Introduction To Data Science STAT110 H24061171 葉兆穎

Homework 3(I do it all on my own.)

1.

(a) closeness; marriages ; which family is most central?

(b) friendship; someone say that he or she is his friend; Who is the most popular person in the class

(c) family tree; relationship (marriages or parents and child) ; the inherited disease

(d) family tree; relationship (marriages or parents and child) ; the inherited disease

(e) musicians & albums; albums created by which musicians; who has cooperated with other singers frequently?

(f) Genealogies ;relationship (marriages or parents and child) ; the inherited disease

2.(a)

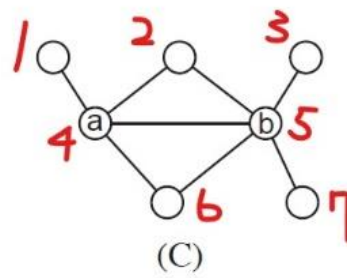| A	1	2	3	4	5
1	0	0	0	0	1
2	1	0	1	0	0
3	0	0	0	0	0
4	0	1	1	0	1
5	0	0	0	1	0

(b)

1→{5} ,2→{1,3},3→{},4→{2,3,5},5→{4}

(c)

Cube	1	2	3	4	5
1	0	1	1	0	0
2	1	0	1	0	0
3	1	1	0	1	0
4	0	0	1	0	1
5	0	0	0	1	0

dot	1	2	3	4	5	6
1	0	1	1	1	0	0
2	1	0	0	0	0	0
3	1	0	0	1	0	1
4	0	0	0	1	0	0
5	0	0	1	0	0	1
6	0	0	1	0	1	0

(d)

A	1	2	3	4	5	6	7
1	0	0	0	1	0	0	0
2	0	0	0	1	1	0	0
3	0	0	0	0	1	0	0
4	1	1	0	0	1	1	0
5	0	1	1	1	1	1	1
6	0	0	0	1	1	0	0
7	0	0	0	0	1	0	0

(C)

COSINE SIMILARITY OF A AND B

$$=(1,1,0,0,1,1,0) \cdot (0,1,1,1,1,1,1) / |(1,1,0,0,1,1,0)| |(0,1,1,1,1,1,1)| = 0.612$$