

Summarise Course/Methods

SIGER

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Si Dieu est infini, alors je suis une partie de Dieu sinon je serai sa limite...

Table des matières

```
print(paste("Euclidean function creation"))

## [1] "Euclidean function creation"

EuclDist = function(x, y){
  #To ascertain that we have 2 vectors of the same length.
  if (length(x)==length(y)){
    #s2 variable will be the sum of the squared difference of compoments
    s2=0
    for (i in 1:length(x)){
      s2=s2+(x[i]-y[i])^2
    }
    #s variable will be the euclidian distance
    s=sqrt(s2)
    return(s)
  }
  else{
    print(paste("Given vectors have different length"))
  }
}

print(paste("KNN function creation"))

## [1] "KNN function creation"

KNN = function(x0, M, k){
  if(length(x0)==dim(M)[1]){
    #l variable will contain all euclidean distance between x0 and
```

```

        # vectors of cbind M
        l=c()
        for(j in 1:dim(M)[2]){
            l=c(l, EuclDist(x0,M[,j]))
        }
        #names of M columns are the class
        names(l)=colnames(M)
        #nearestN contains the neighborhood of x0
        nearestN=sort(l, decreasing=TRUE)[1:k]
        #class contain the name (the class) wich is the most common name
        class=sort(table(names(nearestN)),decreasing=TRUE)[1]
        return(names(class))
    }
}

M= cbind(c(0,3,0), c(2,0,0), c(0,1,3), c(0,1,2), c(-1,0,1), c(1,1,1))
colnames(M)=c("Red", "Red", "Red", "Green", "Green", "Red")
print(paste("The result for K=1",KNN(c(0,0,0), M, 1)))

## [1] "The result for K=1 Red"

print(paste("The result for K=3",KNN(c(0,0,0), M, 3)))

## [1] "The result for K=3 Red"

```