**Assignment\_3\_Part\_2\_HassanZhang**

1. **Determine if the survival rate is associated with the class of passenger**
2. Block bar chart of ‘survival by class’. Survival patterns in each class are different.A graph with blue and orange bars

   Description automatically generated
3. Null Hypothesis (H0): There is no association between the class of passengers and the survival rate. In other words, the class of passengers and survival rate are independent.

Alternative Hypothesis (H1): There is an association between the class of passengers and the survival rate. The two variables are dependent.

1. significance level (α) = 0.05 (5%)
2. p-value = 4.55e-23
3. P-value << 0.05, so I reject the null hypothesis. This suggests a significant association between passenger class and survival rate.
4. Conclusion: the class of passengers and survival rate are associated.
5. **Determine if the survival rate is associated to the gender**
6. Block bar chart of ‘survival by gender’. Survival patterns in each gender are different.

A graph with blue and orange bars

Description automatically generated

1. Null Hypothesis (H0): There is no association between the sex of passengers and the survival rate. In other words, the sex of passengers and survival rate are independent.

Alternative Hypothesis (H1): There is an association between the sex of passengers and the survival rate. The two variables are dependent.

1. significance level (α) = 0.05 (5%)
2. p-value = 1.197e-58
3. P-value << 0.05, so I reject the null hypothesis. This suggests a significant association between passenger sex and survival rate.
4. Conclusion: the sex of passengers and survival rate are associated.
5. **Determine the survival rate is associated to the age**
6. Block bar chart of ‘survival by age group. Survival patterns in each gender are different.

A graph of a number of people

Description automatically generated

1. Null Hypothesis (H0): There is no association between the age of passengers and the survival rate. In other words, the age of passengers and survival rate are independent.

Alternative Hypothesis (H1): There is an association between the age of passengers and the survival rate. The two variables are dependent.

1. significance level (α) = 0.05 (5%)
2. p-value = 0.0066
3. P-value << 0.05, so I reject the null hypothesis. This suggests a significant association between passenger age and survival rate.
4. Conclusion: the age of passengers and survival rate are associated.