and EN 207

MM 217 Data Analysis and Interpretation

(1) Consider the pair of data sets x and y shown in the table. Given the correlation coefficient r is given by the expression, $r = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\bar{x})^2\sum_{i=1}^{n}(y_i-\bar{y})^2}}$ calculate r for this data set. Comment on your result.

x	**y**
1.97	-36.49
4.32	-63.37
4.60	-65.06
4.91	-66.61
5.88	-68.97
6.30	-68.83
6.47	-68.56
6.92	-67.32
8.32	-58.19
9.00	-51.06
9.79	-40.24

(2) A total of 1000 people work at company A, whereas a total of 1100 work at company B. Suppose the total employee payroll is larger at company B than at company A. (a) What does this imply about the median of the salaries at company A with regard to the median of the salaries at company B? (b) What does this imply about the average of the salaries at company A with regard to the average of the salaries at company B?

(3) A recent study yielded a positive correlation between babies who are made to listen to classical music when they are about an year old and the scores on a vocabulary test taken at 6. Discuss the potential difficulties in interpreting the results of this study.

(4) If the weather prediction is 65% chance of rain, will you go ahead with an open door party you have planned or, will you move it to a party hall?

(5) Powai Ice-cream shop sells three flavours of Ice cream: Chocolate, Pista and Mango. It has been observed that both girls and boys frequent the ice cream shop equally. It is also observed that 45% of the girls prefer chocolate flavor, 30% by pista flavor and 25% prefer mango ice cream. While the boys prefer chocolate, pista and mango flavours 30%, 20% and 50% of times respectively.

a. Please find out probability that Chocolate flavor ice cream will be ordered by a random person visiting the shop.

b. Suppose a person comes to the shop and orders mango flavor ice cream, what is the probability that the person is a girl?

(6) A course on probability was taught by Prof. X. After the course was grades, it was found that 50% of the students failed the course. What would you like to comment on the result and Prof. X?