In-Class-12

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1. If A = ([[1,2,3], [3,4,5], [6,7,8]]), what is the X_centered array?

A =	1	2	3
	3	4	5
	6	7	8
Mean =	3.333333	4.333333	5.333333

X_centered =	-2.33333333	-2.33333333	-2.33333333
	-0.33333333	-0.33333333	-0.33333333
	2.66666667	2.66666667	2.66666667

2. If the covariance array of the X_centered array is: ([[6.33, 4.33, -3.33], [4.33, 7.23, -5.12], [-3.33, -5.12, 4.89]]):

X_centered =	6.33	4.33	-3.33
	4.33	7.23	-5.12
	-3.33	5.12	4.89

   a. What is the variance of the 1st input feature?

   6.33

   b. What is the covariance between the 1st and 2nd features?

   4.33

3. If the eigenvalues are: [4.22 0.24 0.08 0.02], What is the number of transformed features (k) required for PoV > 97%?

L1 = 4.22; L2 = 0.24; L3 = 0.08; L4 = 0.02

PoV = (L1 + L2) / (L1 + L2 + L3 + L4) = 4.46/4.56 = 97.8%

Number of transformed features k = 2