

1. What is the average, median, and range of salaries for each department?

The average, median, and range of salaries for each department are as follows:

Department	mean	median	min	max	Range
Finance	92390.4	97169	30432	148800	118368
HR	88539.5	86967.5	31435	149049	117614
IT	90646.8	84137	30370	149357	118987
Sales	87534.5	87556	31344	146591	115247

The 'mean' column represents the average salary, the 'median' column represents the median salary, and the 'Range' column represents the range of salaries (max - min) in each department.

From this, we can see that the Finance department has the highest average salary, while the Sales department has the lowest. The range of salaries is also highest in the IT department, indicating a larger disparity in salaries within this department.

2. What is the average years of experience for each performance score category?

The average years of experience for each performance score category are as follows:

PerformanceScore	Experience
1	18.9174
2	20.6262
3	21.51
4	16.4086
5	20.5165

The 'PerformanceScore' column represents the performance score category, and the 'Experience' column represents the average years of experience in each category.

From this, we can see that employees with a performance score of 3 have the highest average years of experience, while those with a performance score of 4 have the lowest. This could suggest that experience does not directly correlate with performance score.

3. What is the gender distribution in each department?

The gender distribution in each department is as follows:

Department	Gender	Count
Finance	1	70
Finance	0	56
HR	0	55
HR	1	55
IT	1	69
IT	0	56
Sales	1	73
Sales	0	66

The 'Department' column represents the department, the 'Gender' column represents the gender (0 = Male, 1 = Female), and the 'Count' column represents the number of employees in each category.

From this, we can see that the Sales department has the highest number of female employees, while the HR department has an equal number of male and female employees.

4. Is there a significant difference in the average salary between male and female employees?

The t-test for the difference in the average salary between male and female employees gives a t-statistic of approximately 0.577 and a p-value of approximately 0.565.

The p-value is greater than the common significance level of 0.05, so we fail to reject the null hypothesis. This means that there is not a significant difference in the average salary between male and female employees.

5. Is there a significant difference in the average years of experience between employees in the Sales department and the IT department?

The t-test for the difference in the average years of experience between employees in the Sales department and the IT department gives a t-statistic of approximately 1.117 and a p-value of approximately 0.265.

The p-value is greater than the common significance level of 0.05, so we fail to reject the null hypothesis. This means that there is not a significant difference in the average years of experience between employees in the Sales department and the IT department.

6. Is there a significant association between gender and department?

The chi-square test for the association between gender and department gives a chi-square statistic of approximately 0.952 and a p-value of approximately 0.813.

The p-value is greater than the common significance level of 0.05, so we fail to reject the null hypothesis. This means that there is not a significant association between gender and department.

7. Is there a significant association between department and performance score?

The chi-square test for the association between department and performance score gives a chi-square statistic of approximately 10.97 and a p-value of approximately 0.531.

The p-value is greater than the common significance level of 0.05, so we fail to reject the null hypothesis. This means that there is not a significant association between department and performance score.

8. Is there a significant difference in the average salary among the different departments?

The one-way ANOVA test for the difference in the average salary among the different departments gives an F-statistic of approximately 0.491 and a p-value of approximately 0.689.

The p-value is greater than the common significance level of 0.05, so we fail to reject the null hypothesis. This means that there is not a significant difference in the average salary among the different departments.

9. Is there a significant difference in the average years of experience among the different performance score categories?

The one-way ANOVA test for the difference in the average years of experience among the different performance score categories gives an F-statistic of approximately 2.818 and a p-value of approximately 0.025.

The p-value is less than the common significance level of 0.05, so we reject the null hypothesis. This means that there is a significant difference in the average years of experience among the different performance score categories.

10. Is there a correlation between years of experience and salary?

The correlation between years of experience and salary is approximately 0.024.

The correlation coefficient ranges from -1 to 1. A value closer to 1 implies a strong positive correlation, a value closer to -1 implies a strong negative correlation, and a value closer to 0 implies a weak or no correlation.

In this case, the correlation coefficient of 0.024 suggests a very weak positive correlation between years of experience and salary. This means that there is little to no relationship between an employee's years of experience and their salary in this dataset.

11. Is there a correlation between performance score and salary?

The correlation between performance score and salary is approximately 0.022. This correlation coefficient suggests a very weak positive correlation between performance score and salary. This means that there is little to no relationship between an employee's performance score and their salary in this dataset.

