

Talent Demand & Supply

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Abstract - Talent Demand & Supply (TDS) is a web-based intelligence dashboard developed to analyze workforce availability and job market trends for improving recruitment processes. The main objective of the system is to provide real-time insights into skill demand, job roles, and workforce distribution. The methodology includes data collection from job datasets, preprocessing using data cleaning techniques, analysis using statistical methods, and visualization through interactive charts and dashboards. The system is implemented using the MERN stack along with Python libraries for efficient data processing and analysis. The results show that the system successfully identifies trending skills such as Python, SQL, and Data Analysis, and provides clear graphical insights for decision-making. It also improves recruitment efficiency by reducing hiring delays and supporting workforce planning. The proposed system is useful for recruiters, students, and organizations to make data-driven decisions and understand job market trends effectively.

Key Words: Talent Demand & Supply, Workforce Analytics, Data Visualization, MERN Stack, Skill Analysis, Job Market Trends.

1. INTRODUCTION

The recruitment and workforce management domain has become more complex due to rapid technological advancements and increasing job opportunities. Organizations face challenges in identifying the right candidates, analyzing skill demand, and reducing hiring time. Traditional recruitment systems depend on manual processes and static reports, which are inefficient and time-consuming.

Many existing systems lack real-time insights, proper data visualization, and integrated analysis of workforce demand and supply. Important information such as skill trends, job demand, and workforce distribution is often scattered, making it difficult to analyze effectively.

To overcome these limitations, the Talent Demand & Supply (TDS) system is proposed. It is a web-based intelligence dashboard that integrates data analytics, visualization, and real-time processing. The system helps users understand job market trends and make better recruitment decisions. It is developed using modern technologies such as the MERN stack and Python libraries, ensuring scalability and efficient performance.

2. Body of Paper

The proposed Talent Demand & Supply (TDS) system. These sections are organized to clearly explain the methodology, system design, implementation, and results of the system.

It is often important to refer back (or forward) to specific sections while explaining the workflow and analysis. Such references are made by indicating the section number, for example, "In Sec. 3, the methodology of the TDS system is discussed..." or "Section 4 describes the system architecture..." If the word Section, Reference, Equation, or Figure starts a sentence, it is written in full. When used in the middle of a sentence, these terms are abbreviated as Sec., Ref., Eq., and Fig.

At the first occurrence of an acronym, it is written in full form followed by the acronym in parentheses. For example, Talent Demand & Supply (TDS), MongoDB Database (MDB), and Artificial Intelligence (AI). This ensures clarity and proper understanding of technical terms used in the system.

Table -1: System Module Description

Module	Description
Data Collection	Collects job-related datasets from various sources
Data Preprocessing	Cleans and structures the dataset
Data Analysis	Identifies skill demand and job trends
Visualization	Displays insights using charts and graphs
Report Generation	Generates structured reports

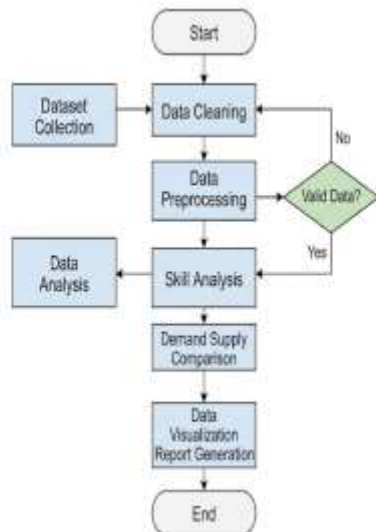


Fig -1: Figure

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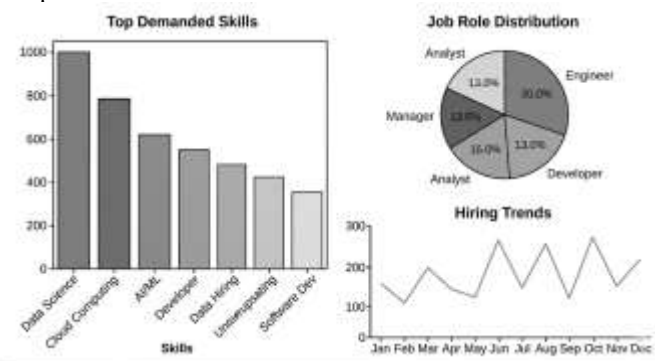
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Graph



3. CONCLUSIONS

The proposed Talent Demand & Supply (TDS) system provides an efficient and data-driven solution for analyzing workforce demand and supply. The system successfully integrates data collection, preprocessing, analysis, and visualization to generate meaningful insights about job market trends. It helps in identifying in-demand skills, understanding job role distribution, and improving recruitment strategies.

The results demonstrate that the system is capable of processing large datasets and generating accurate visual representations within a short time. It reduces the limitations of traditional recruitment systems by providing real-time insights and interactive dashboards. This improves decision-making for recruiters, students, and organizations.

Furthermore, the system is scalable and flexible due to the use of modern technologies such as the MERN stack and Python-based analytics tools. In the future, the system can be enhanced by integrating machine learning models for prediction, real-time job APIs, and recommendation systems for better accuracy and performance.