Worksheet 4

$$S_{\gamma} = \sqrt{\frac{1}{n-1} \left(\sum (y_i - y_j)^2 \right)}$$

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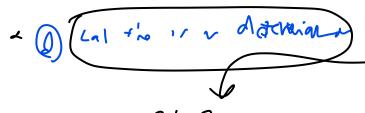
1. The following data has mean income and housing for 10 cities in Florida. Values are in dollars (\$) and rounded to the nearest thousand.

γ_	\bigcirc XY)
	Sx Sx
Srv =	$\sum (x_i - \overline{x}) (x_i - \overline{x})$
	n-1
Sx =	$\sqrt{\frac{1}{1-1}\left(\sum_{x}(x;-x)^{2}\right)}$

A 26 109 -3.6 12.76 -3 9 10.8 B 29 97 -1.6 13.76 -15 22.5 9 C 25 115 -4.6 21.16 3 7 -13.8 D 28 99 -1.6 2.6 1.0 100 54 F 32 145 2.4 5.76 33 1039 77.4 G 25 100 -4.6 71.16 -12 144 55.2 H 22 76 -7.6 5.26 -36 12.76 77.2 I 29 113 -0.6 6.36 3 1 -16 J 42 144 72.4 153.26 32 14.24 20.6 4	City	Income (\boldsymbol{x})	Housing(y)	$X_1 - Y$	17 1			10.0
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1 29 113 -0.6 6.36 1 -16	H			-7.6	\$3.21	- 36	1276	
J 42 144 153.26 32 142 204 a	1	29	113	-0.6	0.36	1	1	1+/- (
	J		144	12-4	153.26	3 2	1.22	2011

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- a. Calculate the correlation coefficient between x and y. What can you conclude about the relationship between the 2 variables?
- ★ b. Calculate the least square line.
 - c. Calculate the coefficient of variation



$$S \times Y = \frac{101.66}{10-1}$$

$$S \times = \sqrt{\frac{1}{9}} \quad 396.4$$

$$S_{\gamma} = \sqrt{\frac{1}{9} \cdot 4066}$$
 $\frac{21.26}{1}$

(Extra space for question 1)

linear

Strong Posilive relationship between X, Y.

7.64 4 29.6

= 33.86

$$CV_{x} = \frac{S_{x}}{\overline{x}} = \frac{6.2}{29.6} = 6.21$$

$$CV_y = \frac{S_y}{y} = \frac{21.26}{12} \approx 0.19$$

$$=V$$
 : $(0.77)^2 = 0.5929$

. A sample of 30 observations has a standard deviation of 4. Find the sum of squared deviations from the sample mean.

3. Following observations are given for two variables.

$$\frac{22}{10}$$

- a. Compute and interpret P_{86} .
- b. Compute and interpret the correlation coefficient.
- c. Draw the relevant diagram for the data above.

$$L_{P} = (9) \cdot \frac{9}{100} = (9) \cdot \frac{86}{100}$$

$$= (9) \cdot \frac{86}{100}$$



$$18 + (19 - 18) \times 0.74 = 18.74 = P_{86}$$



4. 4 candidates are running for mayor; Adams, Brown, Collins and Dalton (We assume one of the candidates is going to win, there is no run off). The following probabilities are assigned:

$$P[{\rm Adams~wins}] = 0.42 \quad P[{\rm Brown~wins}] = 0.09$$

$$P[\text{Collins wins}] = 0.27 \quad P[\text{Dalton wins}] = 0.22$$

Determine the probabilities for the following events (use 2 decimal places):

- a. Adams loses.
- b. Either Brown or Dalton wins.
- c. Adams, Brown, or Collins wins.