HIRING PROCESS ANALYTICS

Presented by Renuka Joshi

DESCRIPTION

This project aims to analyze a multinational company's hiring process using data analytics techniques in Microsoft Excel. The objective is to gain insights into hiring trends, salary distributions, departmental representation, and position tiers to improve the company's hiring strategies.

Microsoft Excel: Used for data cleaning, analysis, and visualization.

DATASET OVERVIEW

The dataset contains records of candidates who were interviewed previously with information about hiring status, hiring department, salary, etc.

- **Number of data points:** 7,168
- **Number of Features:** 6

Column Details:

- **application_id:** ID of the applicant
- **Interview Taken on:** Date and Time of the interview
- **Status:** Hired or rejected
- **event_name:** Gender of the applicant
- **Department:** Name of the department for which interview was conducted
- **Post Name:** Name of the post offered
- **Offered Salary:** Salary offered for the job

DATA CLEANING

Handling Missing Values:

- Column Offered Salary has 1 row with Null Value. The corresponding value in Department column is “Sales Department” and Post Name is “i7”. So we replaced it with median of Offered Salary for Sales Department and i7 Post Name. The median came out to 45400.
- Column event_name has 15 rows with “-“ as its values. These can be termed as Null values. We replaced it with “Don’t want to say” as they both implies the same thing in context of this project i.e. gender of the candidate is not known.
- Column Post Name has 1 row with “-“ as its value. It can be termed as Null value. The corresponding value in Department column is “Sales Department” and Offered Salary is “85914”. So we replaced it with majority count of Posts for candidates in Sales Department and whose Offered Salary is between 85,000 and 96,000, which is “c9”.

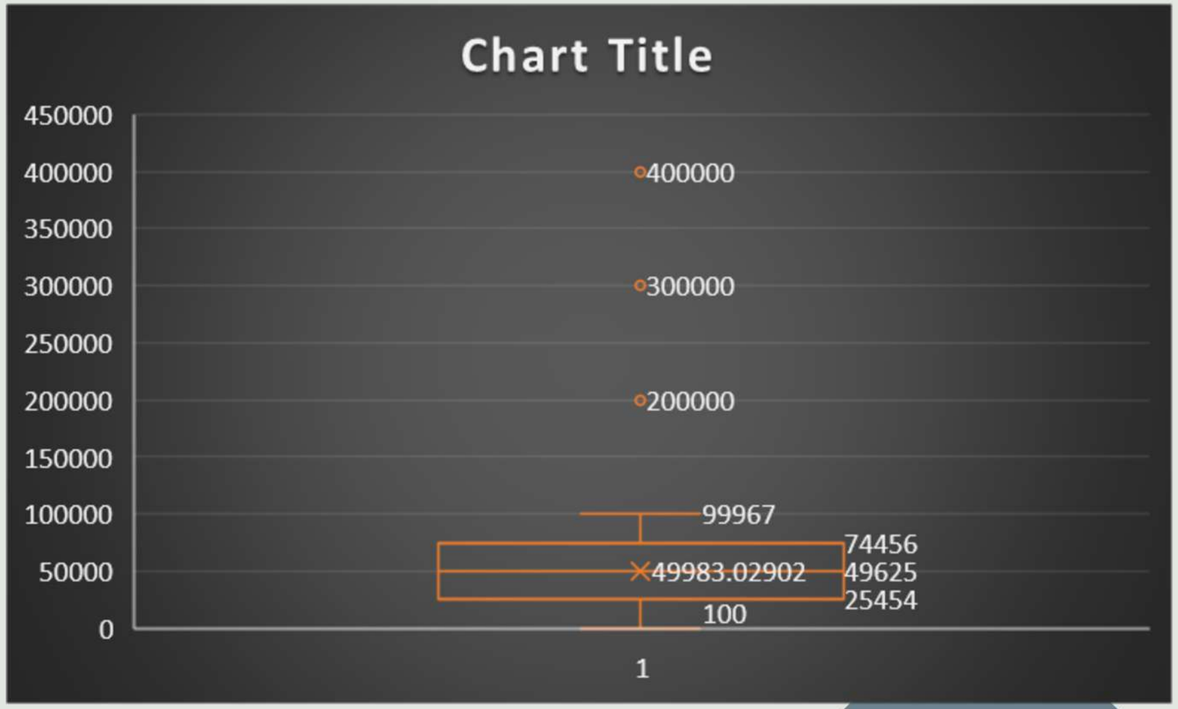
DATA CLEANING

Error rectification:

- Column Post Name has a category “c-10” which seems to be a typo and the correct category should be “c10” which we rectified.

Handling Outliers:

- From the below Box Plot of Column Offered Salary, we can see that there are three rows whose Column values are outliers and the values are 200000, 300000, 400000. We replaced them with maximum offered salary from the data.



DATA CLEANING

Handling Duplicate Values:

- Column application_id has 27 duplicate values. They should either be removed or replaced with correct value.

ANALYTICS

- **Hiring Analysis:** The hiring process involves bringing new individuals into the organization for various roles.
  Task: Determine the gender distribution of hires. How many males and females have been hired by the company?

- **Salary Analysis:** The average salary is calculated by adding up the salaries of a group of employees and then dividing the total by the number of employees.
  Task: What is the average salary offered by this company? Use Excel functions to calculate this.

- **Salary Distribution:** Class intervals represent ranges of values, in this case, salary ranges. The class interval is the difference between the upper and lower limits of a class.
  Task: Create class intervals for the salaries in the company. This will help you understand the salary distribution.

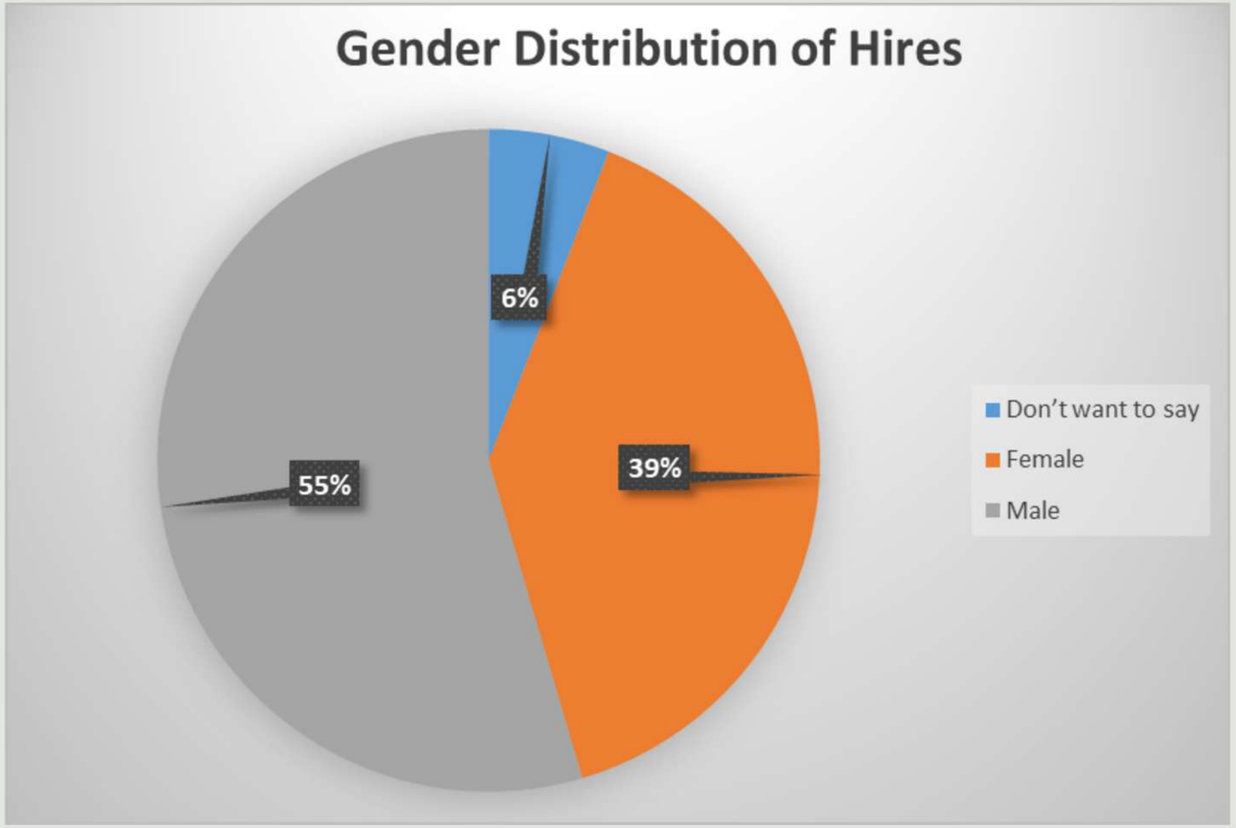
ANALYTICS

- **Departmental Analysis:** Visualizing data through charts and plots is a crucial part of data analysis.
  Task: Use a pie chart, bar graph, or any other suitable visualization to show the proportion of people working in different departments.

- **Position Tier Analysis:** Different positions within a company often have different tiers or levels.
  Task: Use a chart or graph to represent the different position tiers within the company. This will help you understand the distribution of positions across different tiers.

HIRING ANALYSIS

Status	Hired
Row Labels	**Count of Status**
Don’t want to say	278
Female	1856
Male	2563
Grand Total	**4697**

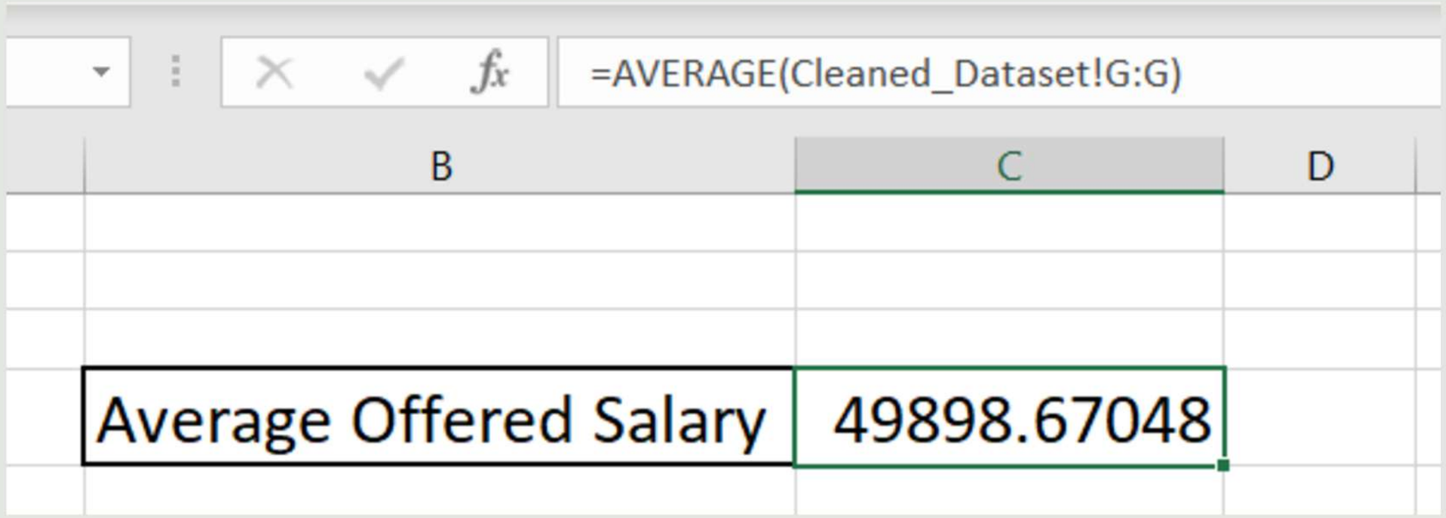


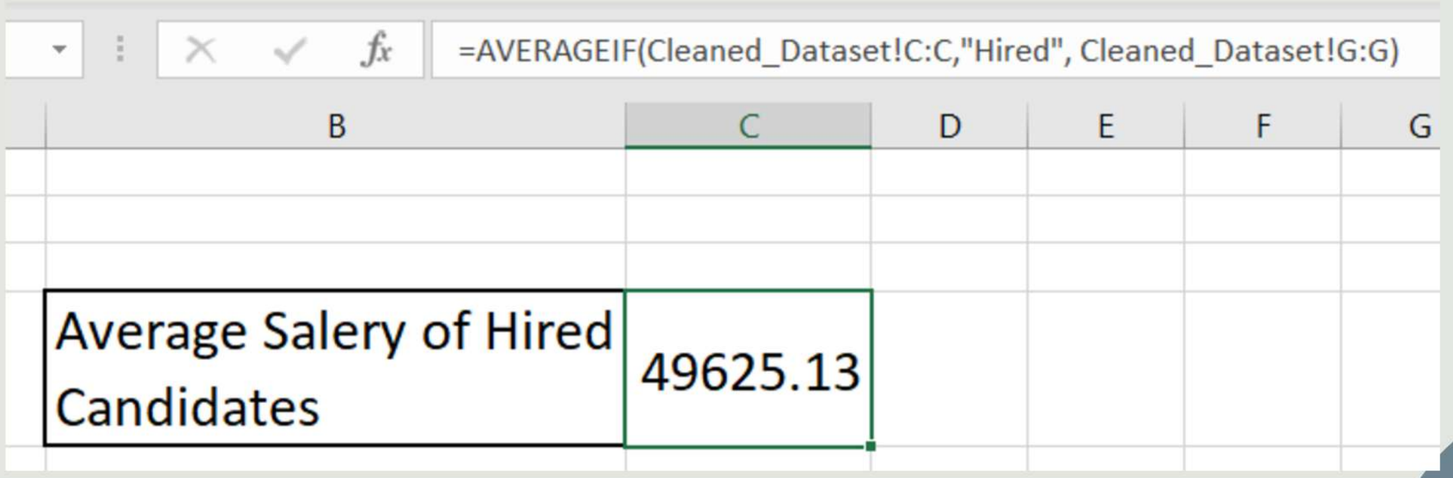
INSIGHTS

- More than half of the hired candidates are Male and only 39.51% of them are Female. The rest haven’t disclosed their gender. High gender ratio may negatively impact the organization’s image in public domain. The organization should therefore focus on decreasing the gender ratio bringing it to close to 1.

- The company has hired more males than females, indicating a potential gender imbalance in hiring. This could be due to industry norms or unconscious biases in recruitment.

SALARY ANALYSIS





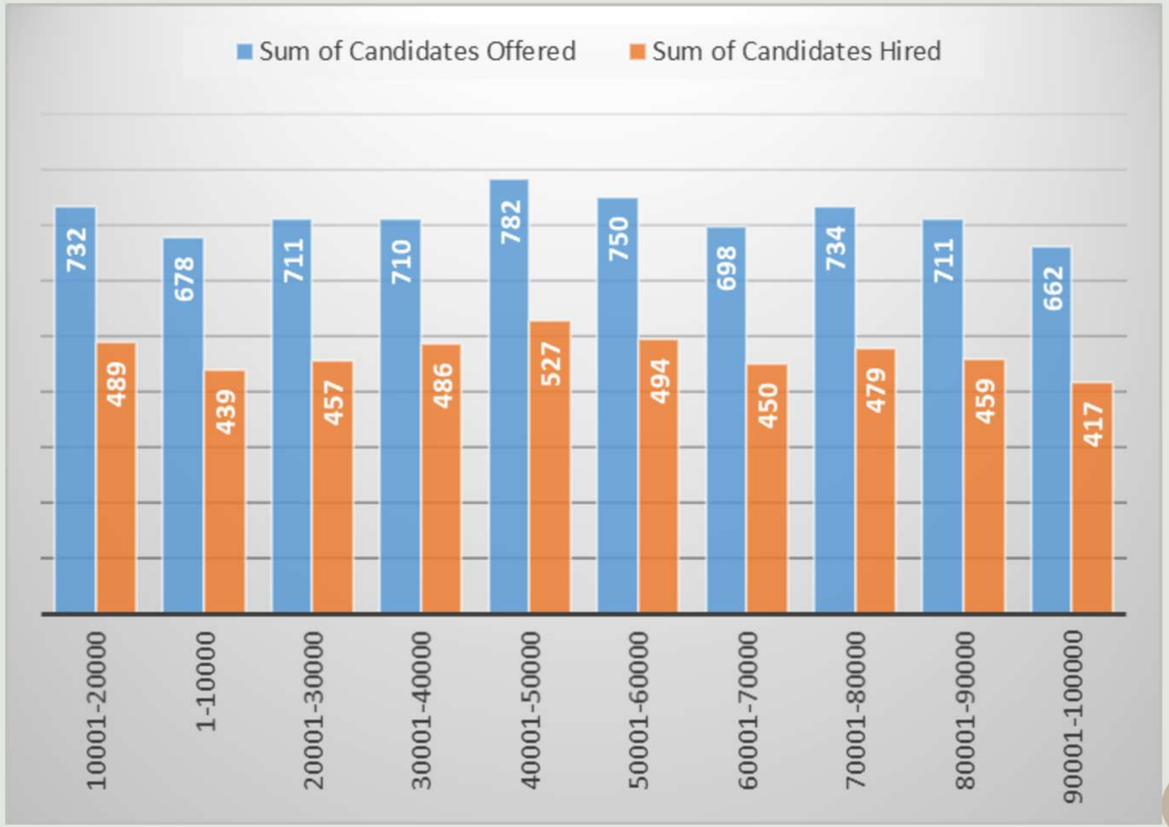
INSIGHTS

- The average salary offered by the company is Rs. 49898.7 and the average salary of the hired candidates is Rs. 49625.1.

- The Average Salary of Hired Candidates is almost same as that of Offered Salary. This shows that the hiring team is recruiting candidates as per the pre-determined salary bands of the organization.

SALARY DISTRIBUTION

Salary Class	Sum of Candidates Offered	Sum of Candidates Hired
10001-20000	732	489
1-10000	678	439
20001-30000	711	457
30001-40000	710	486
40001-50000	782	527
50001-60000	750	494
60001-70000	698	450
70001-80000	734	479
80001-90000	711	459
90001-100000	662	417
Grand Total	**7168**	**4697**



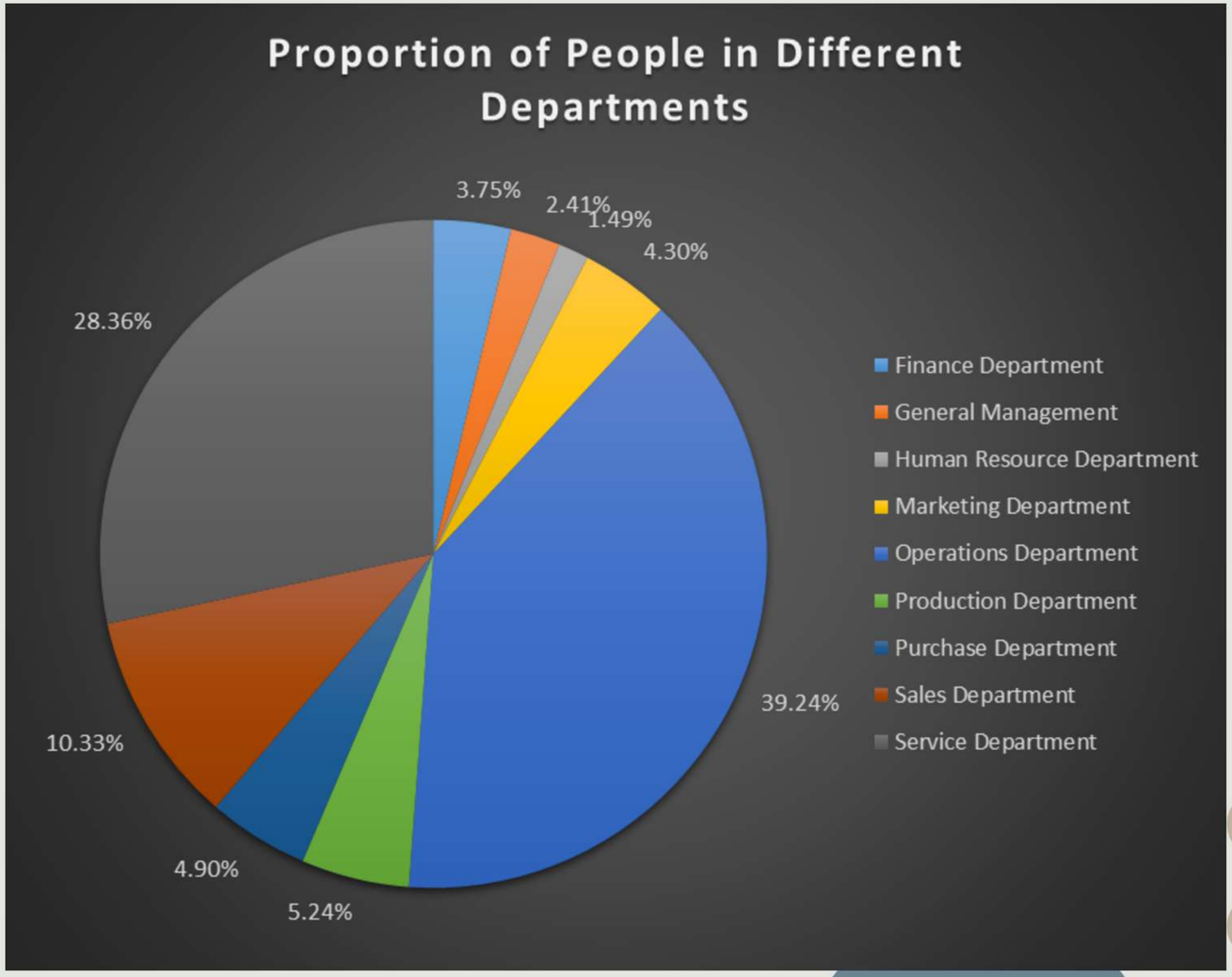
INSIGHTS

- We can observe that maximum offered salary is in the interval of Rs.40001–50000 while minimum offered salary are in intervals of Rs. 90001–100000 and Rs.1–10000. That is most of the job requirement was for middle experience posts and least for senior most posts and for freshers (assuming salary is directly proportional to work experience).

- We can also observe that the distribution of Salaries of hired candidate also follows the same pattern i.e. most candidates hired for middle experience posts and least for senior most posts and for freshers (assuming salary is directly proportional to work experience).

DEPARTMENTAL ANALYSIS

Status	Hired	
Department	**Dept. wise Proportion**	**Dept. wise count**
Finance Department	3.75%	176
General Management	2.41%	113
Human Resource Department	1.49%	70
Marketing Department	4.30%	202
Operations Department	39.24%	1843
Production Department	5.24%	246
Purchase Department	4.90%	230
Sales Department	10.33%	485
Service Department	28.36%	1332
Grand Total	**100.00%**	**4697**

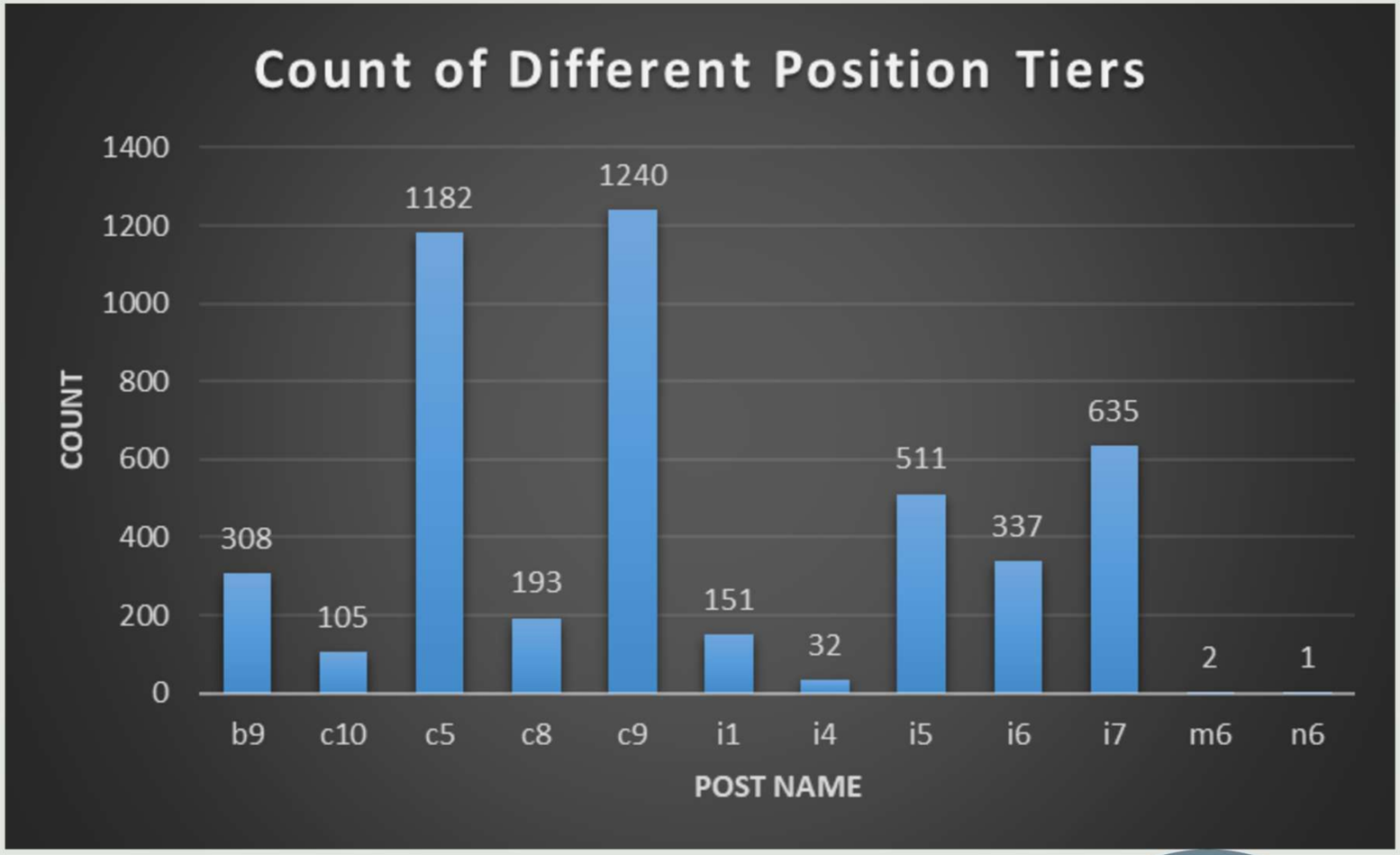


INSIGHTS

- The majority of hires belong to departments such as Operations, Service, and Sales.
- Departments like HR and Finance have fewer employees, possibly due to lower demand for these roles.
- From the above pie chart, numbers may indicate size of the teams and importance of the departments in the organization.

POSITION TIER ANALYSIS

Status	Hired
Post Name	**Distribution of Post Tiers**
b9	308
c10	105
c5	1182
c8	193
c9	1240
i1	151
i4	32
i5	511
i6	337
i7	635
m6	2
n6	1
Grand Total	**4697**



INSIGHTS

- Here, we can observe that the organization has hired most candidates for post tier c9 followed by c5 and then i7 at distant third.

DOCUMENTATION LINK

CLEANED DATASET

https://github.com/RenukaJoshi-DA/Hiring_Process_Analytics_Excel/blob/main/Cleaned_Dataset.xlsx

ANALYSIS

https://github.com/RenukaJoshi-DA/Hiring_Process_Analytics_Excel/blob/main/Statistics.xlsx

CONCLUSION

- This hiring process analysis provided valuable insights into recruitment trends within the company.
- The gender distribution revealed an imbalance, suggesting the need for diversity initiatives.
- Salary analysis highlighted disparities across departments, which may require a structured compensation review. The majority of employees were found in entry-level and mid-level positions, indicating potential limitations in career growth opportunities.
- Data cleaning techniques, including handling missing values and outlier detection, improved the dataset's accuracy, ensuring reliable insights. Visualizations such as bar charts and pie charts effectively illustrated workforce distribution across departments and position tiers.
- These findings can help the company refine its hiring strategy, enhance workforce diversity, and ensure fair compensation practices. Implementing data-driven recruitment policies will contribute to a more efficient and equitable hiring process.

Thank You

For your attention