Assignment No. 1 (Lessons 10- 15)

Question 1: **Marks: 10**

Calculate the correlation coefficient using the following data and interpret the result.

Create a table for the necessary calculations, use the appropriate formula, and include all the necessary steps.

Age of a Car	2	4	5	6	8	11
Resale Value	18	15	11	8	7	5

FORMULA $$r = \frac{\sum XY - (\sum X)(\sum Y)/n}{\sqrt{[\sum X^2 - (\sum X)^2/n][Y^2 - (\sum Y)^2/n]}}$$

X	Y	X^2	Y^2	XY
2	18	4	324	36
4	15	16	225	60
5	11	25	121	55
6	8	36	64	48
8	7	64	49	56
11	5	121	25	55
$\sum X = 36$	$\sum Y = 64$	$\sum X^2 = 266$	$\sum Y^2 = 808$	$\sum XY = 310$

PUT IN FORMULA $r = \dfrac{\sum XY - (\sum X)(\sum Y)/n}{\sqrt{[\sum X^2 - (\sum X)^2/n][Y^2 - (\sum Y)^2/n]}}$

$$r = \frac{\sum XY - (\sum X)(\sum Y)/n}{\sqrt{[\sum X^2 - (\sum X)^2/n)][\sum Y^2 - (\sum Y)^2/n)]}}$$

$$r = \frac{310 - (36 \times 64)/6}{\sqrt{[266 - (1296)/6][808 - (4096)/6]}}$$

$$r = \frac{310 - (2304)/6}{\sqrt{(\frac{6(266) - 1296}{6})(\frac{6(808) - 4096}{6})}}$$

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$$r = \frac{-74}{\sqrt{[50][125.334]}}$$

$$r = \frac{-74}{\sqrt{6266.7}}$$

$$r = \frac{-74}{79.1625}$$

$$r = -0.9348$$

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$$r = \frac{\frac{-444}{6}}{\sqrt{(\frac{300}{6})(\frac{752}{6}))}}$$