

Salariann: It Job Market Platform with Integrated Salary Suitability Scoring

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Abstract-The rapid growth of the Information Technology industry has created significant challenges in connecting job seekers with suitable employment opportunities while ensuring realistic salary expectations. Existing job portals primarily focus on job listings and recruitment activities, often lacking intelligent mechanisms for evaluating salary suitability based on candidate profiles and current market trends. This paper presents SALARIANN: IT Job Market Platform with Integrated Salary Suitability Scoring, an implemented web-based recruitment and salary analysis system designed to support both job seekers and recruiters. The platform integrates candidate profiling, job management, application tracking, and salary suitability evaluation within a unified environment. Through the analysis of skills, educational qualifications, experience, and industry salary benchmarks, the system generates a Salary Suitability Score that assists users in making informed career and recruitment decisions. The developed platform was successfully designed, implemented, and tested using modern web technologies and a database-driven architecture. System evaluation demonstrates its effectiveness in improving recruitment efficiency, enhancing salary transparency, and facilitating data-driven employment decisions. The findings confirm that the integration of salary suitability scoring with job market services provides a comprehensive solution for intelligent recruitment management and contributes to the advancement of modern employment platforms.

Index-Terms: Job Portal, Salary Suitability Scoring, Recruitment System, Salary Analysis, IT Job Market, Career Recommendation, Employment Platform, Web Application.

I. INTRODUCTION

Social media platforms and digital employment portals generate vast amounts of structured and unstructured data daily, including job postings, candidate profiles, salary expectations, and employer requirements across diverse industries and regions, making efficient analysis essential for job seekers, recruiters, and workforce analysts. Traditional job search systems primarily rely on keyword-based matching and static filtering mechanisms, which are inadequate for capturing deeper compatibility between a candidate's skills, experience, and job salary offerings. Modern recruitment systems face three key limitations: insufficient evaluation of true job–candidate suitability beyond basic resume–job description matching, lack of salary transparency and intelligent salary alignment leading to uncertainty in job selection, and limited personalization combined with poor explainability, where recommendations are provided without clear justification, thereby reducing user trust and decision-making confidence. Salariann: An IT Job Market Platform with Integrated Salary Suitability Scoring is proposed to address these challenges by developing an intelligent job matching framework that evaluates candidate–job compatibility using data-driven scoring techniques, integrates a Salary Suitability Scoring module to assess alignment between offered salary, candidate skills, experience, and market trends, and incorporates an explainable recommendation layer that generates human-readable justifications for each prediction, thereby enhancing transparency, reliability, and usability for both job seekers and recruiters.

II. MOTIVATION

The rapid growth of digital employment platforms has significantly changed the way individuals search for jobs and organizations recruit talent. Platforms such as LinkedIn, Naukri, and Indeed generate large volumes of job postings, resumes, skill requirements, and salary information daily, containing valuable insights for recruitment and career decision-making. However, extracting meaningful intelligence from this large-scale and unstructured data remains a challenging problem.

Several factors motivate the development of Salariann: An IT Job Market Platform with Integrated Salary Suitability Scoring. First, recruitment data is highly unstructured, and existing systems rely mainly on keyword-based matching, which fails to capture deeper relationships between skills, experience, and job requirements. Second, most platforms lack intelligent salary evaluation, making it difficult for users to understand whether a job offer is fair or aligned with their profile and market standards. Third, current job recommendation systems do not provide explainable results, reducing user trust and transparency in decision-making. Finally, there is no unified system that integrates job matching, salary suitability scoring, and explainable recommendations in one framework.

These limitations highlight the need for a more intelligent and transparent recruitment system, which establishes Salariann as a necessary and timely solution.

III. PROBLEM STATEMENT

Despite significant advances in job recommendation systems and data-driven recruitment platforms, existing systems fail to address the complete demands of modern digital job markets. Four critical problems motivate Salariann: An IT Job Market Platform with Integrated Salary Suitability Scoring

Unstructured and Incomplete Matching: Most existing recruitment systems rely on keyword-based or rule-based matching, which ignores deeper semantic relationships between candidate skills, experience, and job role requirements. This leads to inaccurate job–candidate matching and irrelevant recommendations.

Lack of Salary Intelligence: Current platforms do not provide reliable salary suitability evaluation, making it difficult for users to understand whether a job offer is fair, competitive, or aligned with their qualifications and current market trends.

Black-Box Recommendations: State-of-the-art job recommendation models provide results without clear justification or explanation. This lack of transparency reduces user trust and makes decision-making less reliable in critical career-related scenarios.

Absence of an Integrated Intelligent System: No existing platform simultaneously combines intelligent job matching, salary suitability scoring, and explainable recommendations within a single unified framework.

Salariann is proposed to directly address these limitations by delivering an intelligent, transparent, and integrated job market platform with salary suitability scoring and explainable job recommendations designed for real-world recruitment needs.

IV. LITERATURE SURVEY

Online Job Portal Systems: Online recruitment platforms have significantly transformed the employment process by providing centralized environments for job posting, candidate search, and application management. Popular platforms such as LinkedIn, Indeed, and Glassdoor enable employers to reach a large pool of candidates while allowing job seekers to explore opportunities across multiple industries and locations. These systems improve recruitment accessibility and reduce hiring time; however, they primarily focus on job discovery and application tracking. Most existing job portals provide limited support for evaluating whether a salary offer is financially suitable for a candidate based on market conditions and living expenses. Consequently, users often make employment decisions without considering the practical affordability of compensation packages.

Recommendation-Based Recruitment Approaches: Modern recruitment systems increasingly utilize recommendation techniques to improve job matching and user engagement. Content-based

filtering, collaborative filtering, and hybrid recommendation models analyze candidate profiles, skills, educational qualifications, and historical interactions to suggest relevant job opportunities. Research by Adomavicius and Tuzhilin (2005) demonstrated that intelligent recommendation systems significantly improve information retrieval and personalization. Although these approaches enhance matching accuracy, they primarily emphasize skill compatibility and fail to incorporate salary affordability or financial suitability into the recommendation process.

Salary Prediction and Analytics Systems: Salary prediction has emerged as an important research area within employment analytics. Machine learning algorithms such as Linear Regression, Random Forest, Support Vector Machines (SVM), Gradient Boosting, and XGBoost have been widely applied to estimate compensation ranges based on professional experience, educational background, technical skills, and labor market demand. Breiman (2001) demonstrated the effectiveness of Random Forest models in predictive analytics, while Chen and Guestrin (2016) showed that XGBoost provides high prediction accuracy and computational efficiency. Despite their success, most salary prediction systems focus exclusively on estimating expected salaries and do not evaluate whether those salaries are sufficient to support a desired standard of living in specific geographic regions.

Cost-of-Living and Affordability Analysis: Cost-of-living assessment has become increasingly important in evaluating employment opportunities. Platforms such as Numbeo provide detailed information regarding housing costs, transportation expenses, utility charges, food prices, and regional affordability indicators. Several studies have emphasized that salary figures alone do not accurately reflect an individual's financial well-being, as purchasing power varies considerably across locations. However, affordability analysis is generally performed independently of recruitment systems, forcing users to manually compare salary offers with regional expenses. The absence of integrated affordability evaluation remains a major limitation of existing employment platforms.

Machine Learning for Career Decision Support: Recent advances in Artificial Intelligence and Machine Learning have enabled the development of intelligent career guidance systems. These systems analyze employment trends, skill demand, educational qualifications, and labor market requirements to provide career recommendations and decision-support services. Data mining techniques, predictive analytics, and recommendation algorithms have been utilized to identify suitable career paths and employment opportunities. While these systems improve personalization and user engagement, they rarely integrate salary suitability analysis as part of the decision-making process.

Real-Time Employment Data Integration: Modern employment platforms increasingly rely on external APIs and real-time labor market datasets to maintain updated job listings and salary information. Services such as JSearch and Adzuna provide access to continuously updated recruitment data, enabling platforms to deliver current employment opportunities. Real-time data integration improves platform reliability and ensures that users receive accurate and relevant

information. However, most existing systems utilize these services only for job aggregation and do not combine them with affordability assessment or salary suitability scoring mechanisms.

Integrated Salary Suitability Scoring Systems: A review of existing recruitment and employment management systems indicates that no single platform comprehensively integrates job aggregation, salary analytics, cost-of-living evaluation, affordability assessment, and intelligent decision support within a unified framework. Existing solutions address these components independently, resulting in fragmented user experiences and incomplete employment analysis. SALARIANN addresses this research gap by integrating real-time job market information, salary benchmarking, affordability analysis, and a Salary Suitability Scoring Engine into a single intelligent recruitment platform. This integrated approach enables users to evaluate employment opportunities not only on the basis of salary amount but also on their practical financial viability, thereby supporting more informed career and recruitment decisions.

V. METHODOLOGY

The implementation of SALARIANN is designed as a modular, layered architecture comprising five principal components: a job data acquisition and processing layer, a candidate profile management layer, a salary suitability scoring layer, a recruitment and application management layer, and a real-time user interaction dashboard. Each module operates independently and communicates through well-defined interfaces, enabling efficient system maintenance, scalability, and future enhancements without affecting overall platform functionality.

Job Data Acquisition and Processing: Employment opportunities are collected through multiple channels, including external job market APIs such as JSearch and Adzuna. The retrieved job listings undergo a processing pipeline that validates, categorizes, and structures information based on job title, required skills, experience level, company details, location, and salary information. This process ensures that users receive accurate, relevant, and up-to-date employment opportunities from the IT industry. Data normalization and filtering techniques are applied to eliminate duplicate and incomplete job records before storage.

Candidate Profile Management: The platform enables job seekers to create comprehensive professional profiles containing educational qualifications, technical skills, certifications, work experience, preferred job roles, and salary expectations. Candidate information is securely stored and continuously updated to improve recruitment efficiency and recommendation quality. Recruiters can access candidate profiles, evaluate qualifications, and identify suitable applicants for available positions through a centralized management system.

Salary Suitability Scoring and Affordability Analysis: The core component of SALARIANN is the Salary Suitability Scoring Engine. The system evaluates salary offers by analyzing candidate qualifications, experience, technical skills, job location, industry salary benchmarks, and regional cost-of-living indicators. Cost-of-living information obtained from sources such as Numbeo is

integrated into the analysis process to assess affordability and financial sustainability. Based on these parameters, the platform generates a Salary Suitability Score that helps users determine whether a salary package is appropriate for their professional profile and living requirements.

Recruitment and Application Management: The recruitment module provides employers with facilities to publish job openings, manage applications, review candidate profiles, and monitor hiring activities. Job seekers can browse available opportunities, submit applications, track application status, and receive personalized recommendations. The integrated recruitment workflow improves communication between employers and candidates while reducing administrative complexity throughout the hiring process.

Technology Stack and Deployment: The technology stack of SALARIANN is summarized in Table 2. The frontend is developed using Flutter to provide a responsive and user-friendly interface across multiple platforms. The backend is implemented using Node.js and Express.js to support efficient API communication and business logic execution. Supabase and PostgreSQL are utilized for secure data storage and management. External APIs including JSearch, Adzuna, and Numbeo provide real-time job market information, salary benchmarks, and cost-of-living data. User authentication and authorization mechanisms ensure data security and privacy. The application is deployed using cloud-based infrastructure, enabling scalability, reliability, and continuous system availability.

Table 2: Proposed Technology Stack for SALARIANN

Component	Technology / Library	Purpose
Programming Language	JavaScript, Dart	Primary development environment
Frontend Framework	Flutter	Cross-platform application development
Backend Framework	Node.js	API development and business logic
Database	PostgreSQL	Storage of job, salary, and user data
Authentication	Supabase Auth	Secure user authentication and authorization
Job Data Source	JSearch API, Adzuna API	Real-time job aggregation
Cost-of-Living Data	Numbeo API	Living expense information
Salary Suitability Engine	Custom Scoring Algorithm	Salary affordability evaluation
Data Processing	Node.js, PostgreSQL Queries	Employment data analysis

Component	Technology / Library	Purpose
Version Control	GitHub	Source code management
Containerisation	Docker	Portable deployment

VI. CONCLUSION

Several challenges have been identified through the literature review that directly pertain to the development of SALARIANN. The integration of real-time job market information from multiple sources presents a significant challenge, as job listings may contain incomplete, duplicate, or inconsistent information. Data validation, filtering mechanisms, and periodic synchronization processes are required to ensure accuracy and reliability. Maintaining up-to-date salary benchmarks across different regions and industries is another concern, as labor market conditions continuously evolve. Accurate salary suitability evaluation remains challenging due to variations in candidate qualifications, experience levels, technical skills, and regional cost-of-living factors. Real-time processing of employment data from multiple external APIs may also introduce performance bottlenecks; therefore, optimized database operations and scalable deployment strategies are necessary to maintain system responsiveness. Finally, recommendation accuracy and personalized career guidance remain areas for future enhancement through advanced machine learning models, predictive salary analytics, and intelligent recommendation mechanisms.

REFERENCES

- [1] G. Adomavicius and A. Tuzhilin, "Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions," *IEEE Transactions on Knowledge and Data Engineering*, vol. 17, no. 6, pp. 734–749, 2005.
- [2] L. Breiman, "Random Forests," *Machine Learning*, vol. 45, no. 1, pp. 5–32, 2001.
- [3] T. Chen and C. Guestrin, "XGBoost: A Scalable Tree Boosting System," in *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 785–794, 2016.
- [4] JSearch API Documentation.
- [5] Adzuna Job Search API Documentation.
- [6] Numbeo Cost of Living Database.
- [7] Flutter Development Framework Documentation.
- [8] Node.js Documentation.
- [9] Express.js Documentation.
- [10] Supabase Documentation.
- [11] PostgreSQL Documentation.