Online Recruitment Analysis

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Abstract

In the competitive landscape of online recruitment, market segmentation is essential for tailoring services to diverse user needs and preferences. This study explores the segmentation of the online recruitment app market by identifying distinct user groups based on demographics, job preferences, technological proficiency, and engagement patterns. By employing data analytics and user behavior analysis, we classify the market into segments such as entry-level job seekers, mid-career professionals, executives, freelancers, and recruiters. Understanding these segments allows for the development of targeted marketing strategies, personalized user experiences, and optimized resource allocation, ultimately enhancing user satisfaction and app effectiveness. The findings provide valuable insights for app developers and marketers aiming to capture a larger share of the recruitment industry by addressing specific segment needs.

Problem Statement

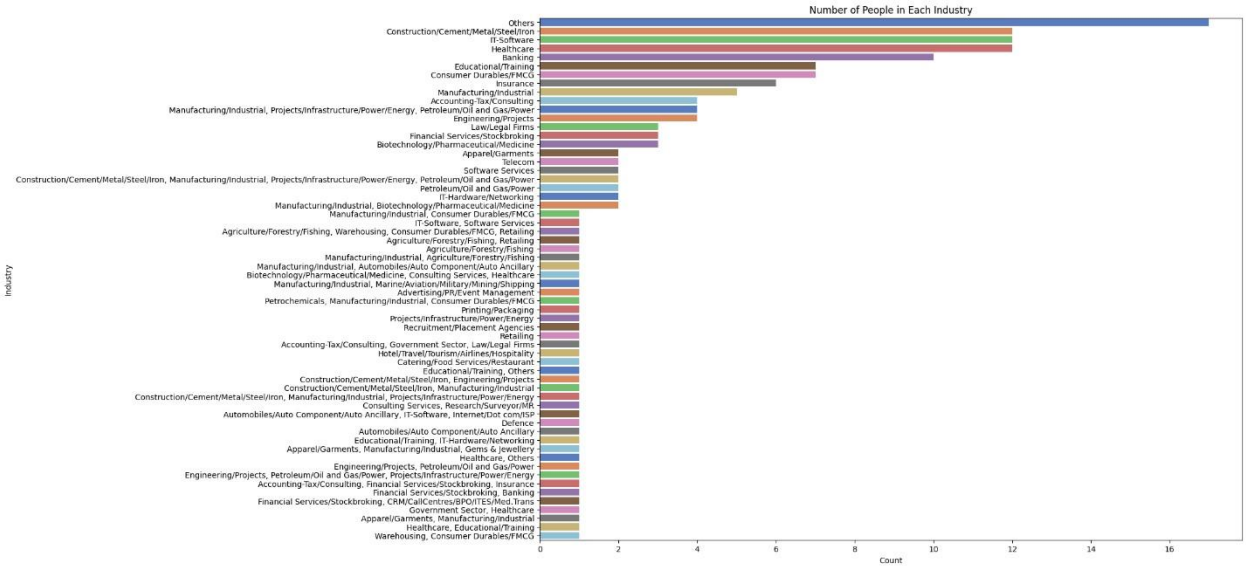
In today's fast-paced job market, traditional recruitment methods are often time-consuming, inefficient, and fail to connect employers with the most suitable candidates quickly. Job seekers struggle to find relevant positions amidst overwhelming numbers of postings, while employers face challenges in sorting through numerous applications to identify the best-fit candidates. Additionally, the lack of personalization and automation in many recruitment platforms results in a suboptimal experience for both job seekers and recruiters, increasing the time and resources spent on hiring.

This project seeks to address these issues by developing an online recruitment application that leverages advanced technologies like AI-driven job matching, automated candidate screening , machine learning and data analytics to streamline the recruitment process. The app aims to improve the quality of matches, reduce the time to hire, and enhance the user experience for both employers and job seekers by providing a more efficient, effective, and user-friendly recruitment platform.

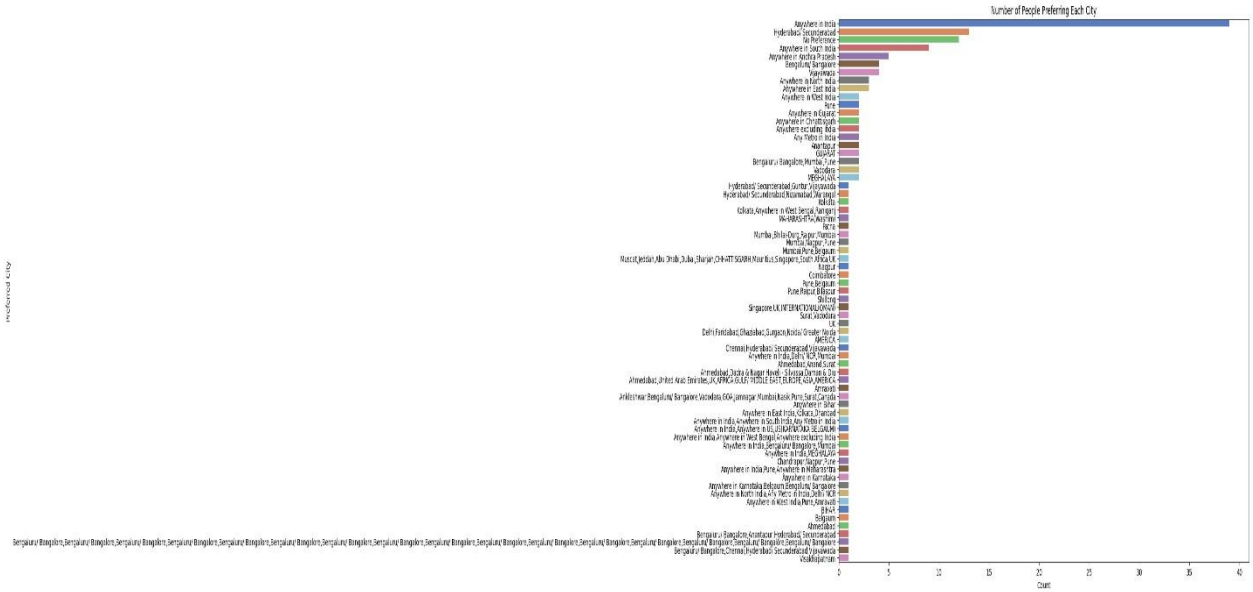
Process Involved

https://github.com/sidharthram99/sidharth/blob/main/Recruitment_platform_analysis.ipynb

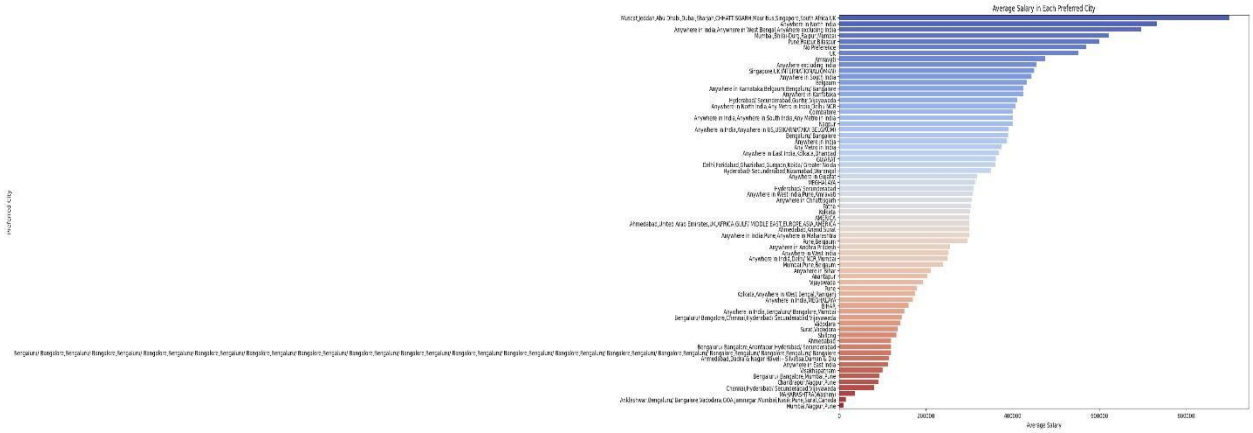
1. The Libraries used for this data analysis are pandas-for data manipulations, Matplotlib and seaborn -for data visualization.
2. Checked for null values for the relevant features in the dataset.
3. Ensured the data types.
4. The strings parts in the columns work experience and salary were removed and converted to float.
5. Conducted segmentation analysis on work experience, salary, age, industry, and preferred locations.



From this its graph its clear that the dataset contains more people which works on other fields of work rather than on specific roles still construction, IT and health care sectors have high concentration of people when compared other industries.



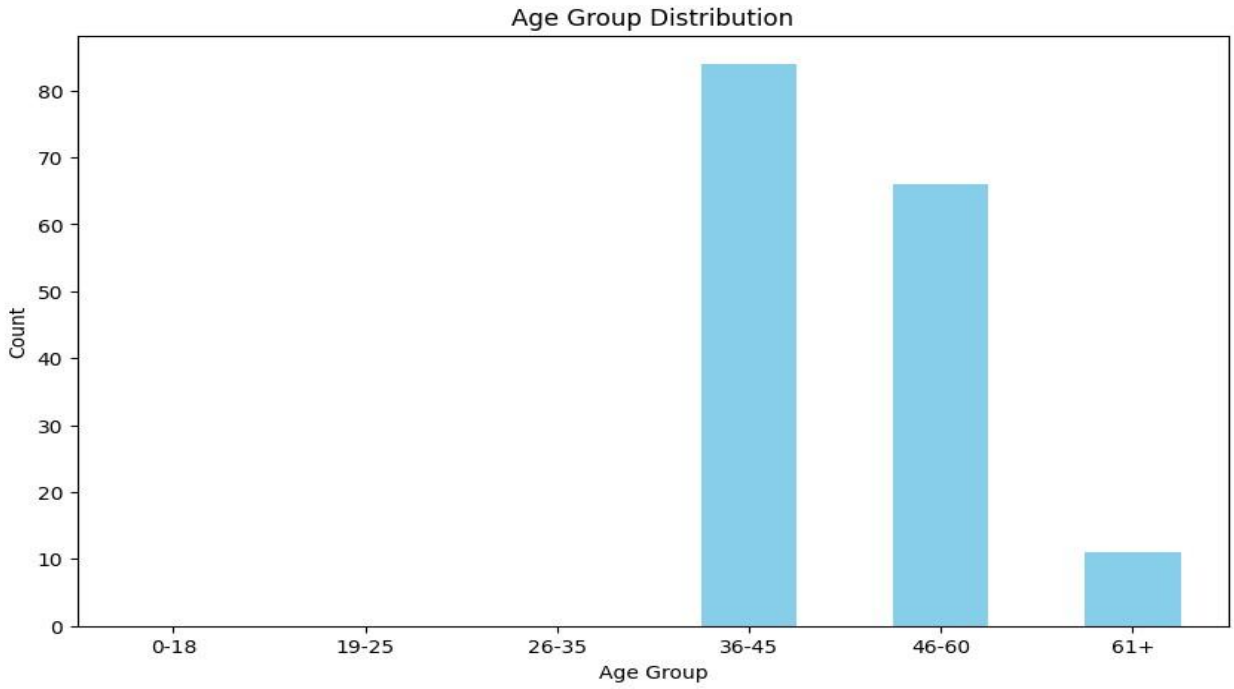
Most people doesn't prefer specific location for a job .Still looking out there is an balanced distribution of number of peoples in Bangalore and Hyderabad. And also there a some lot of people who looking for opportunities outside of the country.



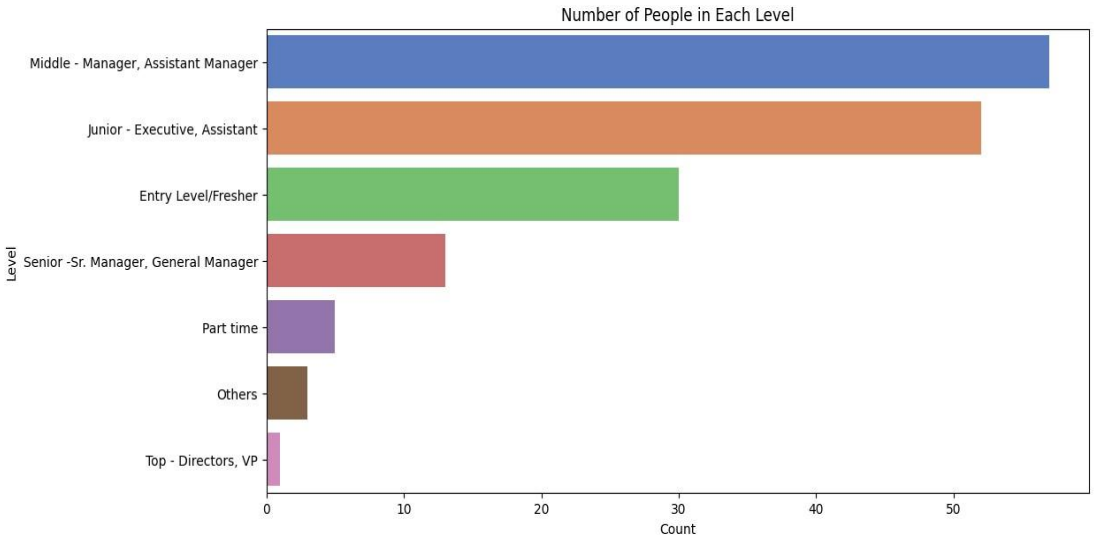
Cities in the Middle East and developed economies (e.g., Abu Dhabi, Singapore) seem to offer higher average salaries compared to Indian cities.

Regional Variation: Within India, cities like Bengaluru and Mumbai are likely among the higher-paying locations.

Frequent Repetition: If a city like Bengaluru is repeated, it might reflect different industries, roles, or specific job preferences within the same location.



- The age group **36-45** has the highest count, indicating that most individuals in the dataset fall within this age range.
- The age group **46-60** follows, being the second most common, but with a slightly lower count than the 36-45 group.
- The age group **61+** has the lowest count, suggesting fewer individuals in this age bracket within the dataset.
- No individuals are represented in the age groups **0-18**, **19-25**, or **26-35**, indicating that the dataset may focus on mid to later career stages.



The highest number of people are in the Middle - Manager, Assistant Manager category, indicating a strong presence of professionals in mid-tier management roles.

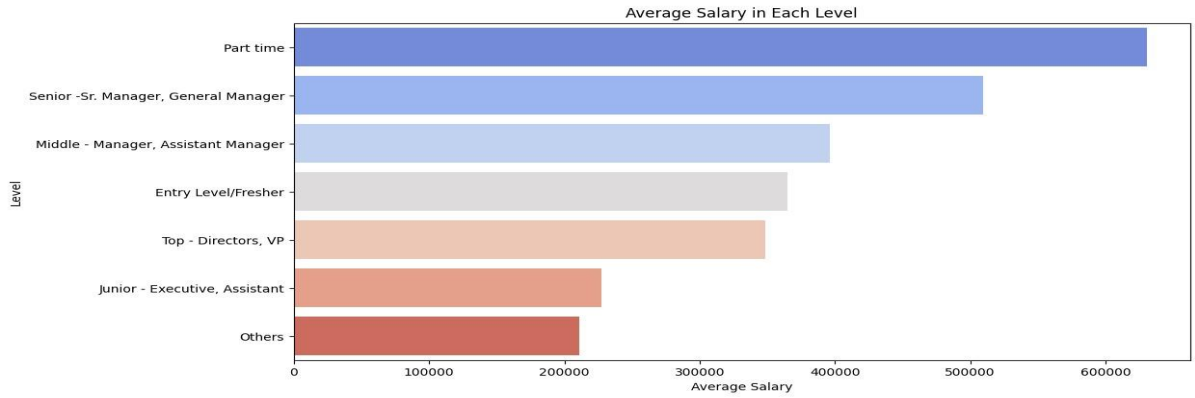
Junior-Level Roles: Junior - Executive, Assistant roles have the second-highest count, showing a significant workforce at the entry-level tier in organizations.

Entry-Level Roles :Entry Level/Fresher roles rank third in terms of count, reflecting steady hiring or opportunities for fresh graduates or inexperienced professionals.

Senior Management: The Senior - Sr. Manager, General Manager category has a smaller representation compared to junior and middle-level roles, which aligns with the typical corporate structure where fewer people occupy higher-level positions.

Part-Time and "Others": Part-time roles and the Others category have relatively low counts, suggesting these are less common employment types or undefined roles.

Top-Level Roles (Directors, VP): Top - Directors, VP roles have the lowest count, which is expected as these positions are limited in any organization.

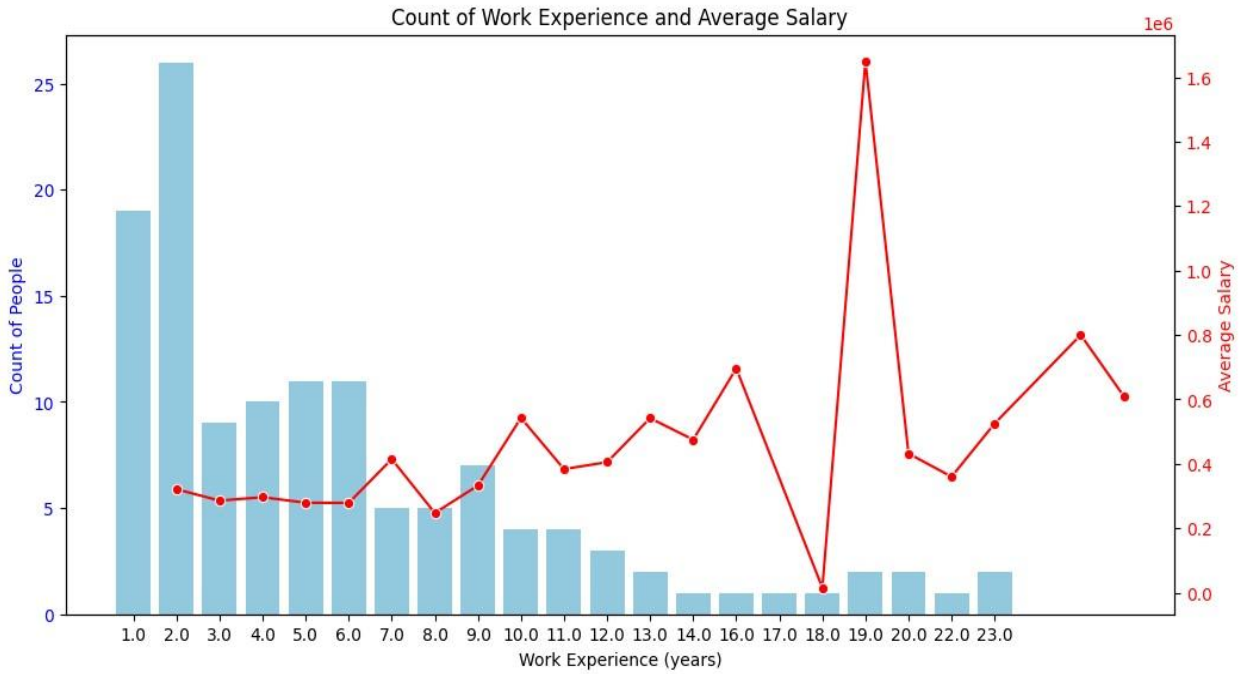


Part-time roles earning the highest average salary suggests these positions might involve highly specialized work or consulting roles.

Senior and middle management roles align with expectations, earning more than entry-level or junior roles.

Lower-than-expected salaries for "Top - Directors, VP" might indicate either data anomalies or inconsistencies in the data source.

The "Others" category represents the lowest-paying roles, possibly due to undefined or miscellaneous job types.



The highest count is observed for individuals with 2 years of experience, followed by those with 1 year and then progressively fewer people as experience increases.

There is a relatively balanced distribution of individuals with experience ranging from 3 to 10 years.

Beyond 10 years, the count of individuals decreases significantly, with some spikes for specific years like 16 and 18 years.

There is a noticeable spike in average salary for individuals with 18 years of experience, which is significantly higher than other years. This could indicate outliers or specific roles at this experience level commanding higher salaries.

Generally, the average salary fluctuates across different years, without a clear increasing trend that one might expect with increasing work experience. This suggests that factors other than experience, such as industry, role, or location, may be influencing salary.

- From the analysis the age group between 36-45 have the most number of people using the platform still taking into to account freshly graduate students will be a lot in number searching for jobs using the platform.
- Mostly the mid-level people are likely to use the platform effectively than the entry level and senior level candidates.
- Most people prefer roles in Health care, IT sectors and in construction companies.

Monetization and Revenue Plan - Financial Equation

1. Subscription Models:

- **Conversion Target:** 20% of active employers subscribe to Premium/Enterprise plans.
- **Average Subscription Price:** ₹ 750 per month.

2. Paid Services:

- **Resume Building:** ₹2,00 per service
- **Interview Preparation:** ₹6,00 per package

3. Alumni Referral Program:

- **Fee per Referral:** ₹3,00
- **Payout to Alumni:** ₹150 per successful referral

4. Employer Access

- **Fee per Employer**: ₹2,000 per month.

Cost Assumptions:

Development Costs:

Category	Budget Allocation
Development Costs	
- Front-end Development	35,000
- Back-end Development	40,000
- ML Engineer	50,000
Data Security and Privacy	

- Data Encryption and Compliance	**15,000**
Server Infrastructure	
- Hosting Services	**20,000**
Quality Assurance and Testing	
- Testing	**25,000**
App Store Submission and Marketing	
- App Store Fees	**10,000**
- Marketing and Promotion	**30,000**

User Support and Maintenance	
- Customer Support	**15,000**
- App Maintenance	**15,000**
Total	**2,55,000**

Simplified Profit Equation

Profit (P) = Total Revenue - Total Cost

Revenue Components:

- **Subscription Revenue (Rsub):** 0.2 * x(t) * 750 o x(t): Total number of active employers at time 't' o 0.2 represents the 20% conversion rate to paid subscriptions
    o 750 is the average monthly subscription price for paying employers

- **Resume Building Revenue (Rres):** y(t) * 200
    - y(t): Number of job seekers availing resume services at time 't'
    - 200 is the fee per resume building service

- **Interview Preparation Revenue (Rint):** z(t) * 600
    - z(t): Number of job seekers availing interview services at time 't'
    - 600 is the fee per interview preparation package

- **Alumni Referral Revenue (Rref):** a(t) * 150

    o a(t): Number of successful referrals at time 't' o 150 is the profit per referral

- **Recruiter Access Revenue (Rrec):** r(t) * 2000
    - r(t): likely represents a measure of recruiter access (e.g., number of job postings, number of candidate searches)
    - 2000 is the fee per recruiter access unit

Total Revenue (R): Rsub + Rres + Rint + Rref + Rrec

Cost Components:

- **Development Cost (Cdev):** 255,000 (This is a fixed cost)
- **Operational Cost (Cops):** o(t) * 200 o Cost to serve o(t), the number of active job searchers.

Total Cost (C): Cdev + Cops = 255,000 + x(t) * 200

Final Profit Equation:

P = R - C

R - Total Revenue

C - Total Cost

P - Profit

P = [0.2 * x(t) * 750 + y(t) * 200 + z(t) * 600 + a(t) * 150 + r(t) * 2000] - [255,000 + o(t) * 200]

This simplified equation provides a clear and concise framework for calculating profit based on the key revenue streams and costs specific to the market.

Code:

https://colab.research.google.com/drive/1HjmTpP9Cakd4OuWjYDcjevNycCAIj7k_?usp=sharing

Conclusion

The dataset highlights significant regional and role-based salary variations, with developed cities and senior roles commanding higher salaries. Middle and junior-level roles are the most common, reflecting a standard corporate hierarchy. Experience and age distribution show a concentration in early to midcareer stages, with salaries being influenced by a mix of factors beyond just experience.