Resume Parsing and Template Filling

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***Abstract*—Resume parsing is the process of automatically extracting information from resumes and converting it into a structured format that can be easily analyzed and searched by hiring managers and recruiters. Template filling, on the other hand, is the process of automatically populating a predefined resume template with the extracted information. Together, these technologies can significantly streamline the recruitment process, making it faster and more efficient for both job seekers and employers.**

***Index Terms*—NLP techniques, Resume Parsing, Template filling, NER**

I. Introduction

Resume parsing and template filling are automated technologies used in the recruitment process to extract relevant information from resumes and populate it into a predefined format. With the increasing amount of resumes received by employers, these technologies have become vital in speeding up the recruitment process while maintaining accuracy and consistency in the collected data. The literature on resume parsing and template filling is expanding rapidly as these technologies continue to evolve and offer new capabilities. In this literature review, we will explore the current state of the art in resume parsing and template filling technologies, examine their strengths and limitations, and discuss their potential impact on the recruitment process.

II. Literature Review

A. Resume Parser Using Natural Language Processing Techniques

The aim of this paper is to dampen the unfair and discriminatory practices in the process. On the Basis of the information in the form of technical skills, the resumes will be ranked in order. The proposed methodology in this paper is using Optical Character Recognition(OCR) to extract the data from Resume. The main technique they have used is Natural Language Processing and Ranking Algorithm which is helpful for ranking the resume according to the particular companies. Additionally, they have extracted data from Social Media like Linkedin for applying for jobs which will make the recruitment process easier by getting quality applicants from various regions by avoiding unfair and discriminatory practices.

B. NLP based Extraction of Relevant Resume using Machine Learning

The focus of this paper is on the technique of parsing resumes with minimal limitations, utilizing a parser that employs a small set of rules to identify names and addresses. Recruitment firms use this CV parser system to efficiently manage a large number of resumes. Given the various formats and structures of resumes, including both structured and unstructured data, as well as meta information, the proposed CV parser method is designed to accurately extract information from diverse resume types. Ultimately, this approach aims to provide an effective and efficient method for extracting key information from a range of resumes.

C. A CV Parser Model using Entity Extraction Process and Big Data Tools

The focus of this paper was on developing an automated resume parser system that can parse resumes based on job profiles, transforming unstructured resumes into a structured format. Additionally, the system includes a ranking system that evaluates resumes based on extracted information, such as technical skills and education. The system uses a CV parser technique, which supports multiple languages and allows for semantic mapping of skills and easy customization. By integrating hire ability, the CV parser can provide accurate results, and the system also offers an API key for integration with other software. The parser operates using a set of rules that instruct it on how to identify names and addresses. Recruitment firms frequently use the CV parser technique for selecting resumes, as resumes come in various formats with structured and unstructured data, metadata, and other information. Ultimately, the proposed CV parser technique provides an efficient method for extracting key information from uploaded resumes.

D. An Unstructured Text Analytics Approach for Qualitative Evaluation of Resumes

This paper describes how resumes were analyzed using a text-based approach to assess their quality based on different parameters. The resumes were evaluated for their comprehensibility and other aspects, and the ratings were combined to create an overall quality rating. The ratings were then converted into a scale of 1 to 5 to assign a quality metric for the resumes. The results obtained through this approach were in agreement with the opinions of many people, confirming the

validity of the method. In this paper they have also explained 3 parsing techniques.

E. Resume Parser with Natural Language Processing

In this paper, they were able to turn various formats of resumes into plain text and extract the important details from them. They also collected keywords from social networking sites such as Stack Overflow and LinkedIn. By comparing the keywords, they could tell what kind of job the resume was for, such as computer science, management, sales, or human resources. In their model the data is given to the system as a raw string. The Lexical analyzer preprocesses the data and tokenizes them. The Syntactic analyzer takes the tokens and finds the structure in it. The parse tree diagrammatically represents the syntactic structure in the form of a tree. The Semantic analyzer studies the structure of the data to find their language-independent meaning.

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TABLE I
LITERATURE REVIEW TABLE

S.no	Author	year of publi-cation	Paper Title	Observations
1.	Shubham Bhor, Vivek Gupta, Vishak Nair, Harish Shinde,Prof. Manasi S.Kulkarni5	2021	Resume Parser Using Natural Language Processing Techniques	Resumes will be ranked in order and Used NER.
2.	Nirali Bhaliya, Jay Gandhi, Dheeraj Kumar Singh	2020	NLP based Extraction of Relevant Resume using Machine Learning	Semantic mapping for limits and Parsing with lease limit.
3.	Papiya Das,Manjusha Pandey and Siddharth Swarup Rautaray	2018	A CV Parser Model using Entity Extraction Process and Big Data Tools	Convert unstructured resumes to structured,Used techniques like Extraction of Entity,POS tagging
4.	VINAYA RAMESH KU-DATARKAR, MANJULA RAMAN-NAVAR, DR. NANDINI S.SIDNAL	2015	A Survey on Unstructured Text Analytics Approaches for Qualitative Evaluation of Resumes	unsupervised learning and ranks based on cosine similarity.
5.	Satyaki Sanyal,Souvik Hazra, Soumyashree Adhikary, Neelanjan Ghosh	2017	Resume Parser with Natural Language Processing	scrape keywords from different social networking sites including Stack Overflow, LinkedIn, etc and find the similarity between them with which genre of the resume can be determined