HIRING PROCESS ANALYTICS

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PROJECT DESCRIPTION:

This project aims to analyse a company's workforce using Excel to derive insights into hiring, salary distribution, departmental composition, and position tiers. We will determine the gender distribution of hires to understand the balance between male and female employees. By calculating the average salary, we will gauge overall compensation trends, while creating class intervals for salaries will help visualize the distribution across different ranges. Departmental analysis through visualizations like pie charts or bar graphs will show staffing proportions in various departments. Lastly, position tier analysis will use charts to depict the hierarchical structure within the company, providing a comprehensive understanding of employee distribution across different levels.

TECH STACK USED: Microsoft Excel

A) ***Hiring Analysis:*** **The hiring process involves bringing new individuals into the organization for various roles.**

Your Task: **Determine the gender distribution of hires. How many males and females have been hired by the company?**

Approach:

Using a pivot table is an efficient way to solve questions about data categorization, such as counting the number of males and females hired. This dynamically organizes and summarizes the data, providing a clear count of hires by gender, which can easily be updated if the dataset changes.

Output:

Gender	Count of hired
⊞ Female	1856
⊞ Male	2563

B) ***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.**

Your Task: **What is the average salary offered by this company? Use Excel functions to calculate this.**

Approach:

To identify and remove outliers in the salary column using the Interquartile Range (IQR) method, we first calculate the first (Q1) and third (Q3) quartiles of the salary data. The IQR is the difference between Q3 and Q1. Outliers are determined by computing the lower bound (Q1 - 1.5 * IQR) and upper bound (Q3 + 1.5 * IQR). Salaries falling below the lower bound or above the upper bound are considered outliers. By filtering out these outliers and then calculating the average salary of the remaining data using the `AVERAGE` function in Excel, we ensure that extreme values do not skew the average salary calculation, providing a more accurate measure of central tendency.

Output:

q1	25460.5
q3	74438
q3-q1	48977.5
lower	-48005.8
upper	147904.3

average salary	49983.02902

C) ***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.**

Your Task: **Create class intervals for the salaries in the company. This will help you understand the salary distribution.**

Approach:

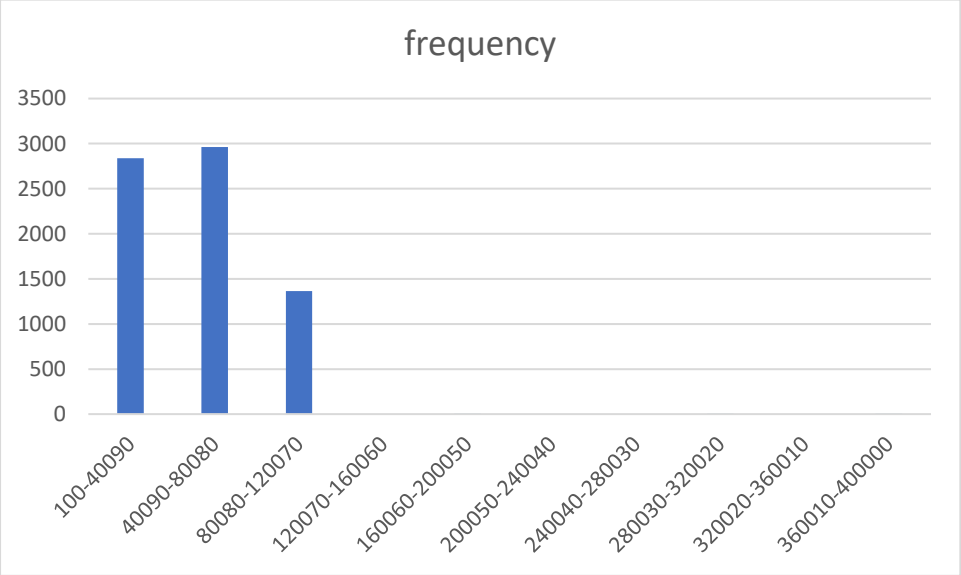
We begin by finding the minimum and maximum salaries and deciding upon the number of class intervals (10 is taken here). The width of each class interval is then calculated using the formula:
Class Interval Width = (Max – Min) / Number of Intervals

Intervals are created by incrementing from the minimum to the maximum salary by the interval width and the number of salaries falling into each interval is counted using 'COUNTIFS' function. A visualization in the form of a bar graph is also created.

Output:

min	100
max	400000
no. of intervals	10
class width	39990

lower limit	upper limit	class interval	frequency
100	40090	100-40090	2837
40090	80080	40090-80080	2961
80080	120070	80080-120070	1365
120070	160060	120070-160060	0
160060	200050	160060-200050	1
200050	240040	200050-240040	0
240040	280030	240040-280030	0
280030	320020	280030-320020	1
320020	360010	320020-360010	0
360010	400000	360010-400000	1



D) *Departmental Analysis:* Visualizing data through charts and plots is a crucial part of data analysis.

***Your Task:* Use a pie chart, bar graph, or any other suitable visualization to show the proportion of people working in different departments.**

Approach:

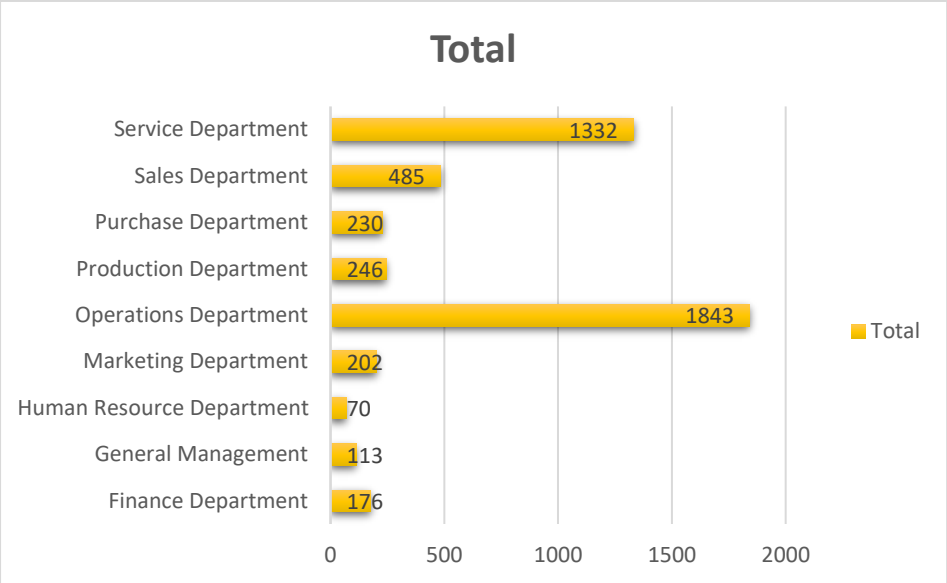
Begin by creating a pivot table that lists departments and counts the number of people working in each, filtered by the status "hired". Using the pivot table, generate visualizations such as bar charts, pie charts, line charts, and area charts to represent the data. These visualizations will collectively provide a comprehensive and insightful view of the distribution and composition of hired employees across different departments.

Output:

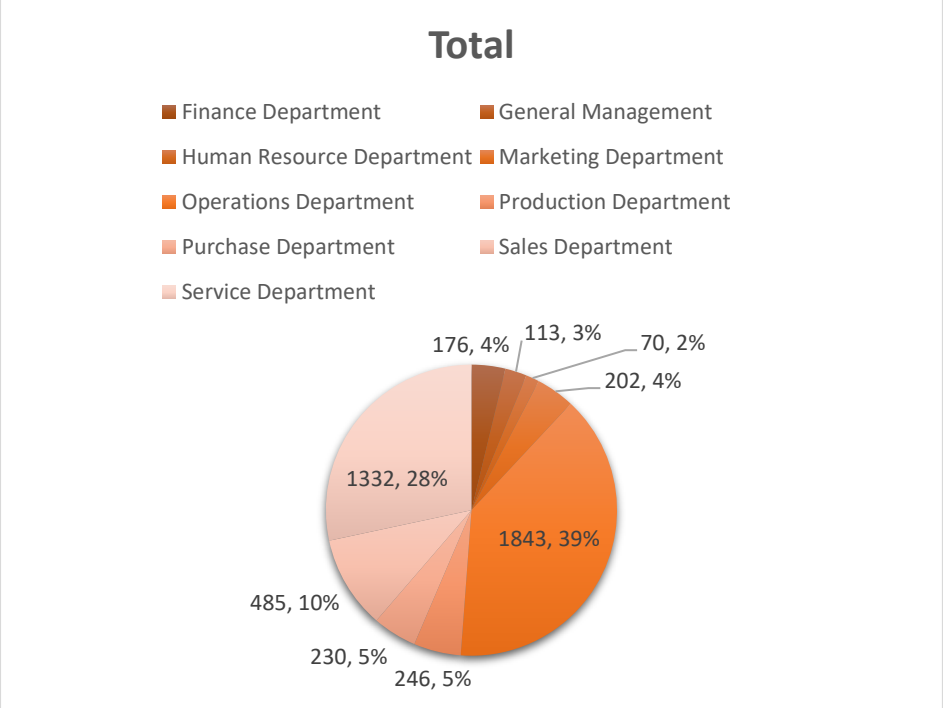
PIVOT TABLE

Row Labels	Count of application_id
Finance Department	176
General Management	113
Human Resource Department	70
Marketing Department	202
Operations Department	1843
Production Department	246
Purchase Department	230
Sales Department	485
Service Department	1332

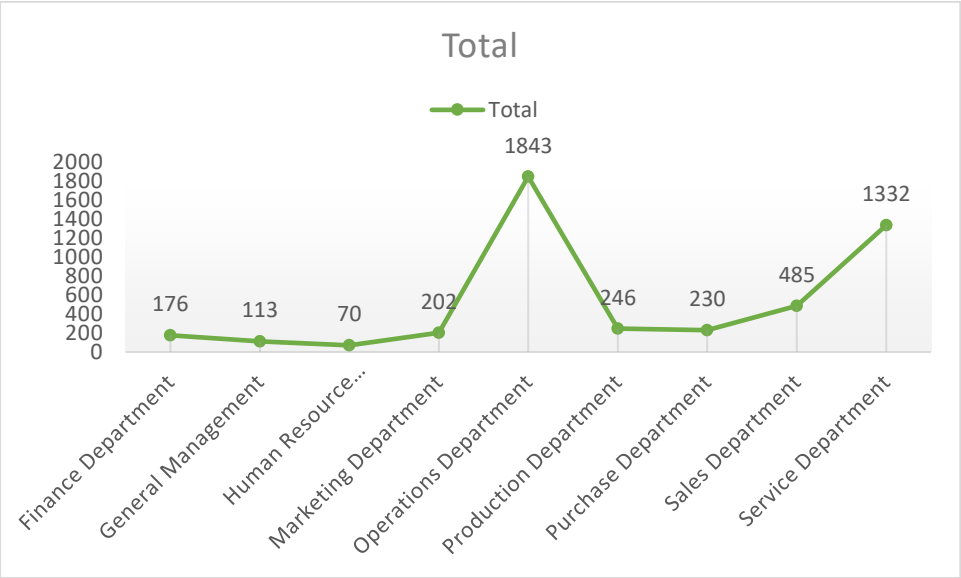
BAR CHART



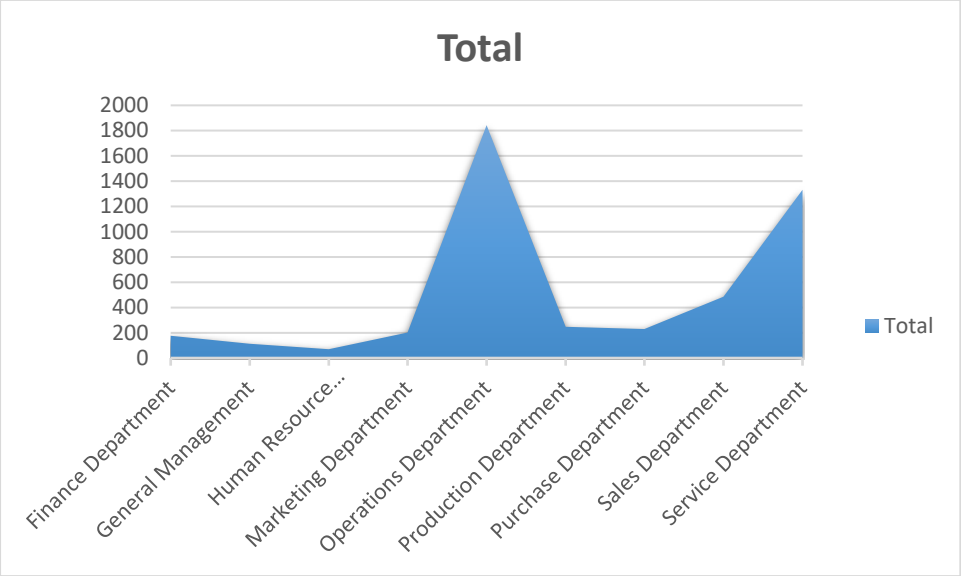
PIE CHART



LINE CHART



AREA CHART



E) ***Position Tier Analysis:*** **Different positions within a company often have different tiers or levels.**

Your 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.**

Approach:

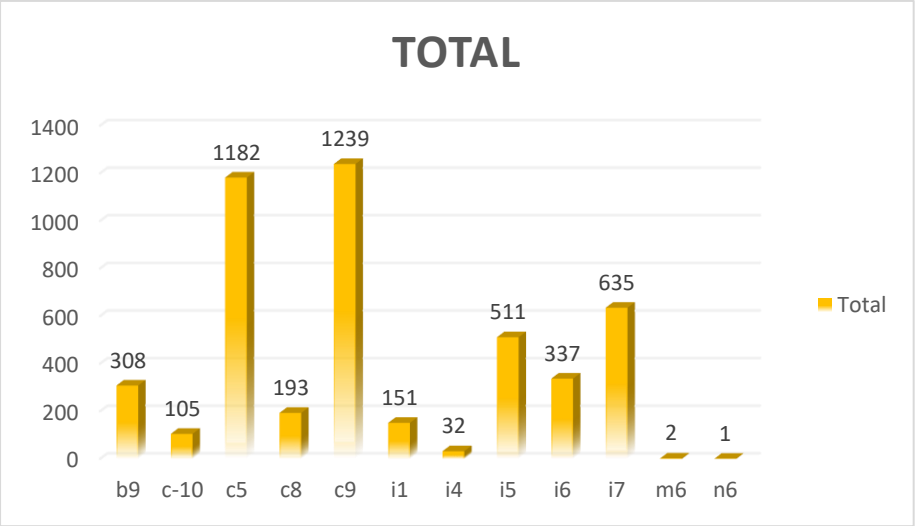
Begin by creating a pivot table that lists the different positions and counts the number of people in each, filtered by the status "hired". Using the pivot table, generate visualizations such as bar charts, pie charts, line charts, and area charts to represent the data. This will provide a comprehensive view of the distribution of hired employees across different departments.

Output:

PIVOT TABLE

Row Labels	Count of application_id
b9	308
c-10	105
c5	1182
c8	193
c9	1239
i1	151
i4	32
i5	511
i6	337
i7	635
m6	2
n6	1

BAR CHART



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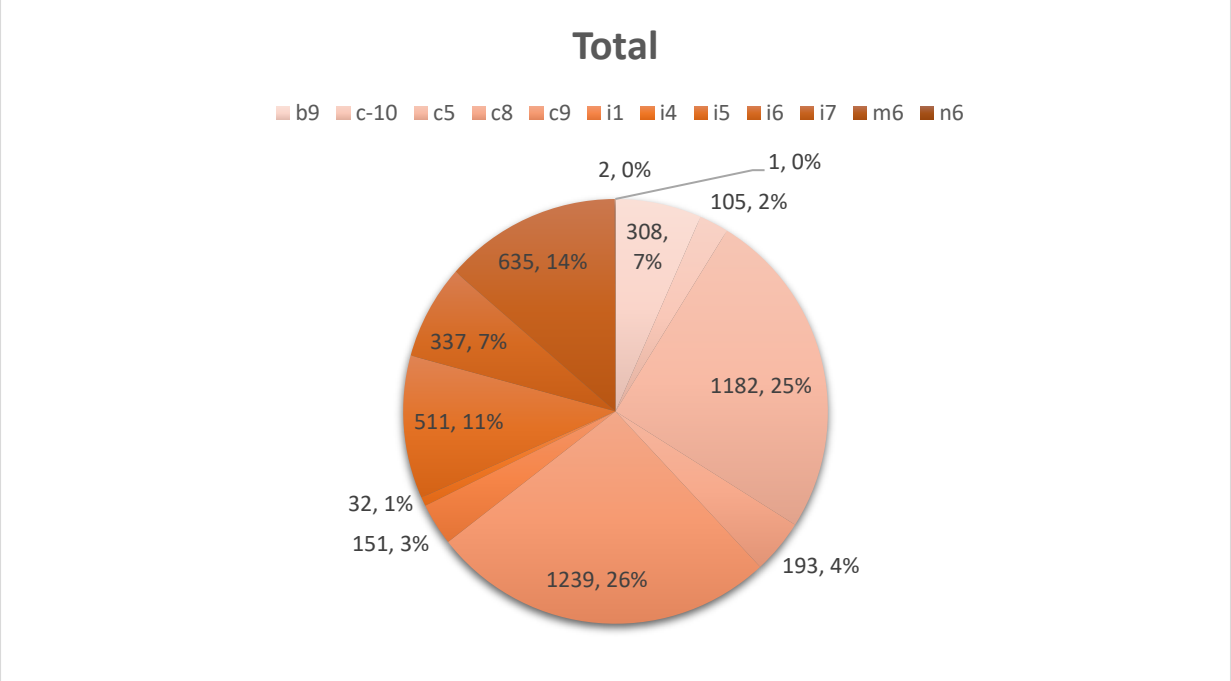

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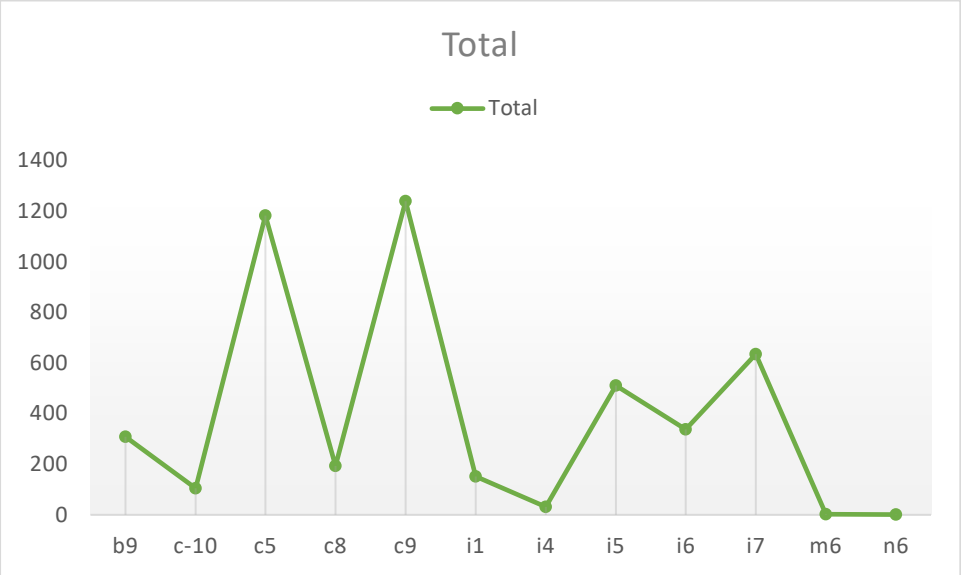

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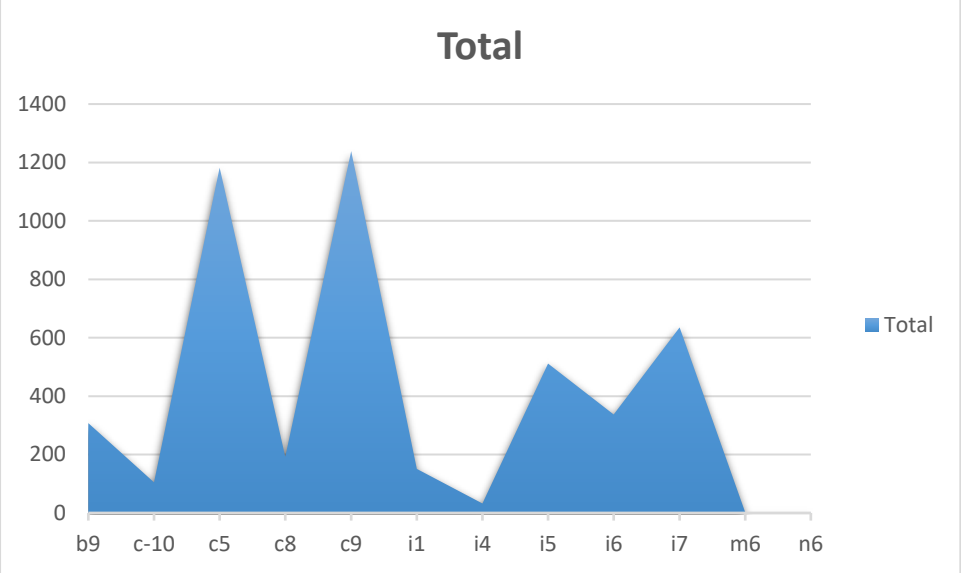

RESULT:

Hence, we have implemented all the tasks given as a part of the Hiring Process Analytics project and provided the approach to solve the tasks in MS Excel along with the outputs generated.