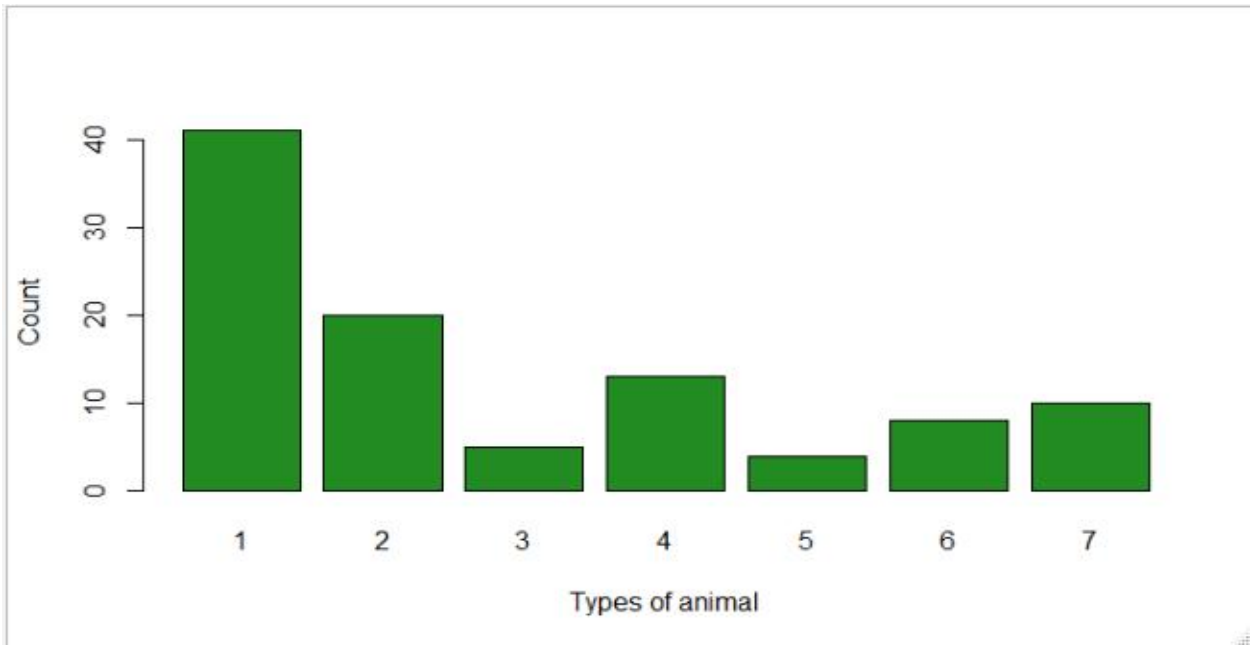
KNN

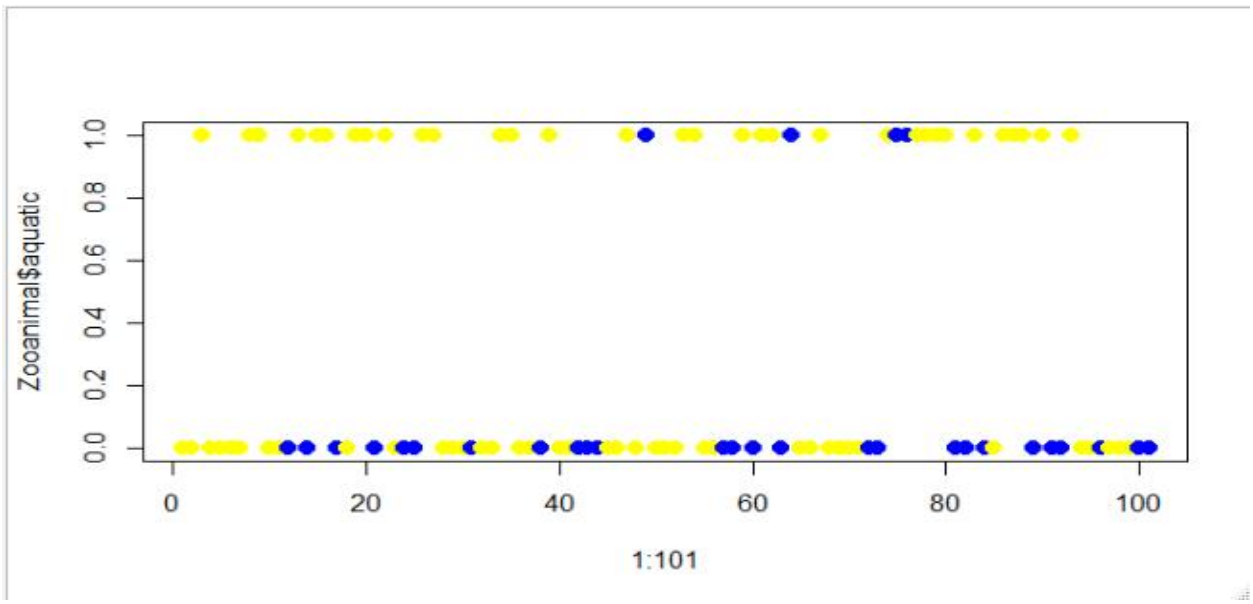
Example- Model for Zoo classification

Proportion of zoo




```
1  2  3  4  5  6  7
41 20  5 13  4  8 10
```

From the above plot, out of 7 animals type 1 is highest amongst all.



Upper blue dotted animals are Haired as well as aquatic and yellows are aquatic but not haired

Lower blue colored animals are non-haired and non-aquatic and yellows are non-aquatic but haired.

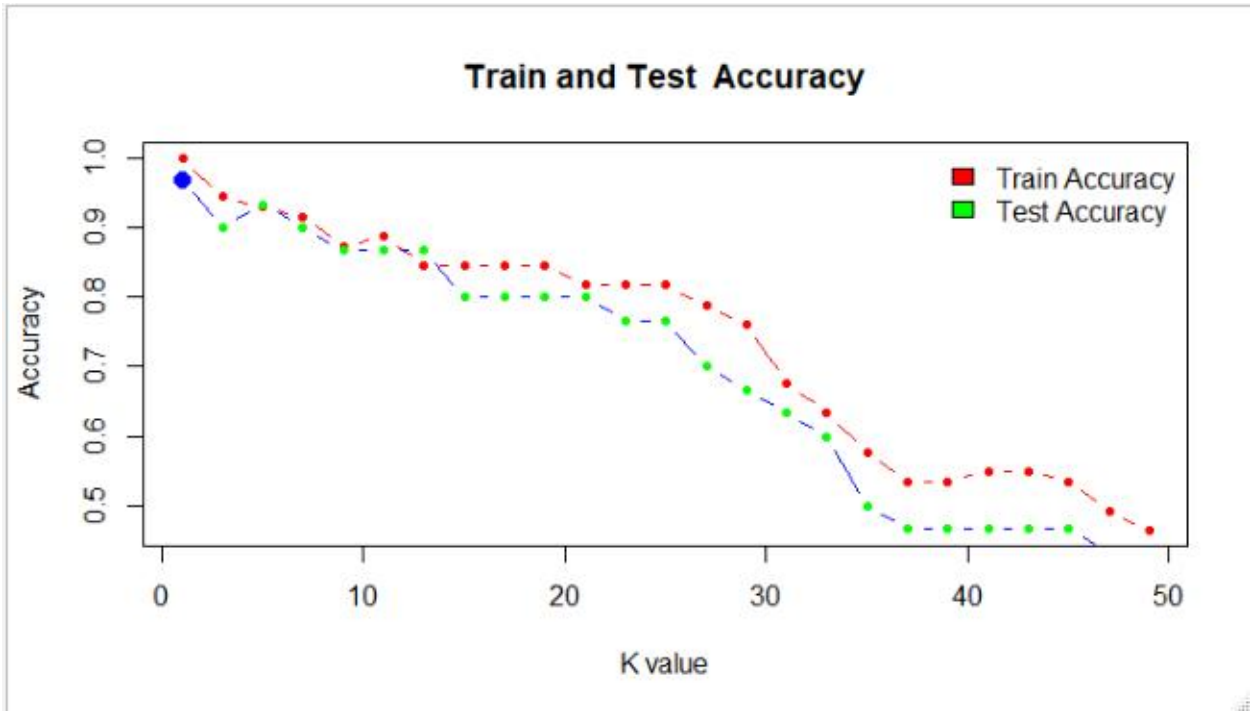
Model Prediction

Model 1 ➔ Using caret and K = 3

	1	2	3	4	5	6	7	
1	10	0	0	0	0	0	0	
2	0	7	0	0	0	0	0	
3	0	0	0	1	1	0	0	
4	0	0	0	5	0	0	0	
5	0	0	0	0	1	0	0	
6	0	0	0	0	0	3	0	
7	0	0	0	0	0	1	1	

Accuracy ➔ 0.9

Model ➔ K= All odds from 1 to 50



From the above plot , for k=1we are getting highest test accuracy .

Final Model ➔ K= 1

```
zoomodel
   1  2  3  4  5  6  7
1 10  0  0  0  0  0  0
2  0  7  0  0  0  0  0
3  0  0  2  0  0  0  0
4  0  0  0  5  0  0  0
5  0  0  0  0  1  0  0
6  0  0  0  0  0  3  0
7  0  0  1  0  0  0  1
```

Accuracy ➔ 0.9666667

From the above prediction model, k=1 is our final model with best accuracy of 96.667% and only one type of animal 7 is mis-classified as type 3.