

Problem 7: k-Nearest Neighbor Algorithm

A riding-mower manufacturer would like to find a way of classifying families in a city into those that are likely to purchase a riding mower and those who are not likely to buy one. There is a dataset includes 11 owners and 11 non-owners. The data are shown in following table:

	Observation Income (\$000's)	Lot Size (000's sq. ft.)	Owners=1, Non- owners=2
1	60	18.4	1
2	85.5	16.8	1
3	64.8	21.6	1
4	61.5	20.8	1
5	87	23.6	1
6	110.1	19.2	1
7	82.8	22.4	1
8	69	20	1
9	93	20.8	1
10	51	22	1
11	81	20	1
12	75	19.6	2
13	52.8	20.8	2
14	64.8	17.2	2
15	43.2	20.4	2
16	84	17.6	2
17	49.2	17.6	2
18	66	18.4	2
19	47.4	16.4	2
20	33	18.8	2
21	51	14	2
22	63	14.8	2

There are two new cases. Classify these new cases using k-Nearest algorithm with k=1, 3, 5. The new cases data:

Observation Income (\$000's)	108	59.4
Lot Size (000's sq. ft.)	17.6	16