HR Analytics

Author	@Marjiba_Jamir
Link	
Status	Done
Type	EDA Excel

Data Analytics Case Study: Company HR Analysis

1. **Introduction:**

   As the lead Data Analyst at Google, I have been entrusted with a dataset containing valuable information about the company's hiring records. My objective is to leverage my statistical knowledge and expertise in Excel to conduct a thorough analysis and extract actionable insights. By doing so, I can assist the company in improving their hiring processes and making informed decisions.

   To begin, I will delve into the dataset and familiarize myself with the columns and data it contains. This will allow me to gain a comprehensive understanding of the information at hand. I will then proceed to check for any missing data, ensuring that the dataset is complete and reliable for analysis.

application_id	Interview Taken on	Status	Gender	Department	Post Name	Offered Salary
383422	5/1/2014 11:40	Hired	Male	Service Department	c8	56553
907518	5/6/2014 8:08	Hired	Female	Service Department	c5	22075
176719	5/6/2014 8:08	Rejected	Male	Service Department	c5	70069
429799	5/2/2014 16:28	Rejected	Female	Operations Department	i4	3207
253651	5/2/2014 16:32	Hired	Male	Operations Department	i4	29668
959124	5/6/2014 16:27	Rejected	Male	Sales Department	i7	69904
86642	5/9/2014 13:17	Rejected	Male	Sales Department	i7	11758
751029	5/2/2014 13:09	Hired	Female	Service Department	i4	15156
434547	5/2/2014 13:11	Rejected	Female	Service Department	i4	49515
518854	5/1/2014 9:00	Rejected	Male	Service Department	n10	26990
649039	5/7/2014 10:48	Hired	Female	Service Department	b9	200000
199526	5/7/2014 10:50	Hired	Male	Service Department	b9	86787
539803	5/15/2014 9:31	Hired	Male	Finance Department	b9	2308
191009	5/9/2014 12:48	Hired	Female	Service Department	i7	56688
51318	5/2/2014 8:07	Hired	Male	Service Department	i5	15134
513166	5/1/2014 22:53	Hired	Female	Operations Department	i1	73579

   1. application_id: This column represents the unique identification number assigned to each job application. It helps in tracking and referencing individual applications throughout the hiring process.

2. Interview Taken on: This column records the date and time when the interview for a particular application was conducted. It provides information about the timing and scheduling of the interviews, which can be useful for analyzing interview trends and patterns.
3. Status: This column indicates the outcome or status of each application, whether the applicant was hired or rejected. It provides valuable insights into the success rate of applicants and helps evaluate the effectiveness of the hiring process.
4. Gender: This column captures the gender of the applicants, distinguishing between male and female candidates. Analyzing the gender distribution can reveal any gender imbalances or biases in the hiring process and workforce composition.
5. Department: This column specifies the department or division within the company to which the job application is related. It helps in understanding the distribution of applicants across different departments and identifying areas of high demand or specialization.
6. Post Name: This column denotes the specific job position or role for which the application was made. It provides information about the variety of job opportunities available within the company and can be used to analyze hiring trends for specific positions.
7. Offered Salary: This column represents the salary offered to the applicants who were hired. It reflects the financial compensation provided by the company for the selected candidates and can be used to assess the salary structure and competitiveness of the company in the job market

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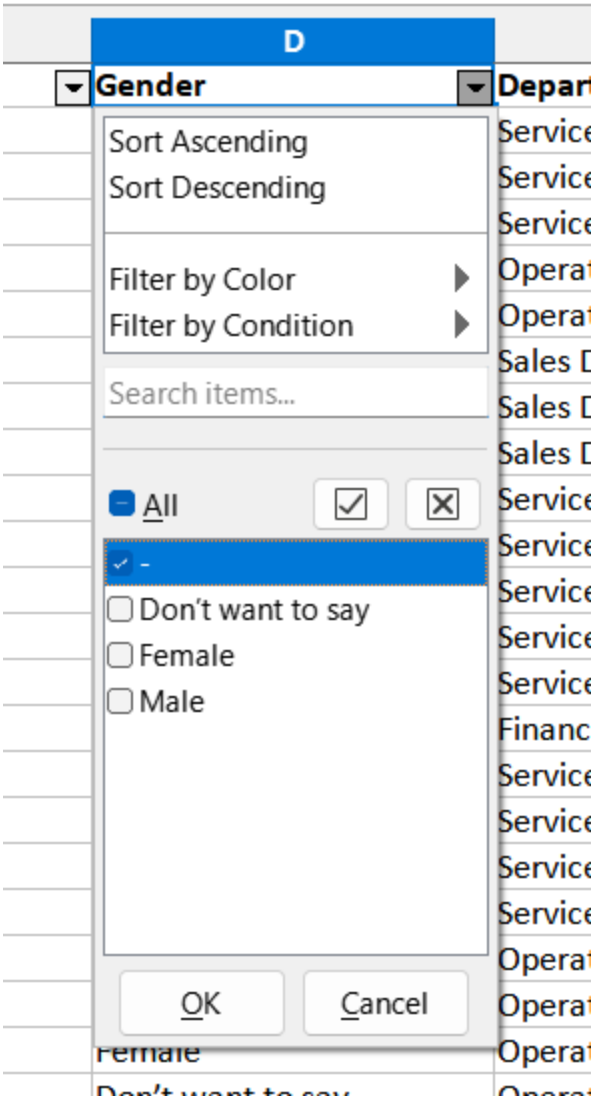
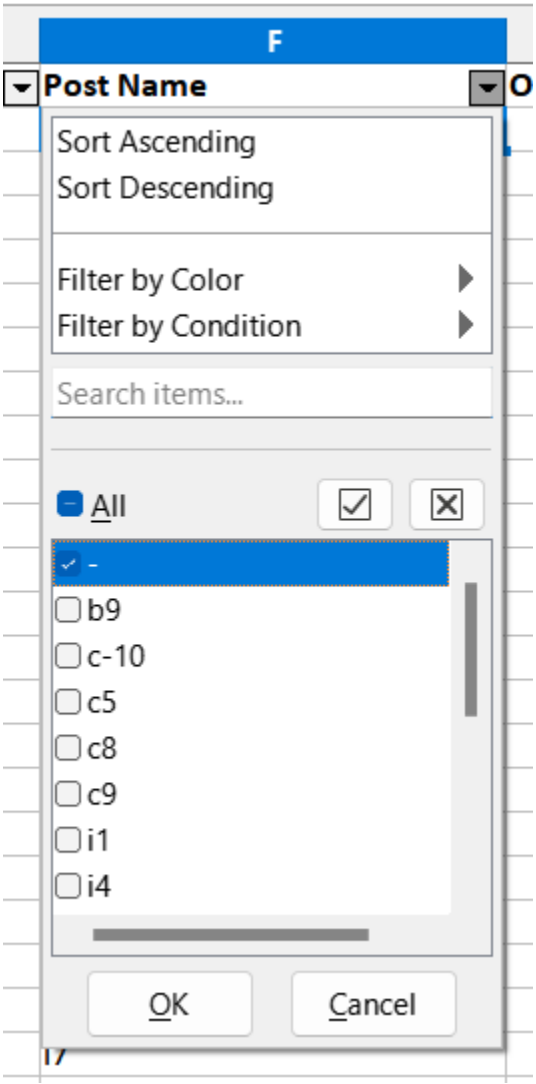
2. Data Preparation:

- clean and prepare the data (any missing data handling, column clubbing, or outlier removal processes.)
    - Delete Rows / Filter Rows with Missing Values:


D
Gender
Depart
Sort Ascending
Sort Descending
Filter by Color
Filter by Condition
Search items...
All
-
Don't want to say
Female
Male
OK
Cancel
Female



- we can manually Select all the rows with missing values and Delete it:

	A	B	C	D	E	F	G
1	application_id	Interview Taken on	Status	Gender	Department	Post Name	Offered Salary
17	195323	5/9/2014 12:48	Hired	-	Service Department	i7	81757
19	742283	5/2/2014 8:11	Rejected	-	Service Department	i5	100
1602	227046	8/27/2014 18:08	Hired	-	Operations Department	b9	76730
1791	711350	7/16/2014 13:33	Rejected	-	Operations Department	c-10	25785
2878	835053	5/16/2014 18:34	Hired	-	Operations Department	c5	25583
3259	444043	7/11/2014 14:52	Hired	-	Sales Department	c5	80262
4018	352309	8/20/2014 10:38	Hired	-	[illegible]	i5	4308
4126	204014	8/9/2014 16:09	Rejected	-	[illegible]	c5	96396
4410	901867	8/18/2014 9:36	Rejected	-	[illegible]	c5	22393
5560	937905	8/8/2014 19:29	Hired	-	[illegible]	c9	94032
5607	564743	8/28/2014 10:25	Rejected	-	[illegible]	c9	4076
5889	245473	5/14/2014 18:48	Hired	-	[illegible]	c5	66948
6330	411295	6/22/2014 14:38	Hired	-	[illegible]	i1	98070
6658	487617	5/30/2014 16:29	Hired	-	[illegible]	c8	12470
6998	827628	8/30/2014 15:51	Hired	-	[illegible]	i1	3134
7170							
7171							
7172							
7173							
7174							
7175							
7176							

Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Paste Special
Selection List Alt+Down
Delete... Ctrl+-
Clear Contents... Backspace
Clone Formatting
Clear Direct Formatting Ctrl+M
Styles
Insert Comment Ctrl+Alt+C
Sparklines
Format Cells... Ctrl+1

3. Analysis and Findings:

   5.1 Hiring Analysis:

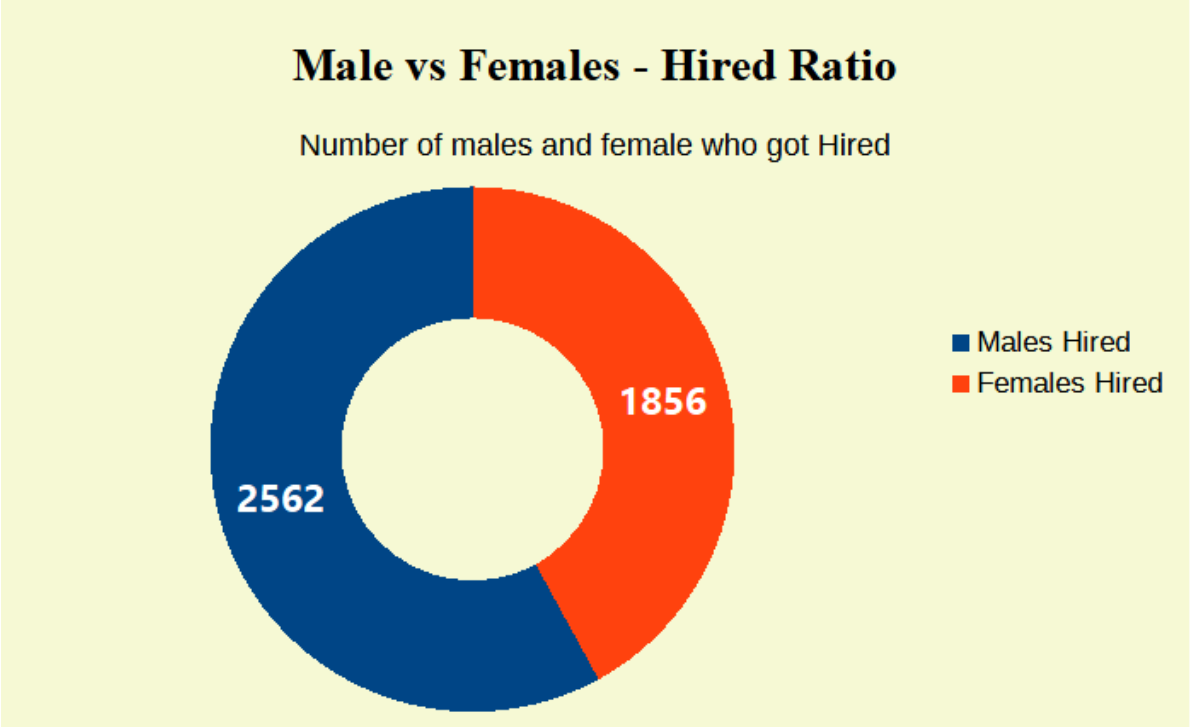
   - Present the count of males and females who were hired.
   - Provide visualizations, such as a bar chart or pie chart, to showcase the gender distribution in the hiring process.

Status	Count - Gender
Hired	4686
Rejected	2466
Total Result	**7152**

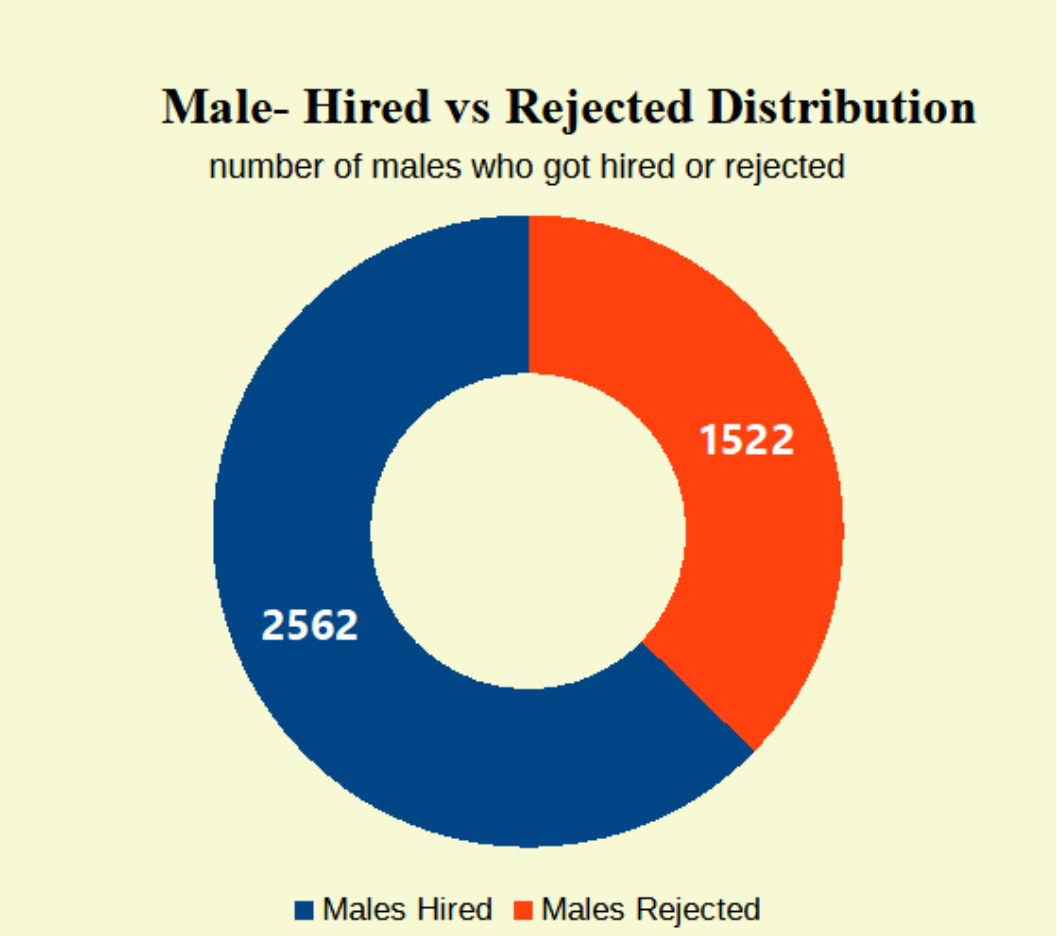
Number of Males	4084
Number of Females	2675

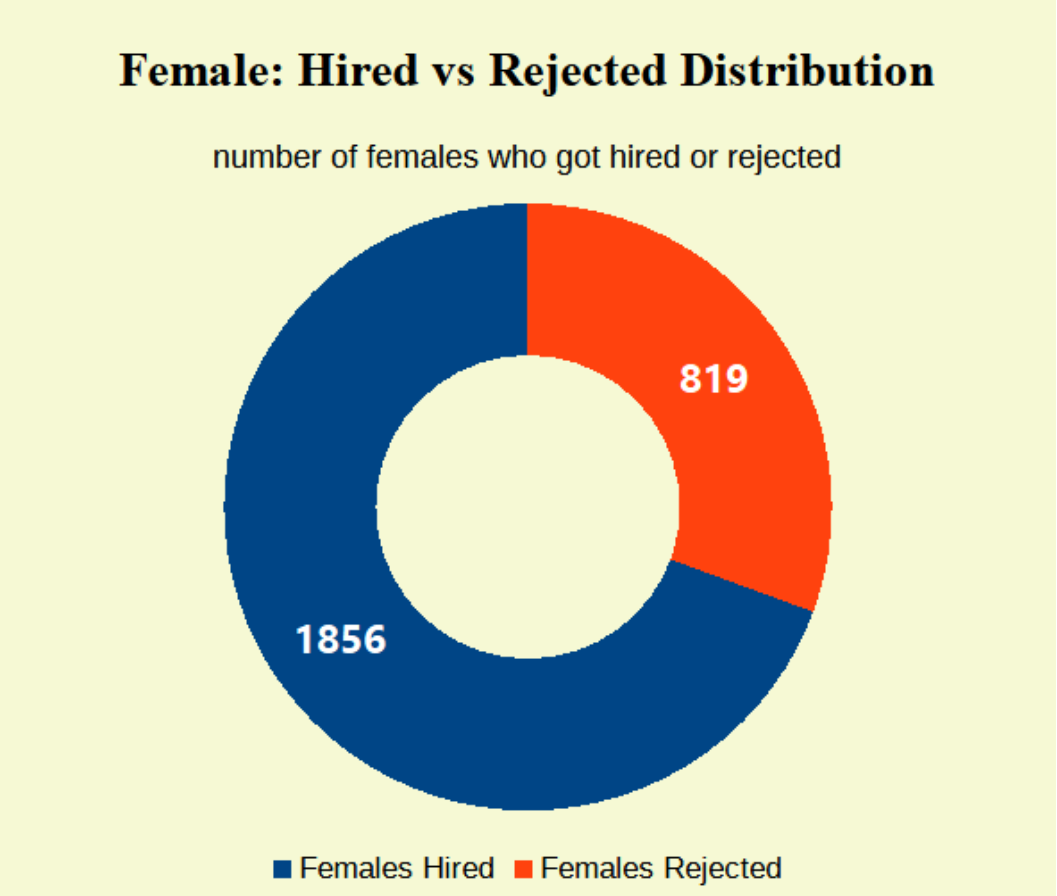
Males Hired	2562
Males Rejected	1522

Females Hired	1856
Females Rejected	819



Some more charts to represent distribution:


Male- Hired vs Rejected Distribution
number of males who got hired or rejected
1522
2562
Males Hired
Males Rejected



5.2 Average Salary Analysis:

- Calculate the average salary offered by the company

-First we will check for ourliers and remove them to get a more accurate data.

J	K	L
	Offered Salary	
	400000	
	300000	
	200000	
	99967	
	99953	
	99950	
	99948	
	99939	
	99929	

The next step step is preety simple, we just need to apply a simple AVERAGE formula.

> =AVERAGE(range_of_cells_here)

Average Salary	49881.14311696

5.3 Salary Class Intervals:

- Determine the range of salaries in the dataset.

min_salary	1027
max_salary	99967

- Define the class intervals for analyzing salary distribution.

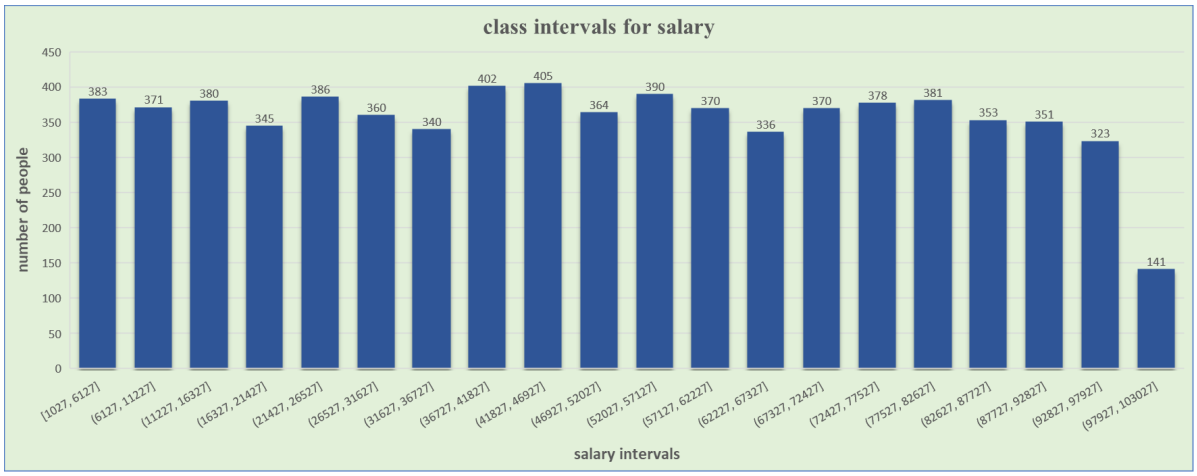
min_salary	1027
max_salary	99967

Range	98940

Interval_Range	4947

	Offered Salary
Mean	49901.6909727082
Standard Error	335.003205127475
Mode	20666
Median	49625
First Quartile	25553
Third Quartile	74370
Variance	801862968.499393
Standard Deviation	28317.1850384072
Kurtosis	-1.17792801918476
Skewness	0.0134948440095029
Range	98940
Minimum	1027
Maximum	99967
Sum	356547582
Count	7145

-We create a histogram or frequency distribution to display the salary class intervals. As you can ovserve visually, the mediansalary is around 50,000.



Average Salary	49901.69097

5.4 Department Analysis:

- Present the proportions of employees working in different departments:

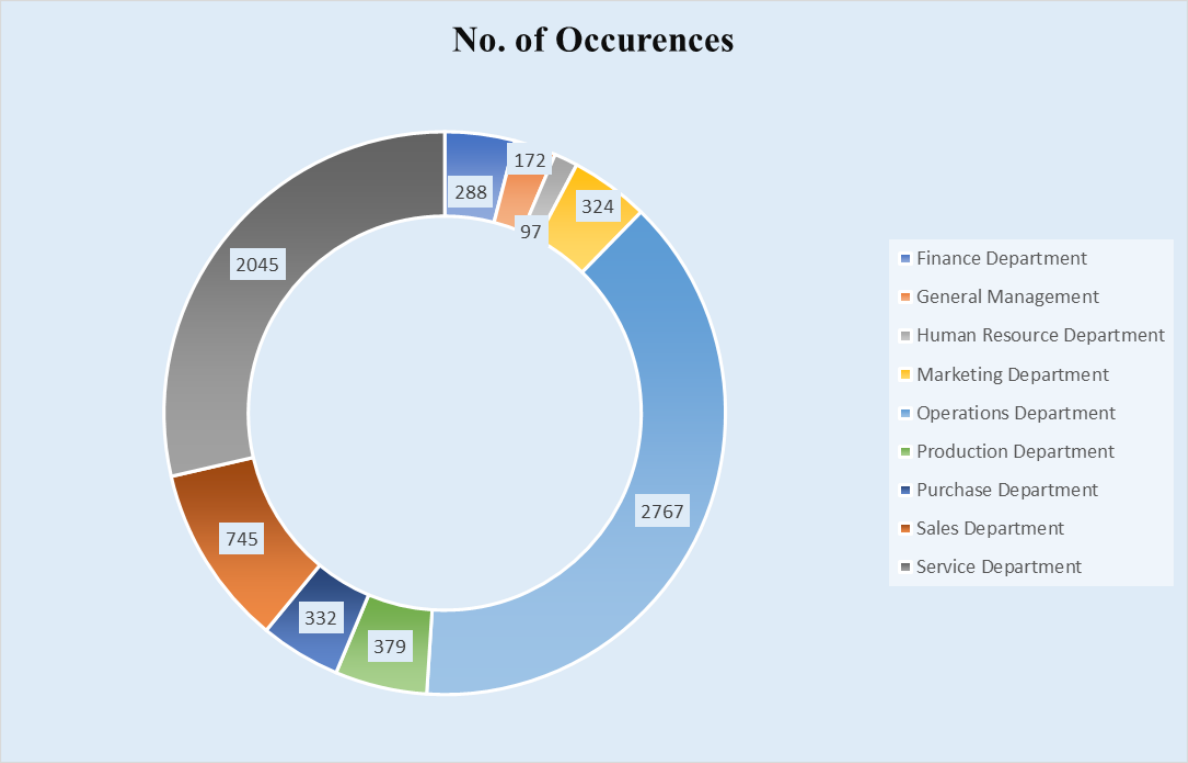
-We will use Countif formula to cont the number of occurences of each department.

	I	J	K
	Department		
	Finance Department	=COUNTIF(E:E,I2)	
	General Management	172	
	Human Resource Departmen	97	
	Marketing Department	324	
	Operations Department	2767	
	Production Department	379	
	Purchase Department	332	
	Sales Department	745	
	Service Department	2045	

Here is the table again in a prettier format:

	I	J
	Department	**No. of Occurences**
	Finance Department	288
	General Management	172
	Human Resource Departmen	97
	Marketing Department	324
	Operations Department	2767
	Production Department	379
	Purchase Department	332
	Sales Department	745
	Service Department	2045

- Use visualizations like a pie chart to showcase the department-wise distribution of employees.



Based on the provided data, we can draw the following insights:

1. Operations Department has the highest number of occurrences (2,767), indicating that it is the largest department in terms of employee count. This could suggest that the company's core operations are significant and require a substantial workforce.
2. The Sales Department (745) and Service Department (2,045) have relatively high numbers of occurrences, indicating that these departments are crucial for generating revenue and providing customer support. This suggests a strong focus on sales and customer service within the company.
3. The Production Department (379) and Purchase Department (332) have relatively lower numbers of occurrences compared to other departments. This could suggest that the company may have outsourced some production activities or relies more on external suppliers for purchasing.
4. The Finance Department (288) and Marketing Department (324) have moderate numbers of occurrences. This indicates that these departments play important roles in managing financial aspects and promoting the company's products or services.
5. General Management (172) and Human Resource Department (97) have relatively lower numbers of occurrences, suggesting that these departments may have a smaller workforce.

5.5 Post Tiers Analysis:

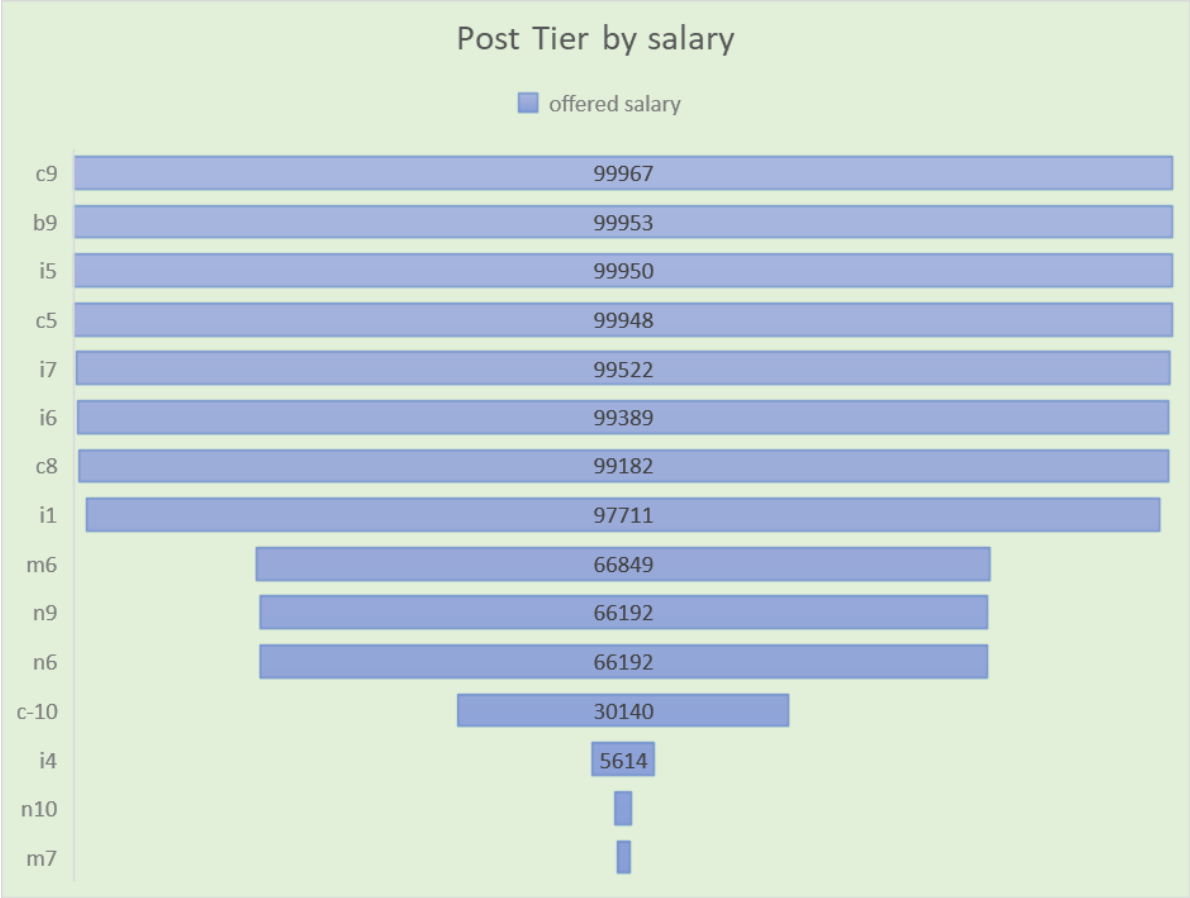
- Analyze different post tiers based on offered salaries.

- there are 15 unique posts available. We will order the salary in descending order and take the largest salary from each post tier.
- this will give us an idea about the post tiers based on salary alone.

	H	I	
y	Post Name	offered salary	D
67	c9	99967	Fi
53	b9	99953	G
50	i5	99950	H
48	c5	99948	M
39	i7	99522	O
29	i6	99389	Pr
20	c8	99182	Pu
91	i1	97711	Sa
80	m6	66849	Se
52	n9	66192	
41	n6	66192	
28	c-10	30140	
24	i4	5614	
00	n10	1524	
66	m7	1141	
62			

-Create a chart or graph to represent the relationship between post tiers and salaries.

chart:



1. Salary variations across post tiers: The data indicates that there is a noticeable difference in offered salaries across different post tiers. Higher post tiers, such as C9 and B9, have significantly higher salaries compared to lower tiers like C-10, I4, N10, and M7. This suggests a correlation between post tier and salary level.
2. Consistency within post tiers: Within specific post tiers, there is relatively less variation in salaries. For example, the salaries of I5, C5, and I7 are all in the range of 99,500 to 99,967, indicating consistency within this tier. Similarly, N9 and N6, as well as C9 and B9, have the same salary values, suggesting similar compensation within these post tiers.
3. Salary drop between I7 and I6: There is a significant drop in salary between the I7 and I6 post tiers. While I7 is offered a salary of 99,522, I6 receives a lower salary of 99,389. This difference may reflect variations in responsibilities, experience levels, or other factors influencing the salary structure within the organization.

4. Lower salaries for N and M tiers: The N and M post tiers, represented by N9, N6, M6, and M7, have notably lower salaries compared to the C and I tiers. This pattern suggests that N and M tiers may be associated with different job roles or lower levels of responsibility within the organization.
5. Drastic salary decrease at C-10: The post tier C-10 stands out with a significantly lower salary of 30,140, which is substantially lower compared to other post tiers. This suggests that C-10 might represent a unique position or have specific job characteristics that result in a lower compensation level.

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4. **Key Insights and Recommendations:**

Summary:
Based on the provided data, it is evident that there are variations in salary levels across different post names and departments within the organization. The organization appears to have a gender imbalance, with a higher number of male hires compared to females. The average salary suggests the presence of both higher and lower-paying positions within the organization.

Recommendations:

1. Address Gender Imbalance: Conduct a thorough analysis of the hiring and promotion practices to identify and rectify any potential gender bias. Implement initiatives to promote gender diversity and inclusion within the organization.
2. Review Salary Structure: Assess the salary structure to ensure fairness and consistency across all departments and post names. Consider conducting a salary survey to benchmark salaries against industry standards and make necessary adjustments to address any significant disparities.
3. Focus on Employee Development: Offer training and development programs to employees to enhance their skills and qualifications, which can potentially lead to better career advancement opportunities and increased salaries.
4. Improve Departmental Representation: Encourage cross-departmental mobility and provide opportunities for career growth and development within underrepresented departments such as Human Resources, General Management, and Production.
5. Regular Salary Reviews: Implement a periodic salary review process to ensure that salaries are regularly evaluated and adjusted based on market trends, performance, and internal equity.

Thank you for reading!!