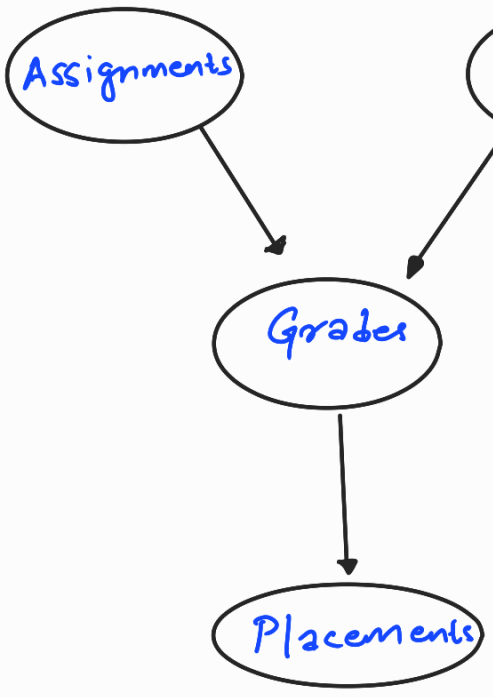
Assignment 2

Q2



	P(A)
a^0	0.6
a^1	0.4

	P(E)
e^0	0.8
e^1	0.2

A	E	P(G) g^0	P(G) g^1
a^0	e^0	0.3	0.7
a^0	e^1	0.1	0.9
a^1	e^0	0.4	0.6
a^1	e^1	0.5	0.5

$P(G=g^0 \mid A=a^1, E=e^0) = 0.3$

	P(P) p^0	P(P) p^1
g^0	0.4	0.6
g^1	0.2	0.8

Probability that inspite of not writing the exam and just submitting assignments & with a low grade, student secures a placement.

⇒ Joint probability $P(P=p^1, G=g^0, A=a^1, E=e^0) = ?$

$$P(X_1, X_2 \ldots X_n) = \prod_{i=1}^{n} P(X_i \mid \text{Parent}(X_i))$$

$$P(P=p^1, G=g^0, A=a^1, E=e^0) =$$

$$P(P=p^1 \mid G=g^0)$$

$$P(G=g^0 \mid A=a^1, E=e^0)$$

$* P(G=g^0 | \ldots$

$* P(A=a^1) *$

$P(E=e^0)$

In above equation,

$P(A=a^1) : 0.4$

$P(E=e^0) = 0.8$

$P(G=g^0 / A=a^1, E=e^0) = 0.4$

$P(P=p^1 / G=g^0) = 0.6$

$\therefore$ Final prob $: 0.4 * 0.8 * 0.4 * 0.6$

$\Rightarrow 0.0768$

$\Rightarrow 7.68\%$