Quiz 3

DATA MINING, SPRING 2019

Name: UID:

Problem 1.(1=.5+.5 +.5+.5points.)
a. If you remove non support vector in SVM, the decision boundary will change. (yes/no) no

b. Support vectors lies closest to the decision surface.(yes/ no) yes

c. Elbow method is a better initialization method for k mean clustering.(yes/no) no

d. Is it possible that assignment of observations to clusters does not change between successive iterations in K-Means (yes/no) yes

Problem 2.(1 points)
In basic movie recommendation system given rating matrix R, we factor it to learn user matrix U and movie matrix M ie $R = UM$. We learn user factor u_i amd movie factor m_j by solving

$$argmin_{U,M} \sum_{i,j \in known} (R_{ij} - u_i^T m_j)^2$$

. Let's say we want to improve this model by accouting for user bias. Write the new objective.

$$\underset{U,M}{\text{argmin}} \sum_{i,j \in \text{known}} (R_{ij} - u_i^T m_j)^2 + \sum_i b_i^2$$

b_i is bias of user i