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RESEARCH LABS

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PROJECT ON

Exploratory Data Analysis on AMCET Data

About me

- I am currently in the final year of my B.Tech in Computer Engineering.
- Alongside my degree, I am pursuing a specialized Minor course in Data Science and AI/ML from IIT Mandi and Masai School.
- My career focus is on data science, I am actively learning and building my skills in **SQL**, **Python**, and **Pandas** for data analysis.
- I am passionate about leveraging data to drive insights and solutions.

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Agenda

Business Problem and Use case domain understanding

Business Problem: In today's competitive job market, it's important for schools and companies to know what affects the salaries of new graduates. This study looks at how different factors like education and personal traits influence starting pay.
Use Case Domain: This project concentrates on the education and job fields, particularly examining the connection between educational background, skills, and salary for engineering graduates.

Objective Of The Problem

This exploratory data analysis of "AMCAT DATASET" focuses on understanding various factors that might influence the level of salaries indicated in the dataset. We consider education and experience, gender, specialization, and job roles and observe how they are related in order to understand a factor that influences higher or lower levels of salaries. The critical steps which indicate the analysis involved creating a mental image of the data, establishing trends and patterns, testing many hypotheses post observations to finally build insightful results which could be used as guidelines for any decision making process that could further calibrate salary prediction models.

Summary of the Data

The dataset was released by Aspiring Minds from the Aspiring Mind Employment Outcome 2015 (AMEO). The study is primarily limited only to students with engineering disciplines. The dataset contains the employment outcomes of engineering graduates as dependent variables (Salary, Job Titles, and Job Locations) along with the standardized scores from three different areas – cognitive skills, technical skills and personality skills. The dataset also contains demographic features. The dataset contains around 40 independent variables and 4000 data points. The independent variables are both continuous and categorical in nature.

Data Cleaning Steps

- Import Libraries
- Load Dataset
- Check for Missing Values
- Choose a method to deal with missing values (e.g., delete them, fill them in)
- Remove Duplicates
- Correct Data Types
- Check and change data types
- Outlier Detection and Removal
- Reset Index

Univariate Analysis

Job City Insights:

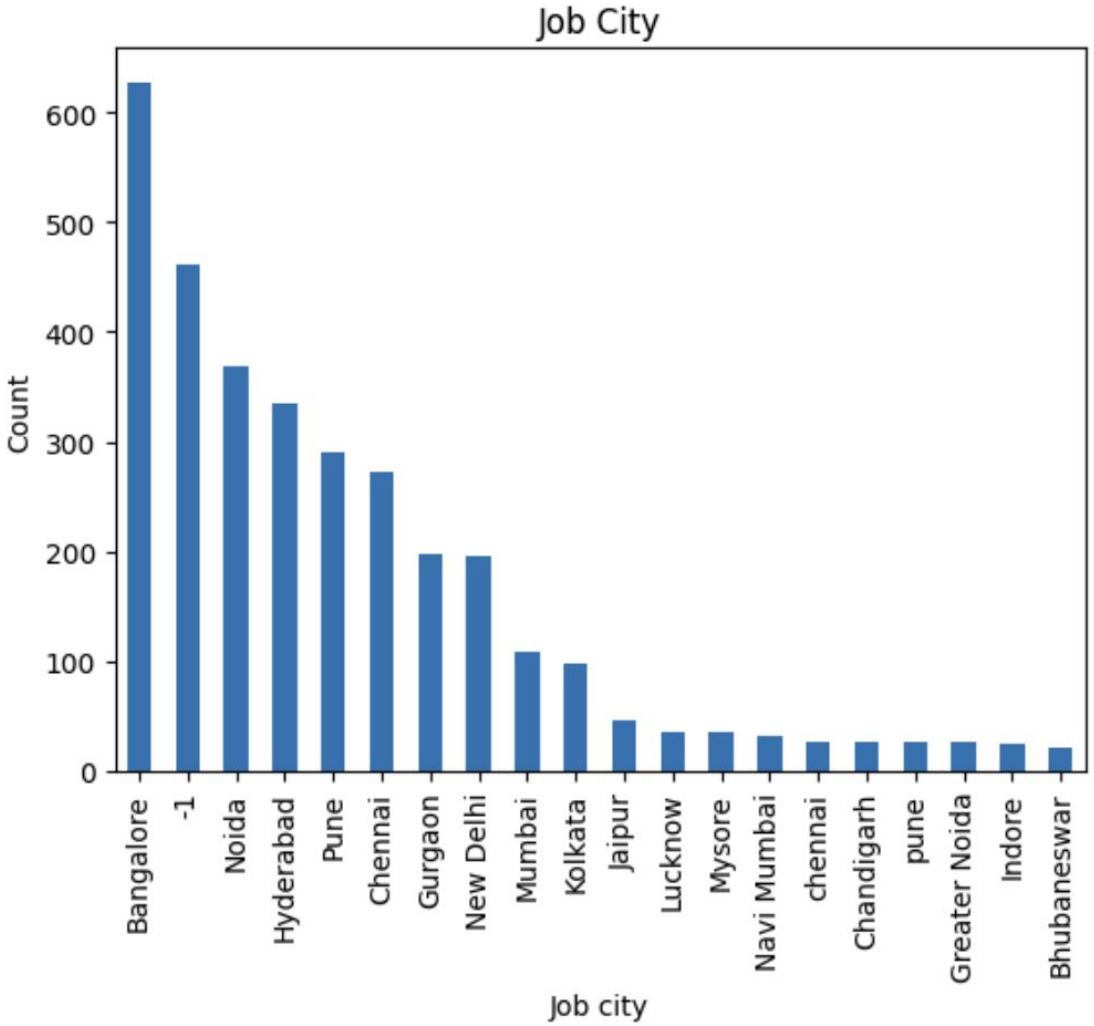
- The dataset highlights the top cities for jobs, including Bangalore, Noida, Pune, Gurgaon, Mumbai, Lucknow, Mysore, Navi Mumbai, and Delhi.
- These cities emerge as major employment hubs, with job opportunities spread across various industries.

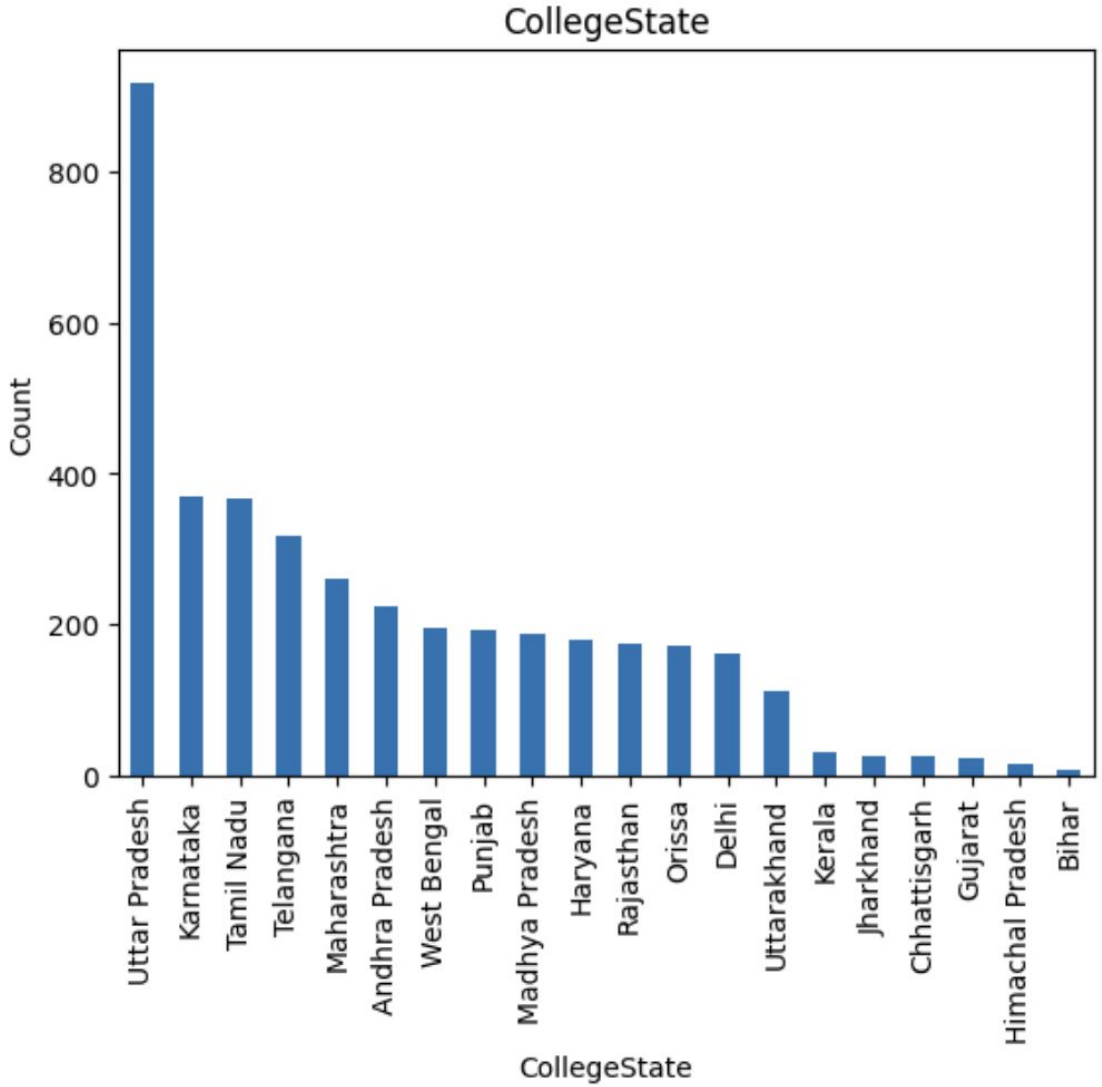
Gender Distribution Insights:

- The gender distribution in the dataset reveals that approximately 70% of the candidates are male, while 30% are female.
- This suggests a gender imbalance, with males being more highly represented.
- Understanding this distribution is essential for analyzing gender diversity and promoting inclusivity in hiring and workplace practices.

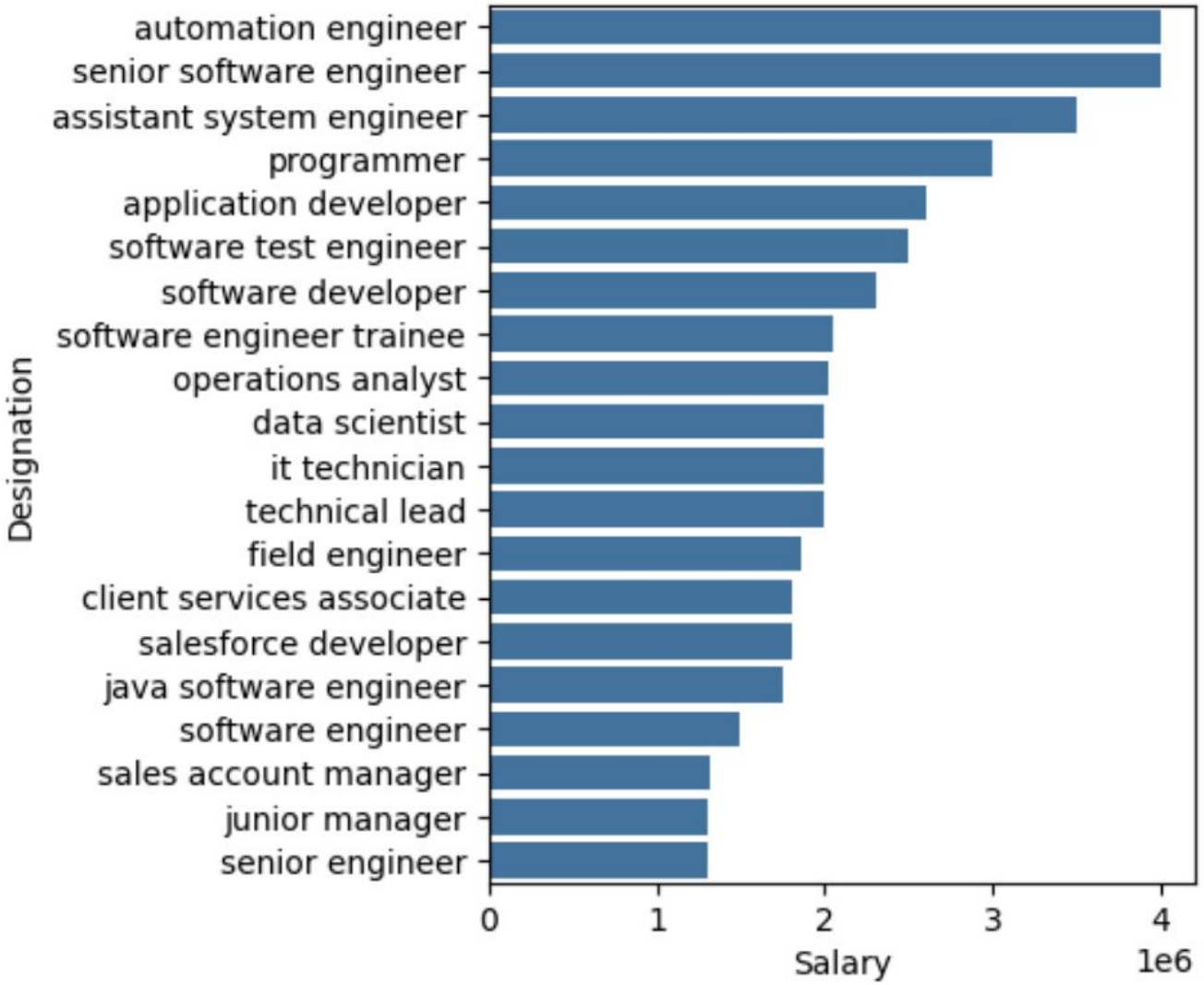
College State Insights:

- The leading states with prominent colleges, as reflected in the dataset, are Uttar Pradesh, Karnataka, Tamil Nadu, Maharashtra, West Bengal, Punjab, Madhya Pradesh, Haryana, and Delhi.
- This indicates that these states play a significant role in producing skilled graduates entering the workforce.





Which top 50 jobs Designation has more salary in IT companies ?



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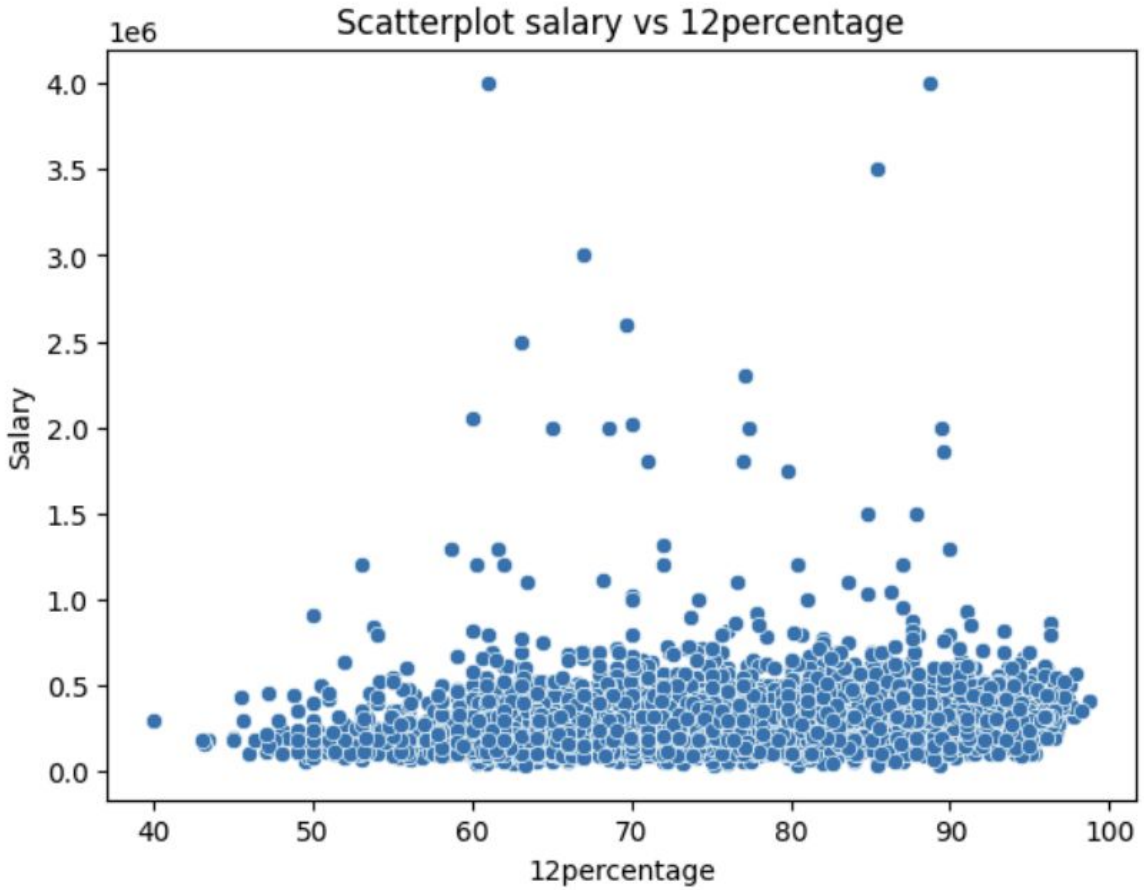
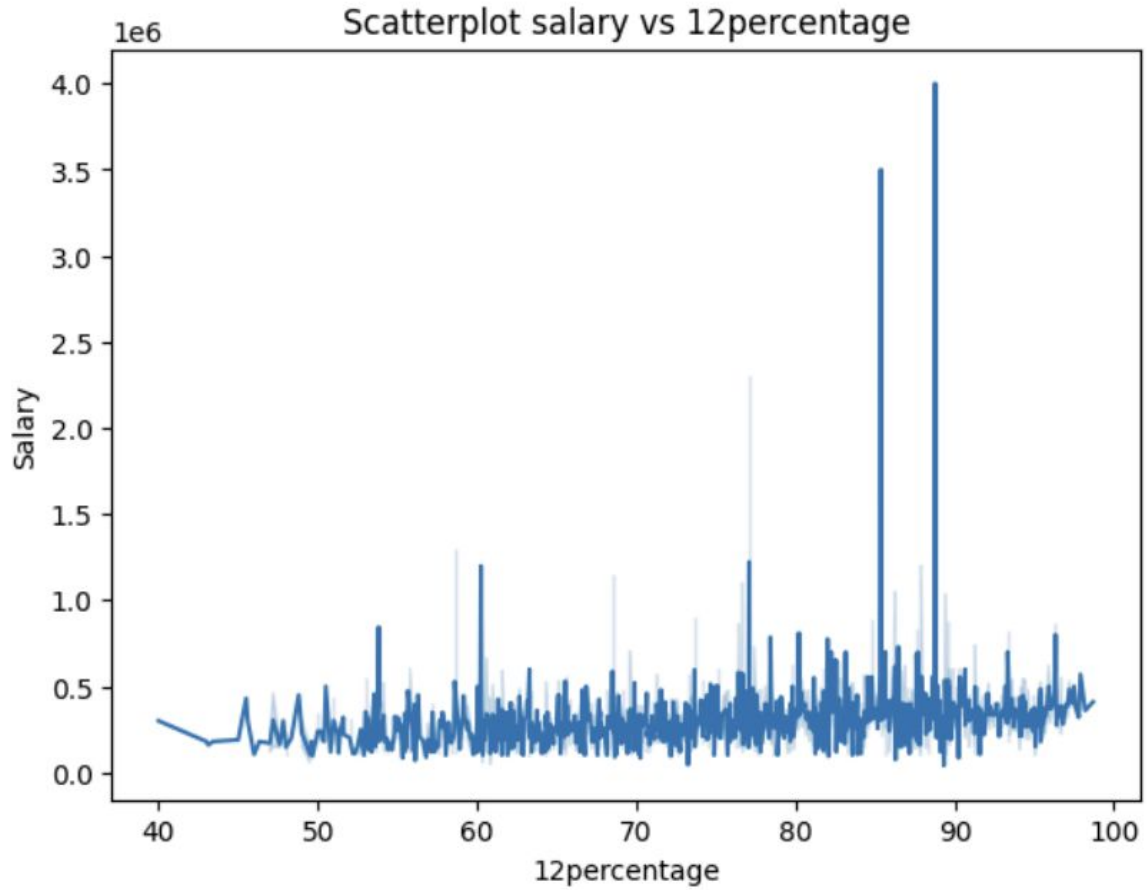
12th Percentage vs. Salary

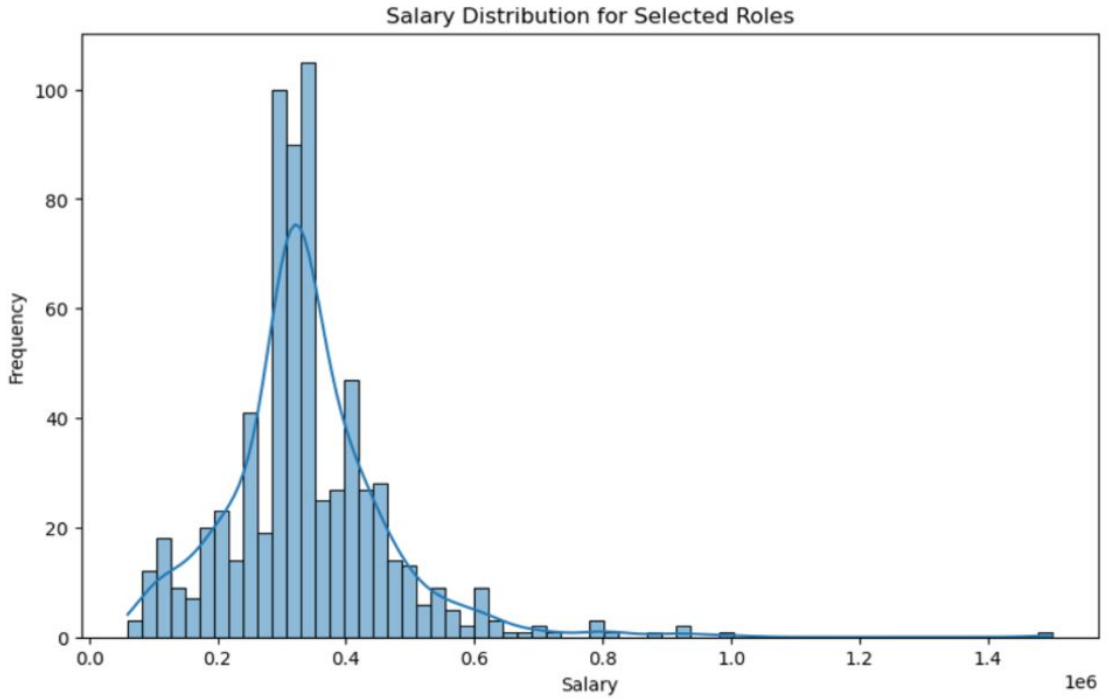
- Correlation Analysis: There is a notable positive correlation between 12th percentage and salary (correlation coefficient = 0.169, p-value = 0.000), indicating that higher 12th percentages are linked to higher salaries.
- Impact on Salary Negotiation: Candidates with higher 12th percentages may have stronger leverage when negotiating salaries during job offers or promotions.
- Employer Consideration: Employers may consider strong 12th-grade performance as a reflection of academic diligence and potential contribution, influencing salary decisions.

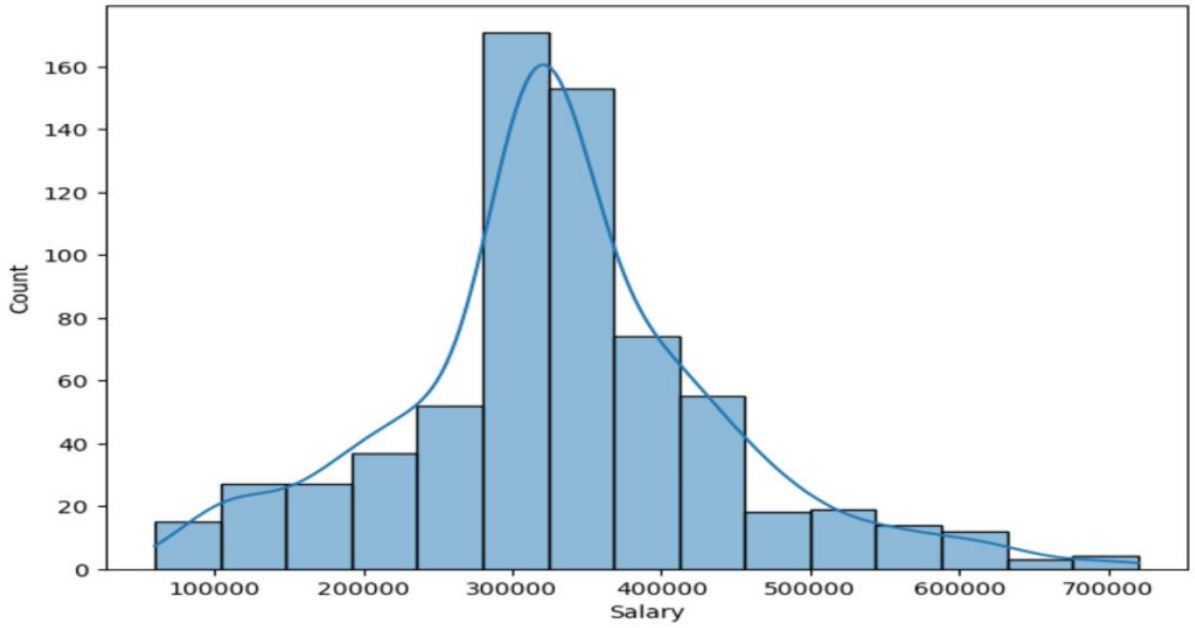




Claim : Software Engineer, Hardware Engineer and Associate Engineer you can earn up to 2.5-3 lakhs as a fresh graduate..5-3 lakhs as a fresh graduate. Test this claim with the data given to you.

- The claim that fresh graduates can earn up to 2.5-3 lakhs is not supported by the data.





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Conclusion

- A significant portion of students have GPAs between 65% and 90%, demonstrating overall strong academic performance.
- A CGPA above 60% is closely linked to better job opportunities and salary negotiation power, indicating the importance of academic achievement in the job market.
- The dataset shows a noticeable gender imbalance, with males constituting around 70% of the candidates, underscoring the need for more inclusive hiring practices.
- Major employment hubs include Bangalore, Pune, Gurgaon, and Mumbai, with these cities offering better opportunities, particularly in IT and data-related roles.
- Salary distribution shows that while a few graduates achieve high-paying roles, the majority struggle to secure similar compensation, reflecting the challenges of entering the job market as a fresh graduate.

THANK YOU

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