2012-11598 민두기

1-(a).

angle(A,B) = acos(cos(A,B))

angle(B,C) = acos(cos(B,C))

angle(A,C) = acos(cos(A,C))

1-(b).

angle(A,B) = 0.0023094 rad

angle(B,C) = 0.0049288 rad

angle(A,C) = 0.0030518 rad

1-(c).

angle(A,B) = 0.13515 rad

angle(B,C) = 0.24892 rad

angle(A,C) = 0.13006 rad

1-(d)

angle(A,B) = 0.14256 rad

angle(B,C) = 0.24851 rad

angle(A,C) = 0.13027 rad

2-(a).

Avg(star) = 3.667

Star(A) = 0.33333

Star(B) = -1.6667

Star(C) = 1.3333

2-(b)

user = 0.3333\*A – 1.6667\*B + 1.3333\*C = [0.44667, 486.67, 3.3333]

3-(a)

sim(A,B) = 0.5

sim(B,C) = 0.5

sim(C,A) = 0.5

3-(b)

cos(A,B) = 0.667

cos(B,C) = 0.667

cos(C,A) = 0.667

3-(c)

sim(A,B) = 0.625

sim(B,C) = 0.375

sim(C,A) = 0.5

3-(d)

cos(A,B) = 0.577

cos(B,C) = 0.289

cos(C,A) = 0.5

3-(e)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | e | f | g | h |
| A | 0.667 | 1.667 |  | 1.667 | -2.333 |  | -0.333 | -1.333 |
| B |  | 0.667 | 1.667 | 0.667 | -1.333 | -0.333 | -1.333 |  |
| C | -1 |  | -2 | 0 |  | 1 | 2 | 0 |

3-(f)

cos(A,B) = 0.58431

cos(B,C) = -0.73957

cos(A,C) = -0.11547

4-(a)

There are many cluster. I choose one.

**(1, 0, 0),**

**(1, 1, 0),**

**(0, 1, 0),**

**(1, 1, 1),**

**(0, 0, 0),**

**(0, 0, 1),**

**(1, 0, 1),**

**(0, 0, 1),**

**(1, 0, 0),**

**(1, 1, 0),**

**(0, 1, 0),**

**(1, 1, 1),**

**(0, 0, 0),**

**(0, 0, 1), (0, 0, 1),**

**(1, 0, 1),**

**(1, 0, 0), (1, 1, 0),**

**(0, 1, 0),**

**(1, 1, 1),**

**(0, 0, 0),**

**(0, 0, 1), (0, 0, 1),**

**(1, 0, 1),**

**(1, 0, 0), (1, 1, 0), (0, 1, 0),**

**(1, 1, 1),**

**(0, 0, 0),**

**(0, 0, 1), (0, 0, 1),**

**(1, 0, 1),**

**(1, 0, 0), (1, 1, 0), (0, 1, 0), (1, 1, 1),**

**(0, 0, 0),**

**(0, 0, 1), (0, 0, 1),**

**(1, 0, 1),**

**Cluster1 = a,b,c,d**

**Cluster2 = e**

**Cluster3 = f,h**

**Cluster4 = g**

**4-(b)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cluster1 | Cluster2 | Cluster3 | Cluster4 |
| A | 4.667 | 1 | 2 | 3 |
| B | 3.333 | 1 | 2 | 1 |
| C | 2 | 0 | 3.5 | 5 |

4-(c)

cos(A,B) = 0.95202

cos(B,C) = 0.70261

cos(A,C) = 0.81562