Problem 6-3

$$A = \begin{pmatrix} 0 & 1 & 0 & 1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 \end{pmatrix}$$

1) degree correlation matrix

node	degrees
0,1	2,3
0,3	2,2
1,2	3,1
1,3	3,2

$$\sum_{ij} e_{ij} = 1$$

$$\sum_{j} e_{ij} = q_i$$

1) E is symmetric

$$E = C \cdot \begin{array}{c} \\ 1 \\ 2 \\ 3 \end{array} \begin{array}{c} \begin{array}{ccc} 1 & 2 & 3 \end{array} \\ \begin{pmatrix} 0 & 0 & 1/2 \\ 0 & 1 & 1 \\ 1/2 & 1 & 0 \end{pmatrix} \end{array}$$

why is this 1?

$$= 1/4 \cdot \dots$$

2) $q_u = \sum_j e_{uj}$

↳ $q_4 = 1/8$

$q_2 = 4/8 = 1/2$

$q_3 = 3/8$

3.) $r = \sum_{ju} \frac{ju\,(e_{ju} - q_j q_u)}{\sigma^2}$

$\sigma^2 = \sum_u u^2 q_u - \left(\sum_u u q_u\right)^2$

⟶ network x

$r = -0.714$