

lab11_practice

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```
library(tidyverse)      # data manipulation and visualization

## -- Attaching packages ----- tidyverse 1.3.0 --
## v ggplot2 3.2.1      v purrr  0.3.3
## v tibble  2.1.3      v dplyr  0.8.4
## v tidyr   1.0.0      v stringr 1.4.0
## v readr   1.3.1      v forcats 0.4.0

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()

library(kernlab)        # SVM methodology

##
## Attaching package: 'kernlab'

## The following object is masked from 'package:purrr':
##
## cross

## The following object is masked from 'package:ggplot2':
##
## alpha

library(e1071)          # SVM methodology
library(ISLR)           # contains example data set "Khan"
library(RColorBrewer)   # customized coloring of plots

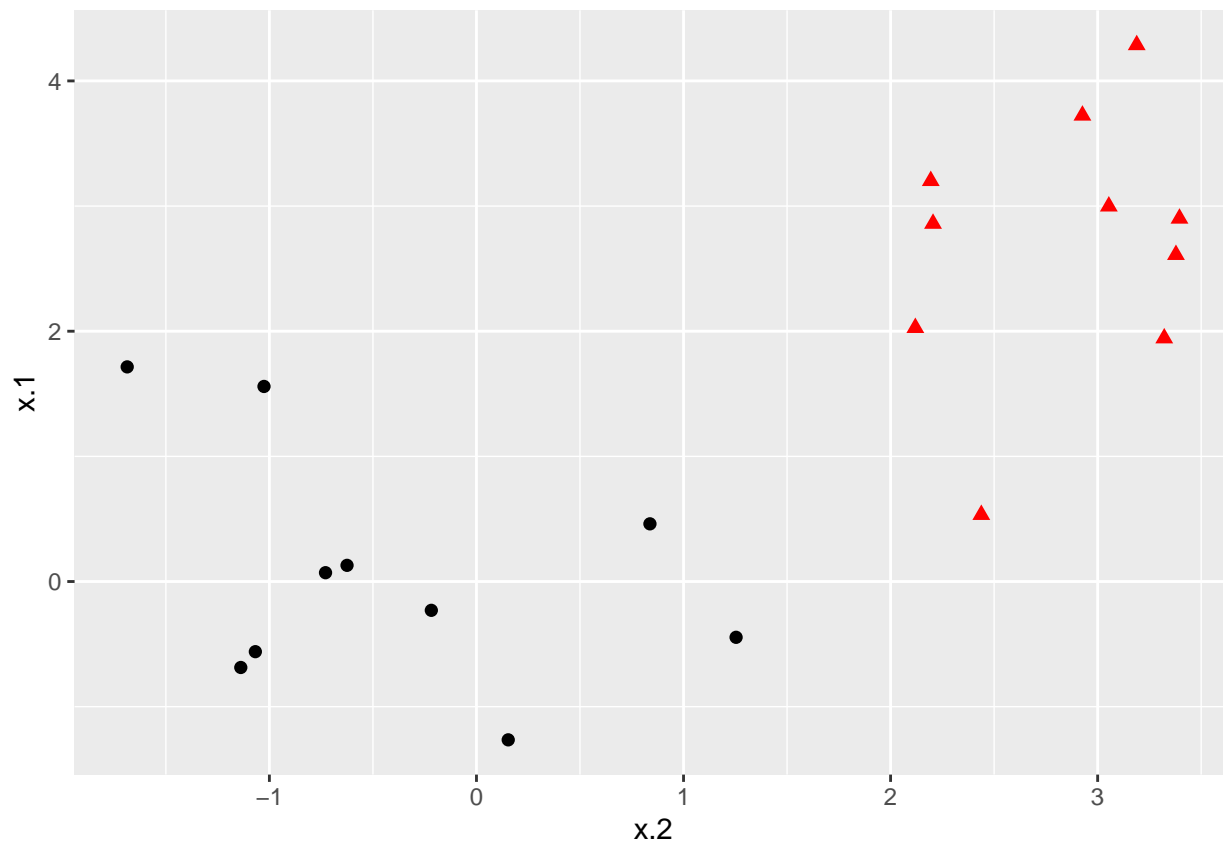
set.seed(123)

# Construct sample data set - completely separated
x <- matrix(rnorm(20*2), ncol = 2)
y <- c(rep(-1,10), rep(1,10))

x[y==1,] <- x[y==1,] + 2.5

dat <- data.frame(x=x, y=as.factor(y))

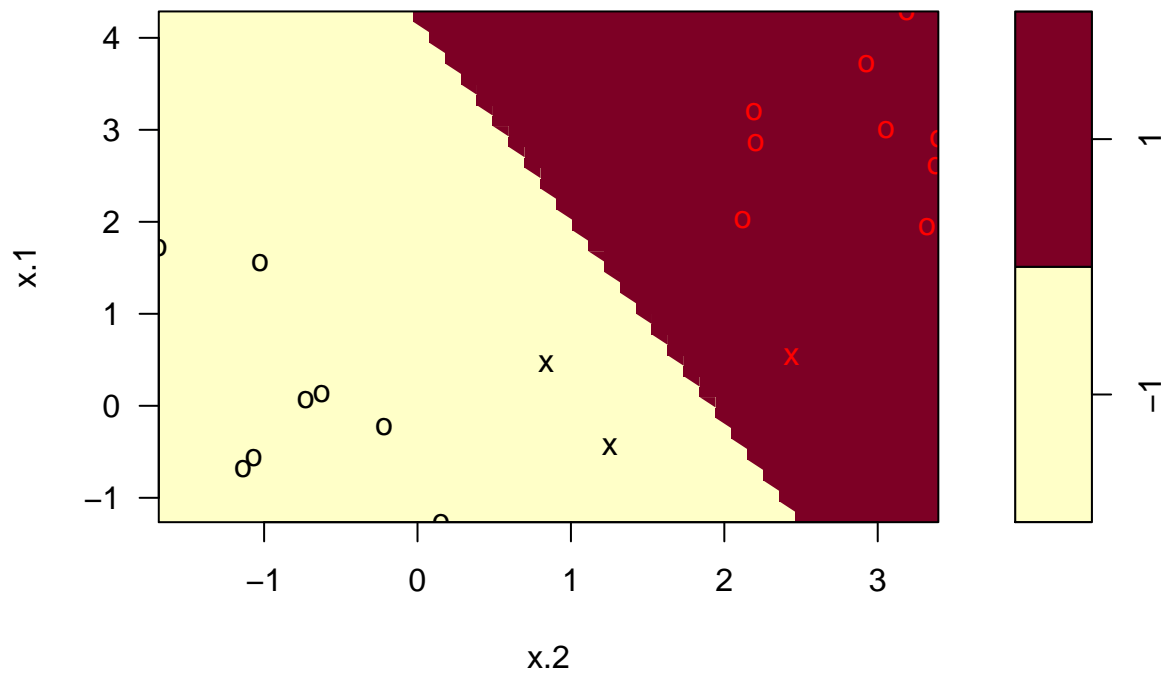
ggplot(data = dat, aes(x = x.2, y = x.1, color = y, shape = y)) +
  geom_point(size = 2) +
  scale_color_manual(values=c("#000000", "#FF0000")) +
  theme(legend.position = "none")
```



```
# Fit Support Vector Machine model to data set
svmfit1 <- svm(y~., data = dat, kernel = "linear", scale = FALSE)

# Plot Results
plot(svmfit1, dat)
```

SVM classification plot



```
# fit model and produce plot
kernfit1 <- ksvm(x, y, type = "C-svc",
  kernel = 'vanilladot')
```

```
## Setting default kernel parameters
```

```
# Plot Results
plot(kernfit1, data = x)
```

SVM classification plot

