Homework 3

Monday, September 23, 2024 4:08 PM

1. {5, 7, 8, 5, 10, 12, 7, 6} {5, 5, 6, 7, 7, 8, 10, 12}
   (5, 5 and 7, 7 underneath)

   Mean: $\frac{60}{8} = 7.5$

   Percentiles:

   $\frac{75}{100} \cdot (8+1)$

   7th entry: 10

   $\frac{25}{100} \cdot (8+1)$

   3rd entry: 6

   Modes: 5 and 7, both have two entries.

2. Calculate coorelation coefficients;

   x=[]

   y=[]

   r does not exist because they're both empty sets.

3.

   3.1: Hours Studied vs. Exam Scores

   3.2: Coorelation Coefficient calculated in python to be ~0.9864. This shows strong coorelation between exam scores and hours worked.

   3.3: homework3.py submitted with pdf

   3.4: The previously calculated coorelation coefficient is ~0.9864 as this is extremely close to 1, it indicates extremely strong coorelation.

   3.5 In this case, coorelation implies causation as studying information helps your memory retention. Thus, the more information you are able to retain the better score you get.

   Ice Cream doesn't cause hot weather, hot weather causes ice cream sales. Because typically people want a cold snack when it's hot out. This data does provide some useful knowledge about ice cream sales, but only when you correctly analyze the data.

   3.6 The key finding of this data analysis is the fact that more hours spent studying strongly coorelates with grade earned on the exam. The coorelation coefficient indicates strong coorelation and the relationship implies causation.

   Coorelation can show a relationship such as between ice cream consumption and heat, but as previously shown it doesn't mean ice cream causes heat.