**Homework – 6**

**Recitation Exercises**

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**Exercise 9.2.1**

Text, table

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**a)**

* Vector A =
* Vector B =
* Vector C =
* Cosine angle between A and B:
* Cosine angle between B and C
* Cosine angle between A and C

**b)**

For

* Cosine angle between A and B
* Cosine angle between B and C
* Cosine angle between A and C

**C)**

For

When we substitute the value of to the derived equation of a), we will get following values.

* Cosine angle between A and B
* Cosine angle between B and C
* Cosine angle between A and C

**d)**

* Cosine angle between A and B:

Same way when we substitute the value of we will get following values.

* Cosine angle between B and C
* Cosine angle between A and C

**Exercise 9.2.3**

Text

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**a)**

Average rating =

Normalised rating for A =

Normalised rating for B =

Normalised rating for C =

**b)**

Value of the Processor speed =

Value of disk size =

Value for main memory size =

**Exercise 9.3.1**

**Text

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**Diagram

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**a)**

Jaccard Distance (X,Y) =

Jaccard distance (A, B) =

Jaccard distance (B, C) =

Jaccard distance (A, C) =

**b)**

Cosine Distance (X, Y) =

Cosine Distance (A, B) =

Cosine Distance (B, C) =

Cosine Distance (A, C) =

**c)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | e | f | g | h |
| A | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| B | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| C | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |

Where,

a = the number of attributes that equal 1 for both objects X and Y

b = the number of attributes that equal 0 for objects X but equal 1 for object Y

c = the number of attributes that equal 1 for objects X but equal 0 for object Y

d = the number of attributes that equal 0 for both objects X and Y

Jaccard distance (A, B) =

Jaccard distance (B, C) =

Jaccard distance (A, C) =

**d)**

Cosine Distance (A, B) =

Cosine Distance (B, C) =

Cosine Distance (A, C) =

**e)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | e | f | g | h |
| A | 2/3 | 5/3 |  | 5/3 | -7/3 |  | -1/3 | -4/3 |
| B |  | 2/3 | 5/3 | 2/3 | -4/3 | -1/3 | -4/3 |  |
| C | -1 |  | -2 | 0 |  | 1 | 2 | 0 |

**f)**

**Exercise 9.4.1**

Text, Word

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Chart

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**a)**

**A picture containing text, clock, gauge

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The contribution to the sum of squares from the third row is

To find minimum number value of this expression we will be differentiating and equating to 0,

So, we get x=1.5

Chart

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**b)**

**Chart

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The contribution to the sum of squares from the third row is

To find minimum number value of this expression, we will be differentiating and equating to 0,

So, we get y=2.2A picture containing diagram

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