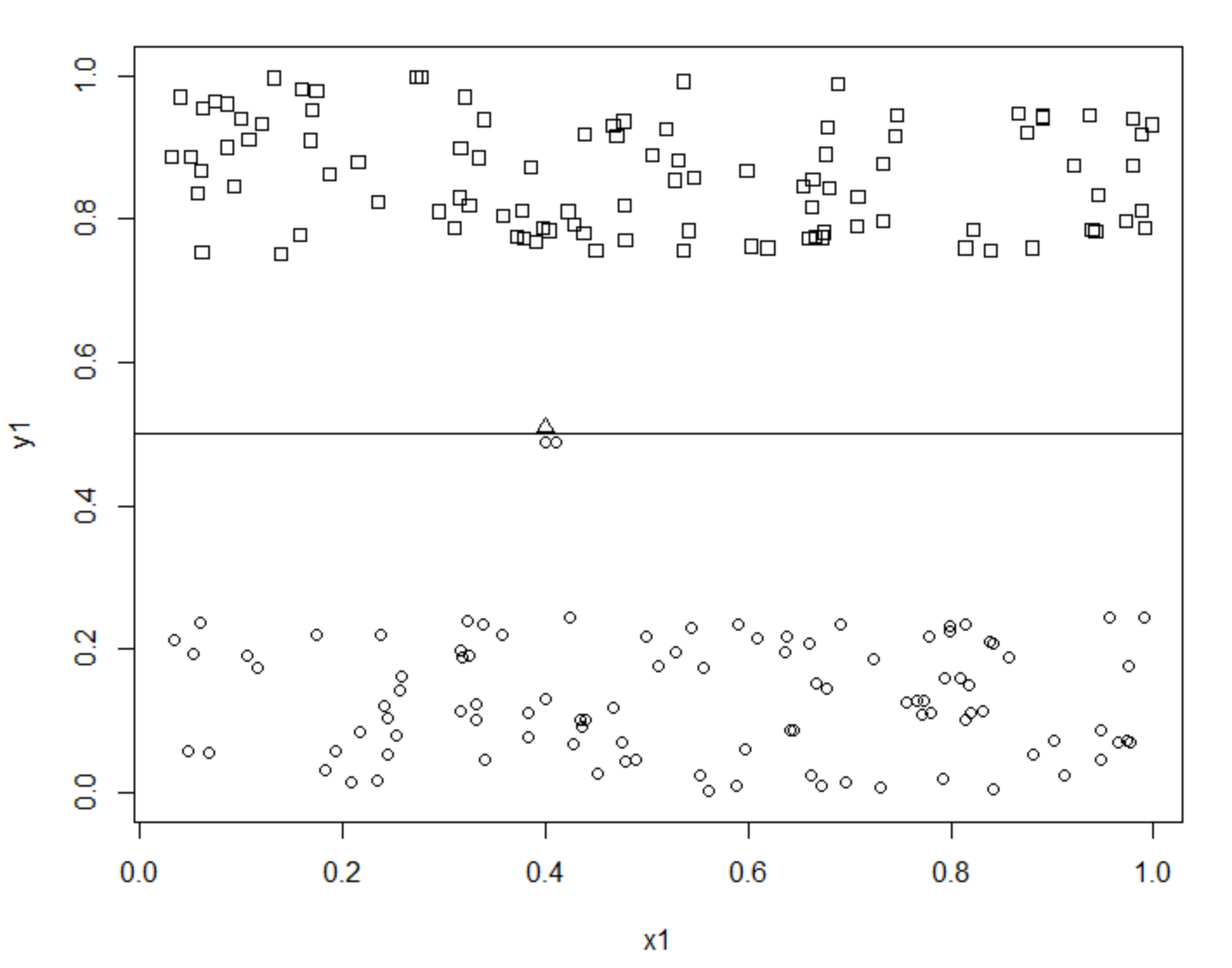
Aman Patel

CSCI-B 455

March 7, 2021

Homework 3 Part 1

1. KNN points
   1. The closest points to are:
   2. If all neighbors have the same weight, will be the classification, as it occurs the most frequently.
   3. If we use the inverse square of the distance:
      1. is the classification.
2. Case-based diagnosis
   1. Similarity between all cases and
      1. Case 1:
      2. Case 2:
      3. Case 3:
      4. Case 4:
      5. Case 5:
      6. Case 6:
      7. Case 7:
   2. Similarity between all cases and
      1. Case 1:
      2. Case 2:
      3. Case 3:
      4. Case 4:
      5. Case 5:
      6. Case 6:
      7. Case 7:
   3. Nearest neighbors and diagnosis:
      * 1. Case 2, output:
        2. Case 3, output:
3. K nearest neighbor with linear separator
   1. Mr. Fuzzy is incorrect because he does not take border cases into account. For example, see the graph below:
   2. 
   3. The triangle near the center line is above the partition and should therefore be classified as a member of the top group. However, if the k-nearest neighbors algorithm is used for , it will incorrectly be classified as a member of the bottom group.