

NumberOfClusters

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```
data <- t(read.table("C:/Users/nz1413/Desktop/dataTAC/sputum_508genes.txt",
dataScaled = scale(data)
```

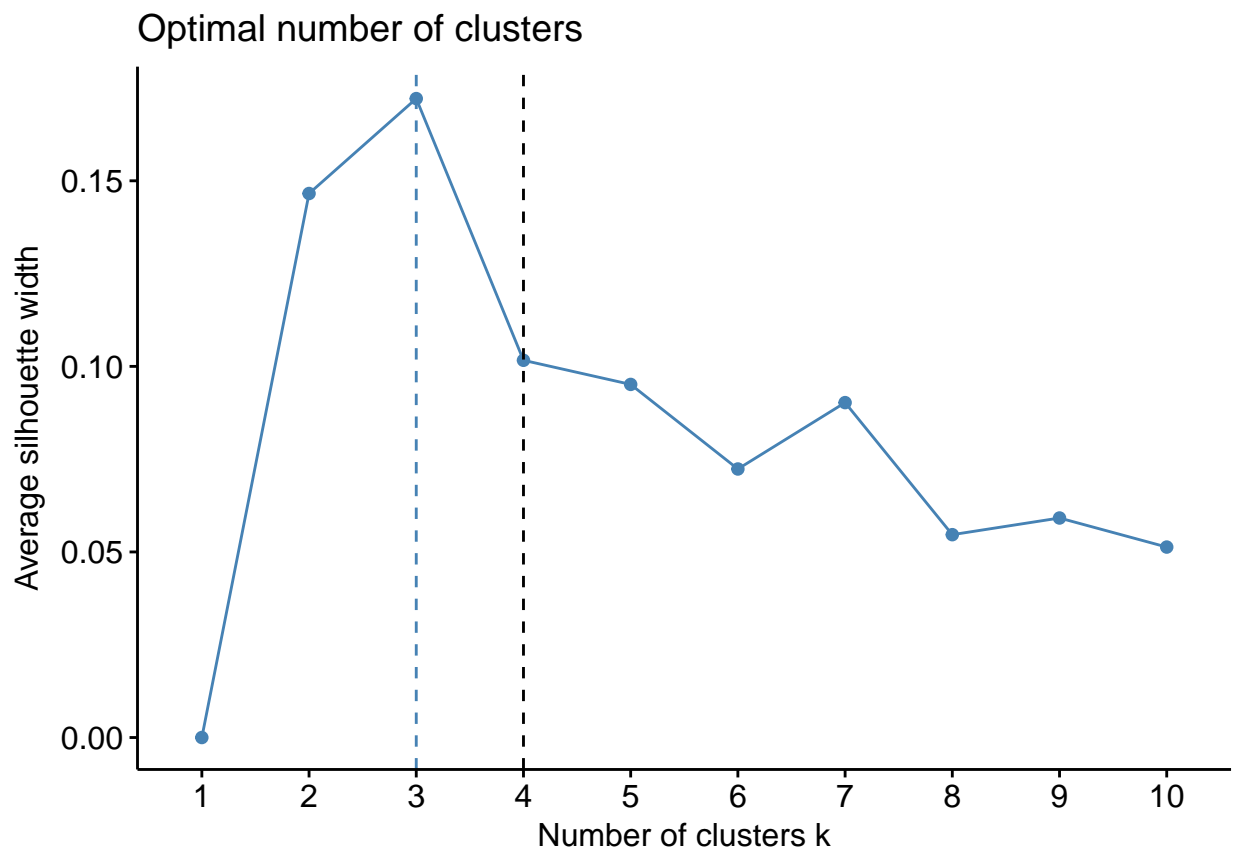
```
library(factoextra)
```

```
## Loading required package: ggplot2
```

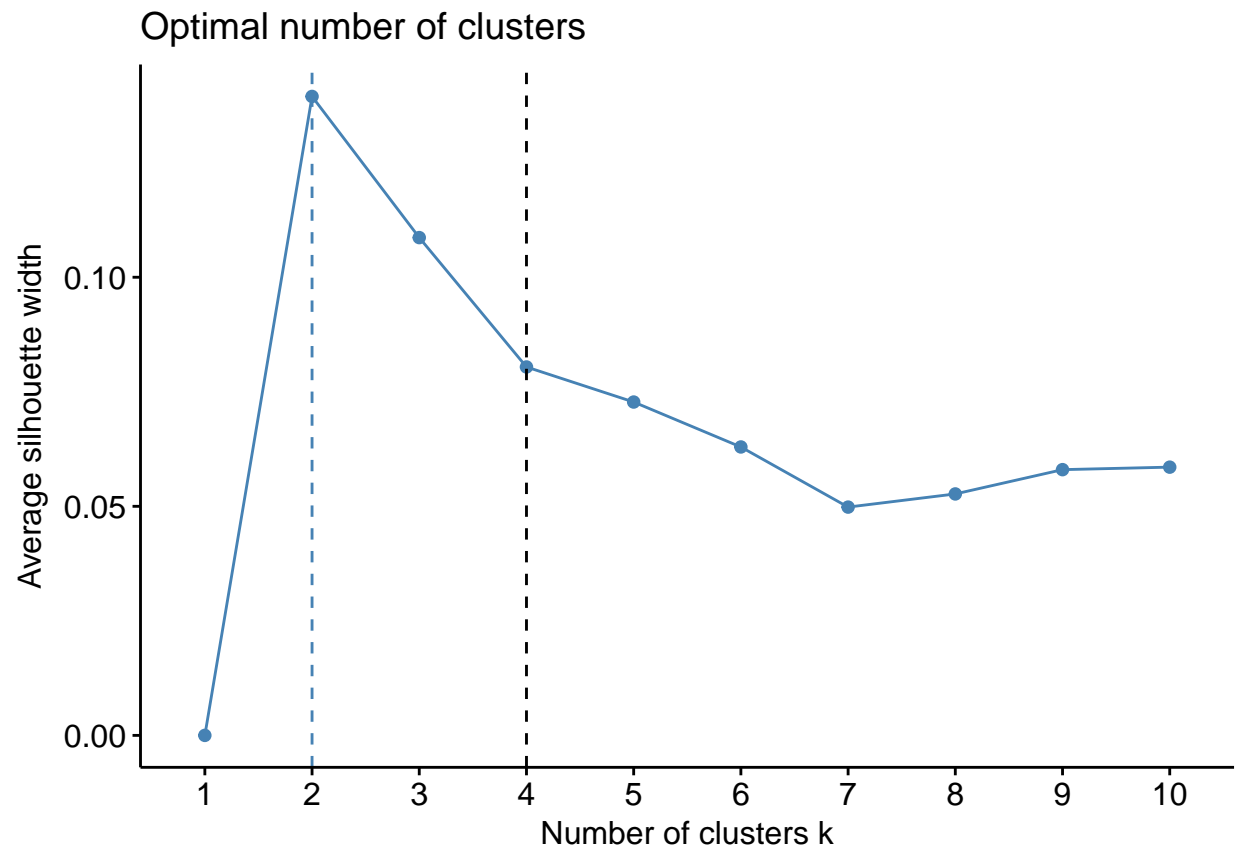
```
## Welcome! Related Books: `Practical Guide To Cluster Analysis in R` at https://goo.gl/13EFCZ
```

```
# for average silhouette width
```

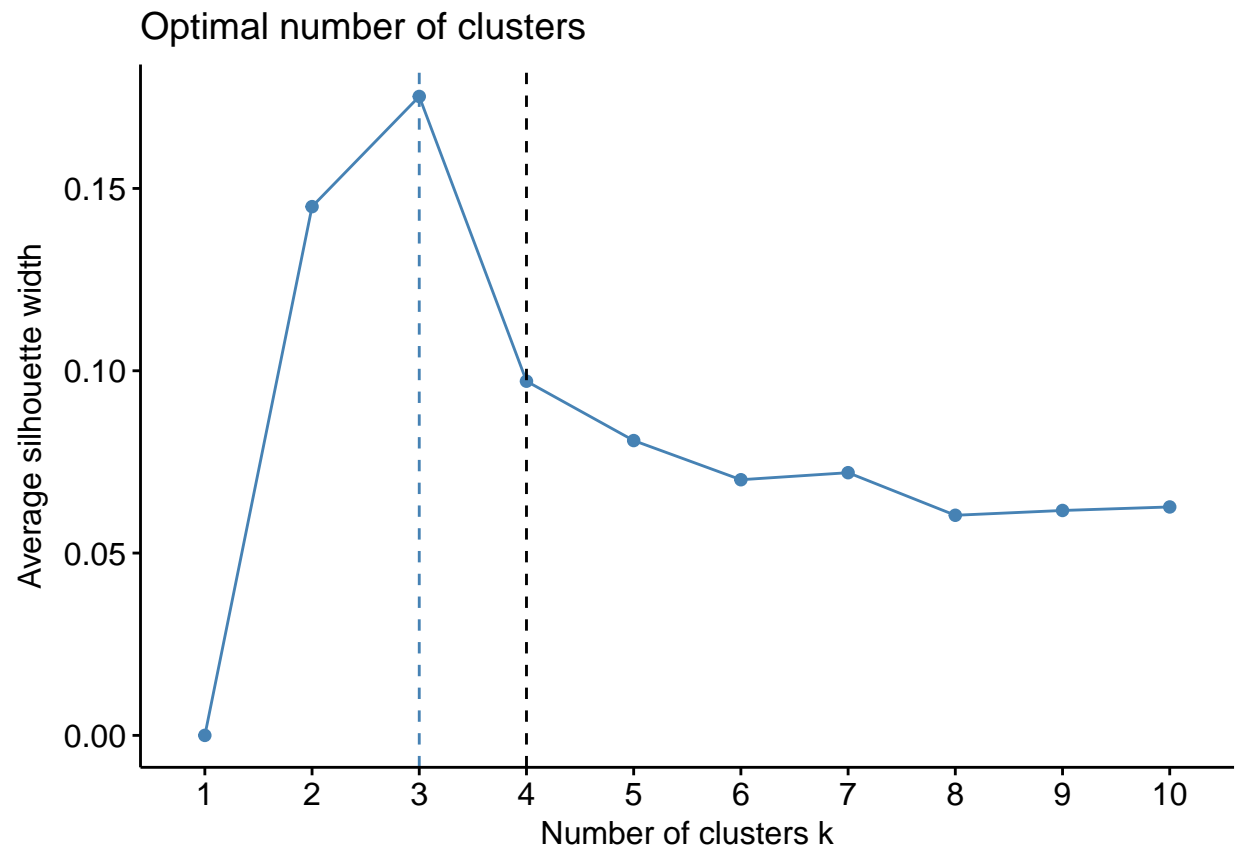
```
fviz_nbclust(dataScaled, kmeans, nstart=25, method = "silhouette")+
  geom_vline(xintercept = 4, linetype = 2)
```



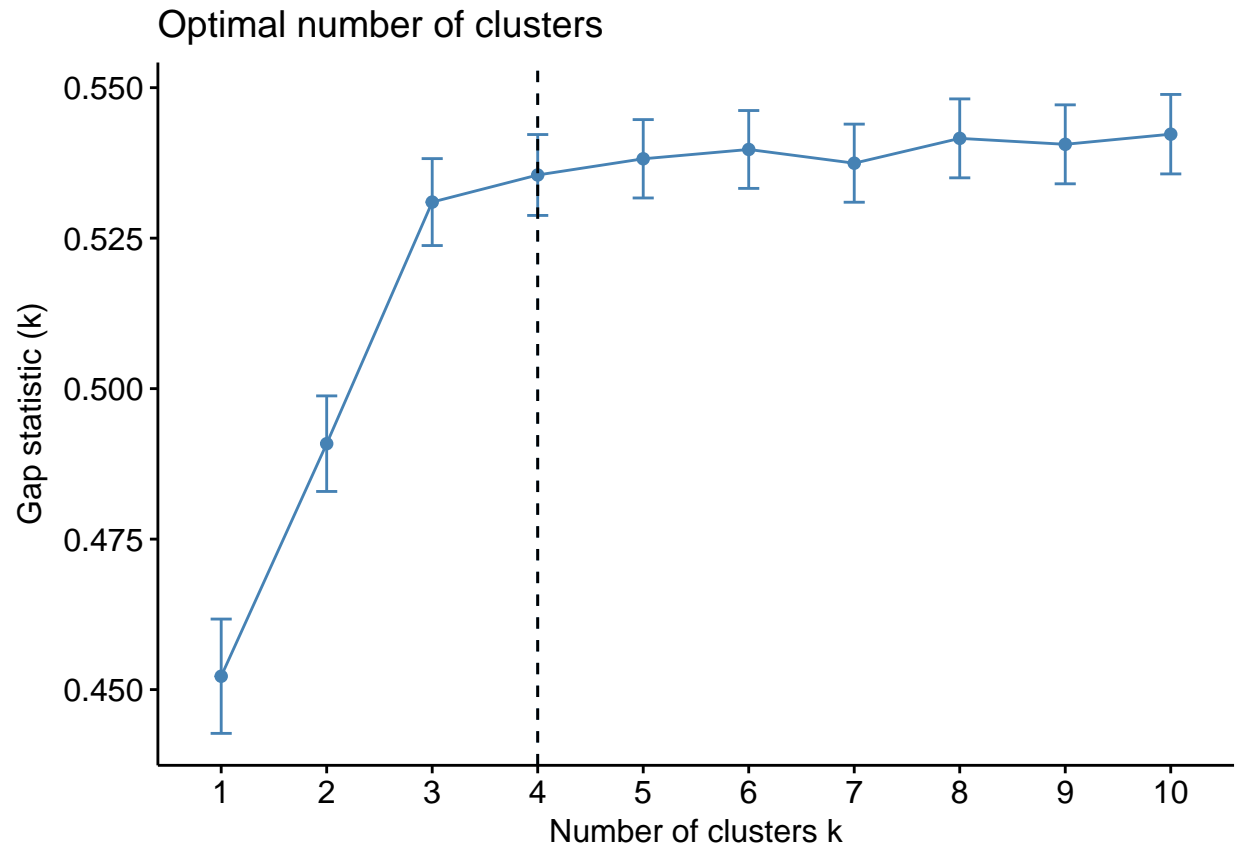
```
fviz_nbclust(dataScaled, cluster::pam, method = "silhouette")+
  geom_vline(xintercept = 4, linetype = 2)
```



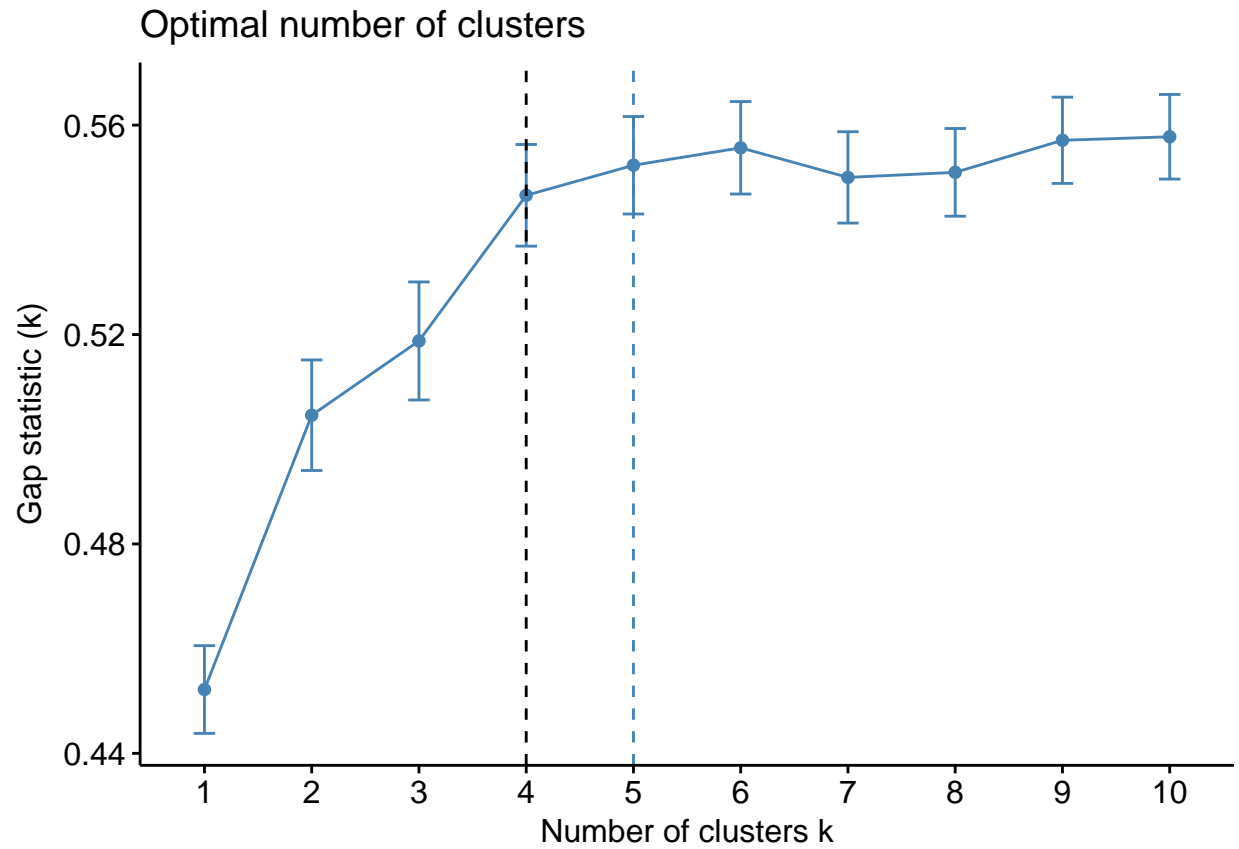
```
fviz_nbclust(dataScaled, hcut, method = "silhouette")+  
  geom_vline(xintercept = 4, linetype = 2)
```



```
# for gap statistics  
fviz_nbclust(dataScaled, kmeans, nstart=25, method = "gap_stat")+  
  geom_vline(xintercept = 4, linetype = 2)
```



```
fviz_nbclust(dataScaled, cluster::pam, method = "gap_stat")+  
  geom_vline(xintercept = 4, linetype = 2)
```



```
fviz_nbclust(dataScaled, hcut, method = "gap_stat")+  
  geom_vline(xintercept = 4, linetype = 2)
```

