KNearestNeighbors.R

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```
# K Nearest Neighbors for Smarket Data


library(class)
library(ISLR)

subset_condition  = (Smarket$Year < 2005 )

Smarket.2005  = Smarket[!subset_condition,]

train.X = cbind(Smarket$Lag1,Smarket$Lag2)[subset_condition,]

test.X = cbind(Smarket$Lag1,Smarket$Lag2)[!subset_condition,]

train.Direction = Smarket$Direction[subset_condition]

set.seed(1)

knn.pred = knn(train.X,test.X,train.Direction,k=1)

table(knn.pred,Smarket.2005$Direction)
```

```
##
## knn.pred Down Up
##     Down   43 58
##     Up     68 83
```

```
mean(knn.pred == Smarket.2005$Direction)
```

```
## [1] 0.5
```

```
# KNN with different values

knn_3.pred = knn(train.X,test.X,train.Direction,k=3)
mean(knn_3.pred == Smarket.2005$Direction)
```

```
## [1] 0.5357143
```

```
knn_12.pred = knn(train.X,test.X,train.Direction,k=12)
mean(knn_12.pred == Smarket.2005$Direction)
```

```
## [1] 0.5357143
```

```
knn_21.pred = knn(train.X,test.X,train.Direction,k=21)
mean(knn_21.pred == Smarket.2005$Direction)
```

```
## [1] 0.5039683
```