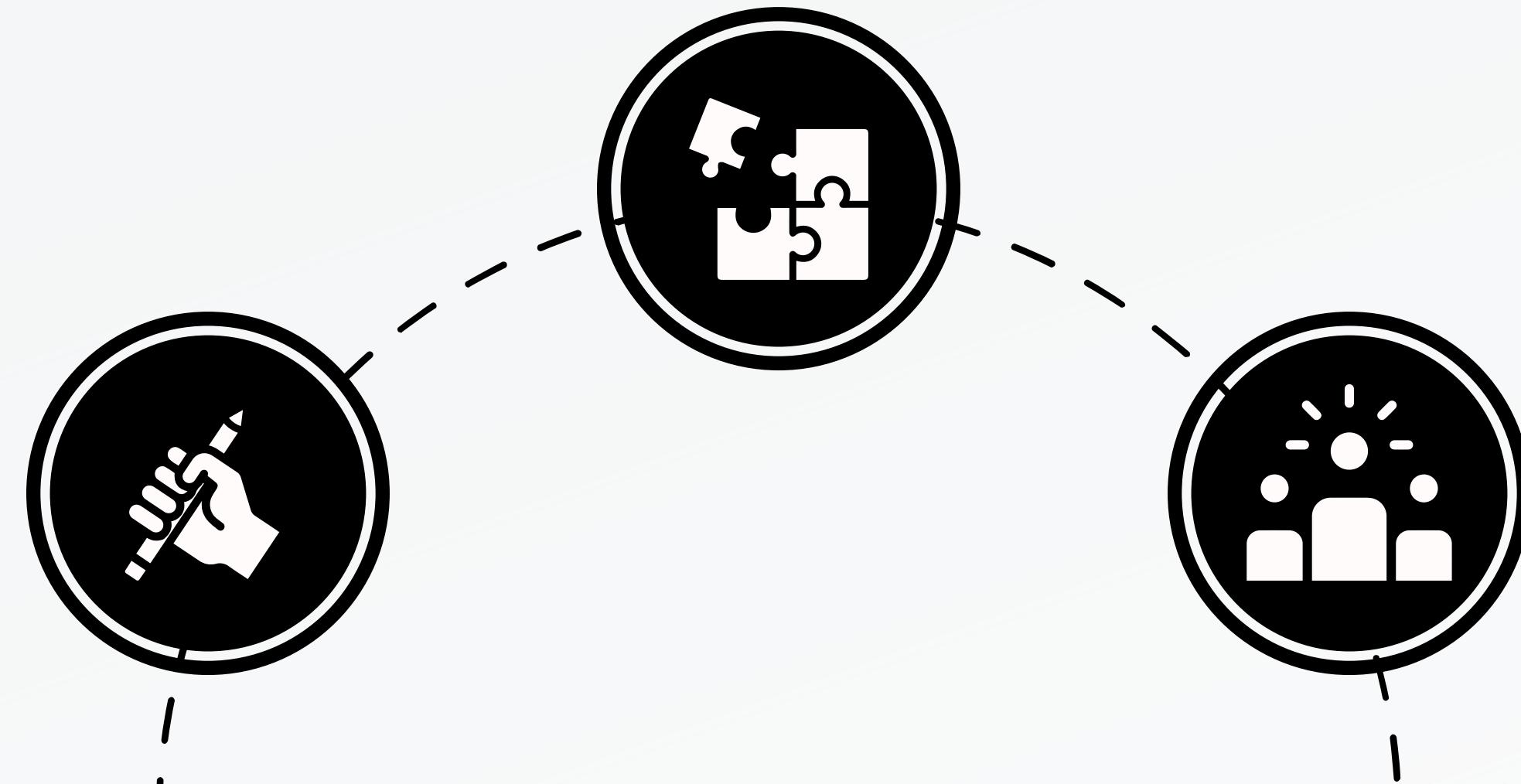
- > Papers on NLP, ML,
Resume Parsers
- > Data Collection

Data Analysis

- > pdfminer
- > docx2txt
- > Regular Expression
- > NLTK, scikit Learn
- > SQL magic

Ethical Considerations

- > Form collection
consent
- > Open Souce website





NLTK

The Natural Language Toolkit (NLTK) is a Python package for natural language processing.

- word_tokenize
- stopwords
- FreqDist

SCI KIT LEARN

scikit-learn is a free and open-source machine learning library for the Python programming language.

-TF-IDF

-cosine similarity

SQL MAGIC

a way to interact with databases directly within a Jupyter environment.

- %%sql - whole cell
- %sql - single line

RESULTS



In [34]: `%%sql`

```
SELECT * FROM CANDIDATES WHERE CGPA > 8.0;
```

* sqlite:///SQLiteMagic.db

Done.

Out[34]:

Name	Contact_Number	Email	Education	CGPA	Role1	Role2	Role3
Kirti Patel	8655204810	kirtiipatel4@gmail.com	Bachelor of Technology	9.43	Frontend Engineer	Data Analyst	Blockchain Engineer
Vansh Mehra	9711982402	vansh_m@iitr.ac.in	B.Tech	8.17	Data Analyst	Data Engineer	Data Scientist
Zenia Nouphal	9653392978	zenianouphal5@gmail.com	B.Tech	9.43	Data Analyst	Business Analyst	Data Engineer
Mrunal Chavan	8425808902	mrunalchavan1973@gmail.com	B.Tech	8.9	Data Analyst	Machine Learning Engineer	Data Engineer
Sahil Raj	8454800513	raj17sahil@gmail.com	Bachelor of Engineering	8.73	Data Scientist	Blockchain Engineer	Data Analyst
Nikita Shetty	9867332365	shettynikita926@gmail.com	Bachelor of Technology	8.71	Backend Engineer	Frontend Engineer	Database Administrator

In [35]: `%%sql`

```
SELECT * FROM CANDIDATES WHERE Role1 == 'Data Analyst';
```

* sqlite:///SQLiteMagic.db

Done.

Out[35]:

Name	Contact_Number	Email	Education	CGPA	Role1	Role2	Role3
Vansh Mehra	9711982402	vansh_m@iitr.ac.in	B.Tech	8.17	Data Analyst	Data Engineer	Data Scientist
Zenia Nouphal	9653392978	zenianouphal5@gmail.com	B.Tech	9.43	Data Analyst	Business Analyst	Data Engineer
Mrunal Chavan	8425808902	mrunalchavan1973@gmail.com	B.Tech	8.9	Data Analyst	Machine Learning Engineer	Data Engineer
Janhavi Dixit	9370680015	janhavidixit249@gmail.com	Bachelor of Technology	0.0	Data Analyst	Backend Engineer	Database Administrator
Sejal Londhe	7715084590	sejallondhe14@gmail.com	Null	7.66	Data Analyst	Backend Engineer	Business Analyst
Purva Patil	9620538301	purvap0078@gmail.com	Null	0.0	Data Analyst	Data Scientist	Machine Learning Engineer
Nidhi Ravariya	9892700632	nidhiravariya256@gmail.com	B.Tech	7.51	Data Analyst	Business Analyst	Machine Learning Engineer

FUTURE SCOPE



SEMANTIC
UNDERSTANDING



DEVELOPMENT IN
AI AND ML



MULTILINGUAL
PARSING

REFERENCES

- [1] Dr. Arunava Narayan Mukherjee, Prof. Sudipto Bhattacharyya and Risika Bera (2014) Role of Information Technology in Human Resource Management of SME: A Study on the use of Applicant Tracking System Volume-3, Issue-1
- [2] Lino Mathew, Nithin C George, Nikitha Linet, Nithin K Thomas (2020) Dept. of Computer Science and Engineering Amal Jyothi College of Engineering Kottayam, Kerala, India: "ATS BREAKER"- A System for Comparing Candidate Resume and Company Requirements Vol. 9 Issue 06
- [3] Prof. P.R. Kulkarni, Yash Vaidya, Akshad Shelare, Narayan Attarde, Meet Sali (2023) RESUME PARSE USING ML AND NLP Volume:05/Issue:11
- [4] Vedant Bhatia, Prateek Rawat, Ajit Kuma, Rajiv Ratn Shah (2019) End-to-End Resume Parsing and Finding Candidates for a Job Description using BERT.
- [5] Mhaske Harshada, A. N. Kshirsagar, Nevase Sonali, Pimparkar Ankita (2023) NLP Based Resume Parser Analysis Vol.10, Issue 5.
- [6] Pornphat Sroison, Jonathan H. Chan: Resume Parser with Natural Language Processing. December 29, 2021

THANK YOU !!

