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p2822025

1

a)

C1/L1 Support (red are excluded)

A = 1

B =3/4

C = 3/4

D= 1/4

E= 2/4

F=1/4

H= 2/4

C2/L2 Support (red are excluded)

AB: 3

AC: 3

AD:1

AE: 2

AH: 2

BC: 2

BD:1

BE: 2

BH: 1

CD:1

CE: 1

CH: 1

EF:1

Bucket	Count
A	11
B	8
C	8
D	3
E	5
F	4
H	6

b)

Freq Item Sets	Support	Confidence
AB:	3	3/1
AC:	3	3/1
AE:	2	2/1
AH:	2	2/1
BC:	2	8/3
BE:	2	8/3

c)

*Item set support / (1st support * 2nd support)*

Association Rules	Lift

AB-E	3 / (1*3/4) = 12/3 = 4
AE-B	2 / (1 * 2/4) = 8/2 = 4

2

a)

S1:S2 = 0

S1:S3 = 3/4

S1:S4 = 1/7

S2:S3 = 0

S2:S4 = 3/4

S3:S4 = 0

b)

S1	S2	S3	S4	Permutation
1	2	1	2	(1,3,7,6,2,5,4)
2	1	4	1	(4,2,1,3,6,7,5)
2	1	2	1	(3,4,7,6,1,2,5)

c)

S1:S2 = 0

S1:S3 = 1/3

S1:S4 = 0

S2:S3 = 0

S2:S4 = 1

S3:S4 = 0

d)

Jacard Coefficient	Jaccard Min Hash
<mark>S1:S2 = 0</mark>	<mark>S1:S2 = 0</mark>
S1:S3 = ¾	S1:S3 = 1/3
S1:S4 = 1/7	***S1:S4 = 0***
<mark>S2:S3 = 0</mark>	<mark>S2:S3 = 0</mark>
S2:S4 = ¾	S2:S4 = 1
<mark>S3:S4 = 0</mark>	<mark>S3:S4 = 0</mark>

Every instance of the Jaccard similarity being 0 also results in a Min Hash Jaccard similarity of 0 (highlighted), but some instances of Min Hash Jaccard similarity being 0 do not result in a Jaccard similarity also being 0 (***bold italicized***)

3

a)

Node   Closeness Centrality

   (1) 4/5

1:2 = 1

1:3 = 1

1:4 = 2

1:5 = 1

   (2) 4/5

2:1 = 1

2:3 = 1

2:4 = 1

2:5 = 2

   (3) 4/6

3:1 = 1

3:2 = 1

3:4 = 2

3:5 = 2

    (4) 4/6

4:1 = 2

4:2 = 1

4:3 = 2

4:5 = 1
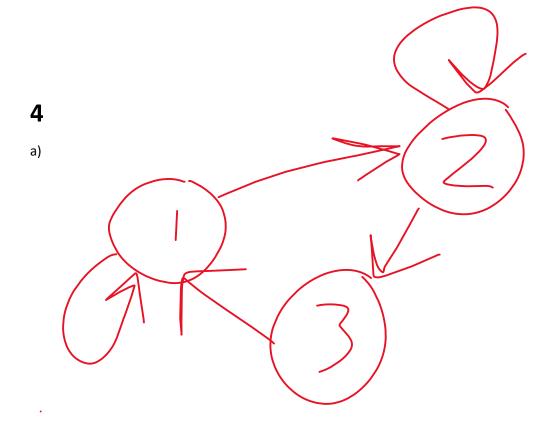

    (5) 4/6

5:1 = 1

5:2 = 2

5:3 = 2

5:4 = 1

c)

Node	Betweenness Centrality
(1)	1.5
(2)	1.5
(3)	0
(4)	0.5
(5)	0.5

3-1

3-2

3-2-4

3-1-5

1-2

1-5

1-2-4 } split

1-5-4 } split

2-4

2-4-5 } split

2-1-5 } split

4-5

d)

Node	Clustering Coefficient
(1)	1/3
(2)	1/3
(3)	1
(4)	0
(5)	0

4

a)

	1	**2**	**3**
1	½		1
2	½	½	
3		½	

b)

r1=r2

r1+r2+r3=1

5

1) Yes

2) C

3) E

4) C

5) D