**CS 422 – Data Mining**

Homework 4

**25 April 2017**

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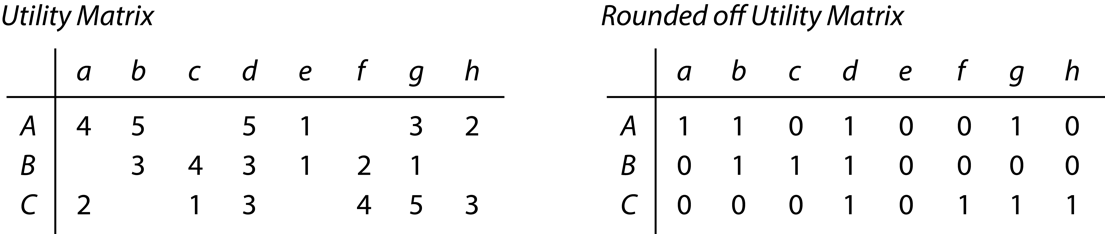
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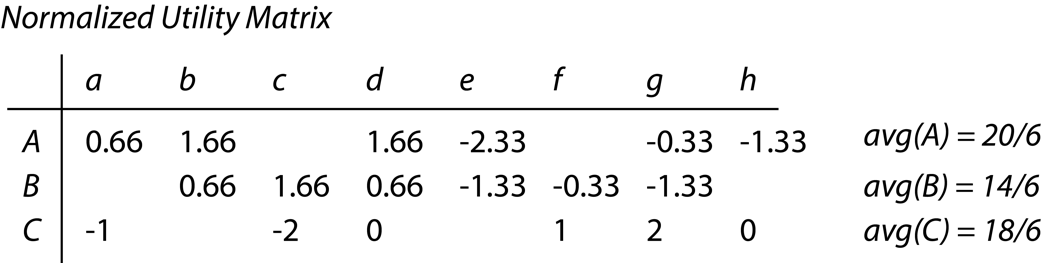
**Recitation Problems**

**Problem 9.2.1**

**Problem 9.2.3**

**Problem 9.3.1**



1. ****

**Problem 9.4.1**

From figure 9.10,

Sum of squares from the 3rd row:

To find minimum value of :

Solving for ,

Substituting ,

From figure 9.10,

Sum of squares from the 4th column:

To find minimum value of :

Solving for ,

Substituting ,

**Practicum Problems**

**Problem 2.1**

Cosine Similarity (user-200, movie-95) = 0.3875

Cosine Distance (user-200, movie-95) = 0.6125

Cosine Similarity (user-15, movie-95) = 0.2151

Cosine Distance (user-15, movie-95) = 0.7849

The system is more likely to recommend movie 95 to user 200.

**Problem 2.2**

Expected rating for the item for user 1 is 4.0