Esercizio 6

lunedì 24 maggio 2021 18:39

$X = (X_1, X_2)$

X_2 \ X_1	0	1	
0	0.12	0.28	0.4
1	0.18	0.42	0.6
	0.3	0.7	

$P(X_1 = 0) = 0.3$

$P(X_1 = 1) = 0.7$

$P(X_2 = 0) = 0.4$

$P(X_2 = 1) = 0.6$

X_1	X_2	
0	0	$0.3 \cdot 0.4 = 0.12$
0	1	$0.3 \cdot 0.6 = 0.18$
1	0	$0.7 \cdot 0.4 = 0.28$
1	1	$0.7 \cdot 0.6 = 0.42$

Media

$E(X_1) = 0.3 \cdot 0 + 0.7 \cdot 1$
$= 0.7$

$E(X_2) = 0.4 \cdot 0 + 0.6 \cdot 1$

$= 0.6$

$E(X_1^2) = 0.7 \cdot 1^2$

$= 0.7$

$E(X_2^2) = 0.6 \cdot 1^2$

$= 0.6$

$0.7 \cdot (0.7)^2$

0.21

$0.6 - (0.6)^2$

$= 0.6 - 0.36$

$= 0.24$

$= ?$

$0 \qquad 0 \qquad 0.3 \cdot 0.4 \qquad 0.12$

$P(X_1 = 1 \quad P(X_2 = 0 \; = 0.7 \cdot 0.4 = 0.28$

$P(X_1=1)\ P(X_2=0) = 0.7 \cdot 0.4 = 0.28$

$P(X_1=0)\ P(X_2= \quad = 0.3 \quad 0.6 = 0.18$

$P(X_1=1)\ P(X_2= \quad = 0.7 \quad 0.6 = 0.42$

Non sono indipendenti

$Cov = E(x_1, x_2) - [E(x_1) \cdot E(x_2)] \longrightarrow$ Misura della loro dipendenza il loro variare

$E(x_1, x_2) = \sum_{1} x_1 \cdot x_2 \cdot (x_1, x_2)$

Esercizio Blocco 3

$E(0,0) = 0 \cdot 0 \cdot 0.12 = 0$

$E(0,1) = 0 \cdot 1 \cdot 0.28 = 0$

$E(1,0) = 1 \cdot 0 \cdot 0.18 = 0$

$E(1,1) = 1 \cdot 1 \cdot 0.42 = 0.42$

$E(X_1, X_2) = 0.42 + 0 + 0 + 0$

$= 0.42$

$Cov(X_1, X_2) = 0.42 - (0.7 \cdot 0.6)$

$$= 0.42 - 0.42$$

$$= 0$$