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CS 559

Professor Wang

24 April 2022

Homework 4

Problem 1:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Point | Distance to A­1 (2,10) | Distance to B1 (5,8) | Distance to C2 (4,9) | New Assignment |
| A2 (2,5) |  |  |  | B |
| A3 (8,4) |  |  |  | B |
| C1 (1,2) |  |  |  | B |

Centroid of A: A1

Centroid of B:

Centroid of C: C2

Problem 2: In code

Problem 3:

Naïve Bayes

|  |  |  |
| --- | --- | --- |
| Feature = Value | P(Feature = Value | C0) | P(Feature = Value | C1) |
| Gender = M | 6/10 | 4/10 |
| Car Type = Family | 1/10 | 3/10 |
| Shirt Size = Large | 2/10 | 2/10 |

Classified as class C1.

Bayesian Network

|  |  |  |
| --- | --- | --- |
| Feature = Value | Given | P(Feature = Value | Given, C0) | P(Feature = Value | Given, C1) |
| Gender = M | 6/10 | 4/10 |
| Car Type = Family | Gender = M | 1/6 | 3/4 |
| Shirt Size = Large | Car Type = Family, Gender = M | 0 | 1/3 |

Neglect denominator as the term is the same for both classes.

Classified as class C1.

Problem 4: