

# Assignment 3

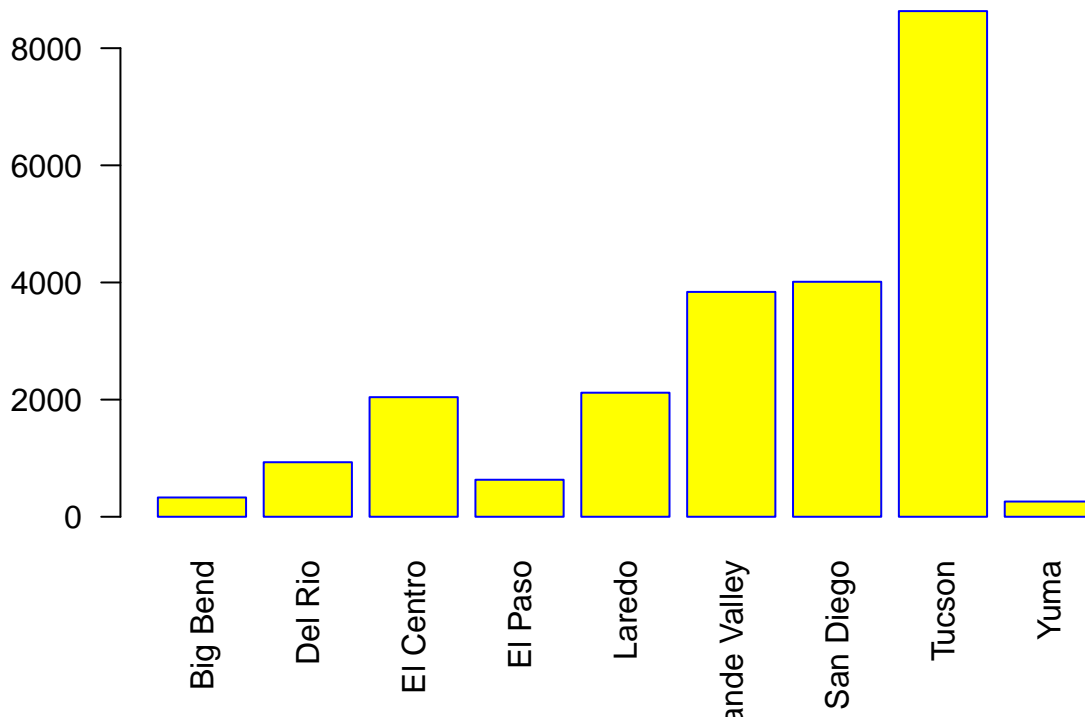
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*February 7, 2018*

```
## Reading in Data
BP2010 <- read.csv("BP Apprehensions 2010.csv", header = TRUE, stringsAsFactors = FALSE)
PB2017 <- read.csv("PB Apprehensions 2017.csv", header = TRUE, stringsAsFactors = TRUE)
PBmonthly <- read.csv("monthly_sum.csv", header = TRUE, stringsAsFactors = TRUE)
rownames(PBmonthly) <- PBmonthly[,1]

## Displaying Data By Sector
rownames(BP2010) <- BP2010[,1]
x <- barplot(BP2010[1:9,13], names.arg = rownames(BP2010)[1:9],
             las=2,
             axisnames=TRUE,
             main="2010 Border Patrol Apprehensions by Sector",
             border="blue",
             col="yellow")
```

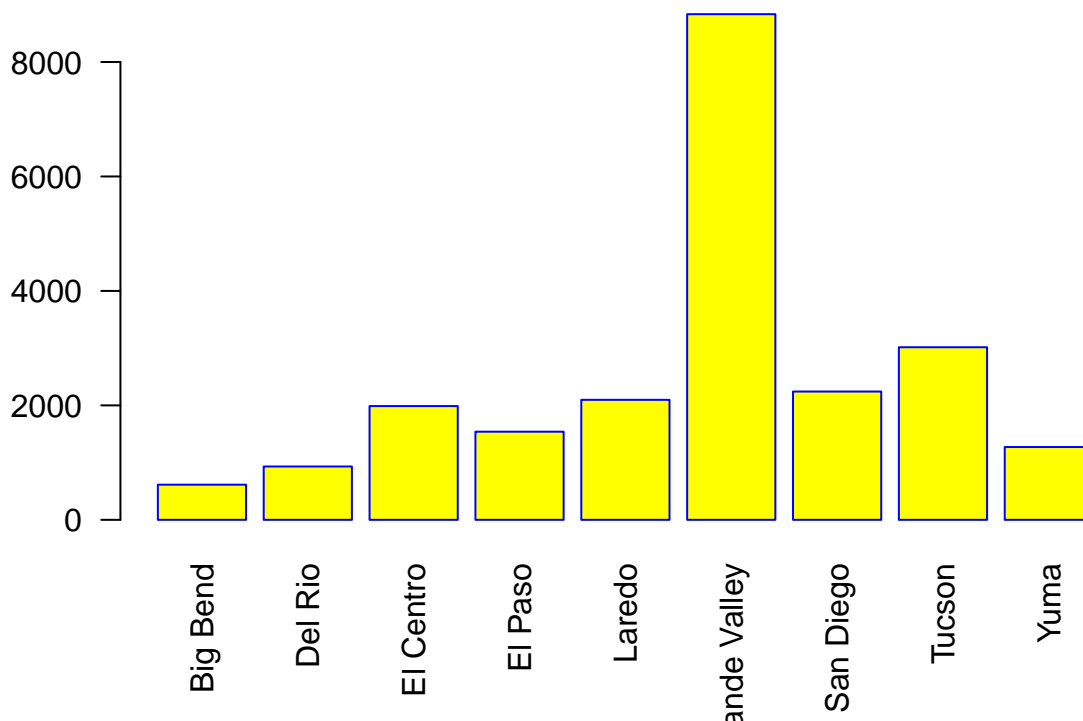
**2010 Border Patrol Apprehensions by Sector**



```
rownames(PB2017) <- PB2017[,1]
barplot(PB2017[1:9,13], names.arg = rownames(PB2017)[1:9],
       las=2,
       axisnames=TRUE,
```

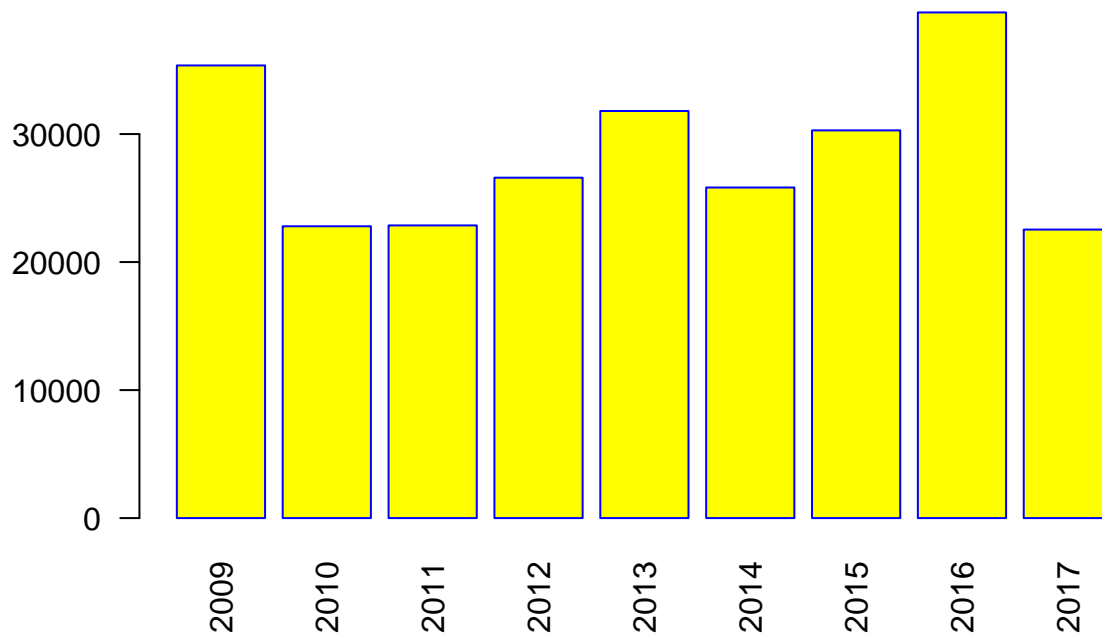
```
main="2017 Border Patrol Apprehensions by Sector",
border="blue",
col="yellow")
```

## 2017 Border Patrol Apprehensions by Sector



```
##Display Data By Year
barplot(rev(PBmonthly[1:9,13]), names.arg = rev(rownames(PBmonthly)[1:9]),
        las=2,
        axisnames=TRUE,
        main="Border Patrol Apprehensions by Year",
        border="blue",
        col="yellow")
```

## Border Patrol Apprehensions by Year



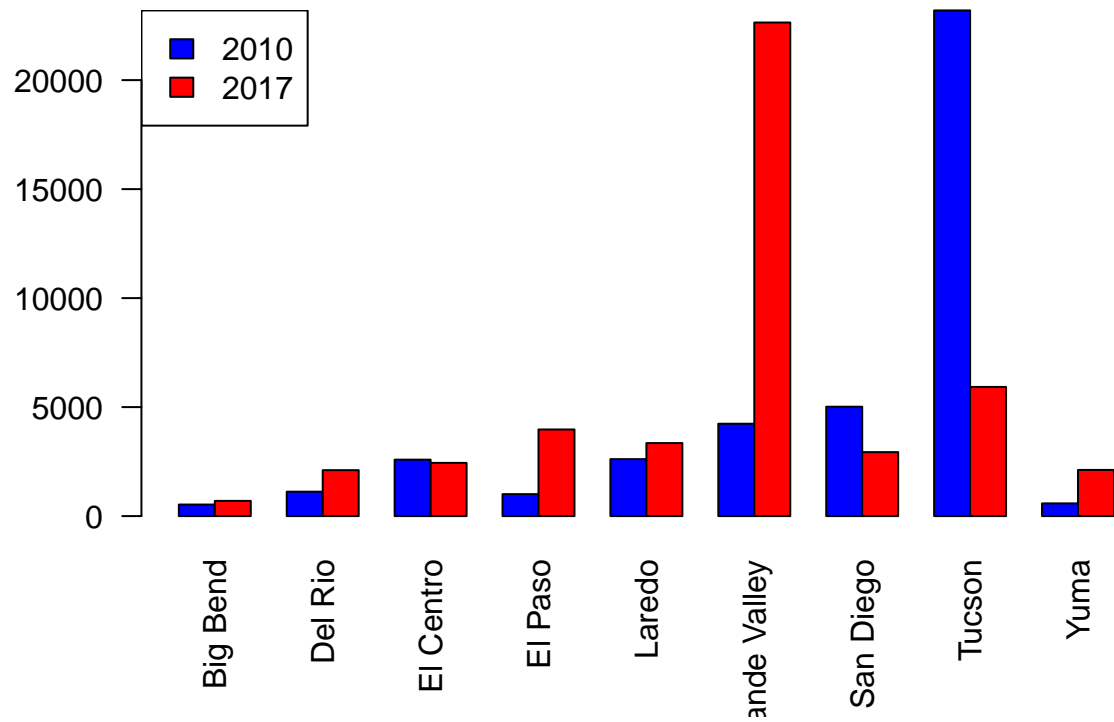
```
## T-test for Tucson in 2010 and Rio Grande Valley in 2017
t2010 <- t(BP2010)
t2017 <- t(PB2017)

## Creates a 2 x 9 matrix from the 2010 data and 2017 for specified month
sideBySideMatrix <- function(month){
  matrix(c(BP2010[1:9,month], PB2017[1:9,month]), nrow = 2, byrow = TRUE)
}

## Creates the barplot for a given month
sideBySideBarPlot <- function(month, monthString){
  barplot(sideBySideMatrix(month), names.arg = rownames(BP2010),
    las=2,
    axisnames=TRUE,
    beside=TRUE,
    col=c("blue", "red"),
    main = paste("2010 vs 2017 Border Patrol Apprehensions in", monthString, sep=" "))
  legend("topleft",
    c("2010", "2017"),
    fill = c("blue", "red"))
}

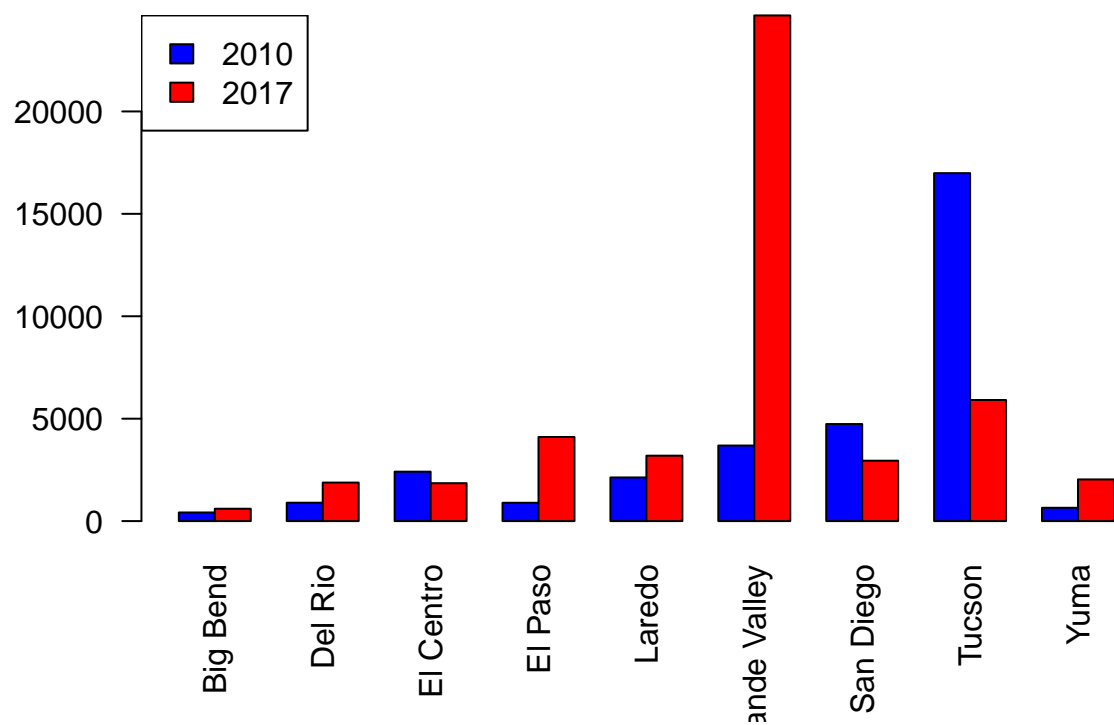
## Creates the side by side bar plots for each month
sideBySideBarPlot(2, "October")
```

## 2010 vs 2017 Border Patrol Apprehensions in October



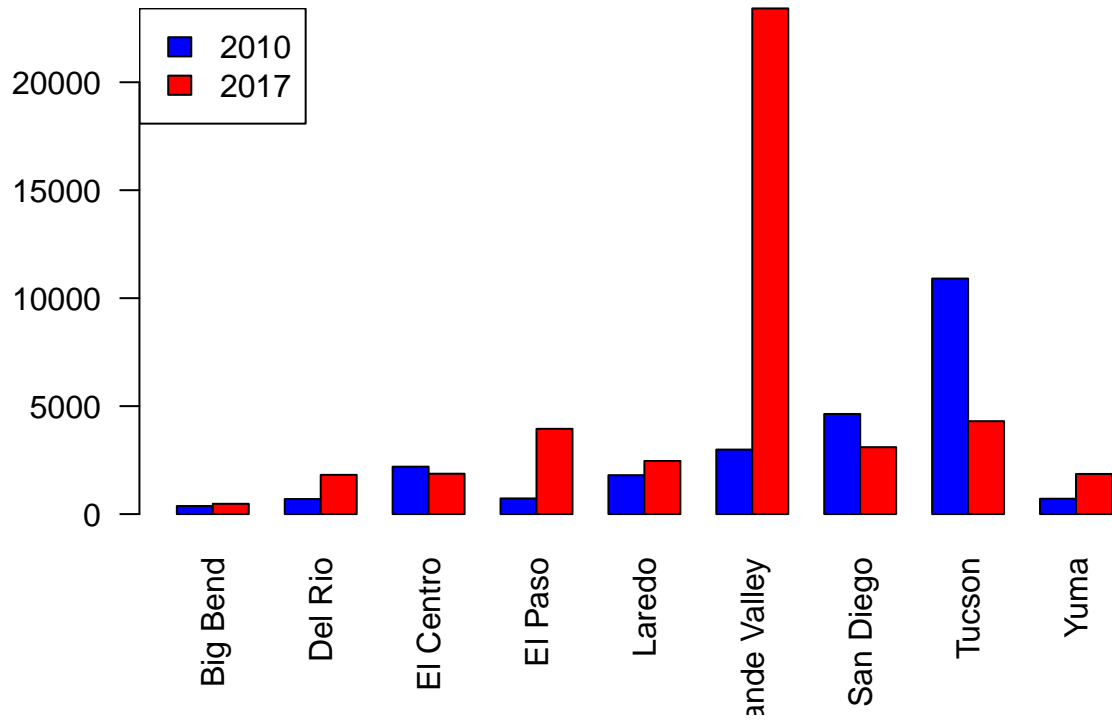
```
sideBySideBarPlot(3, "November")
```

## 2010 vs 2017 Border Patrol Apprehensions in November



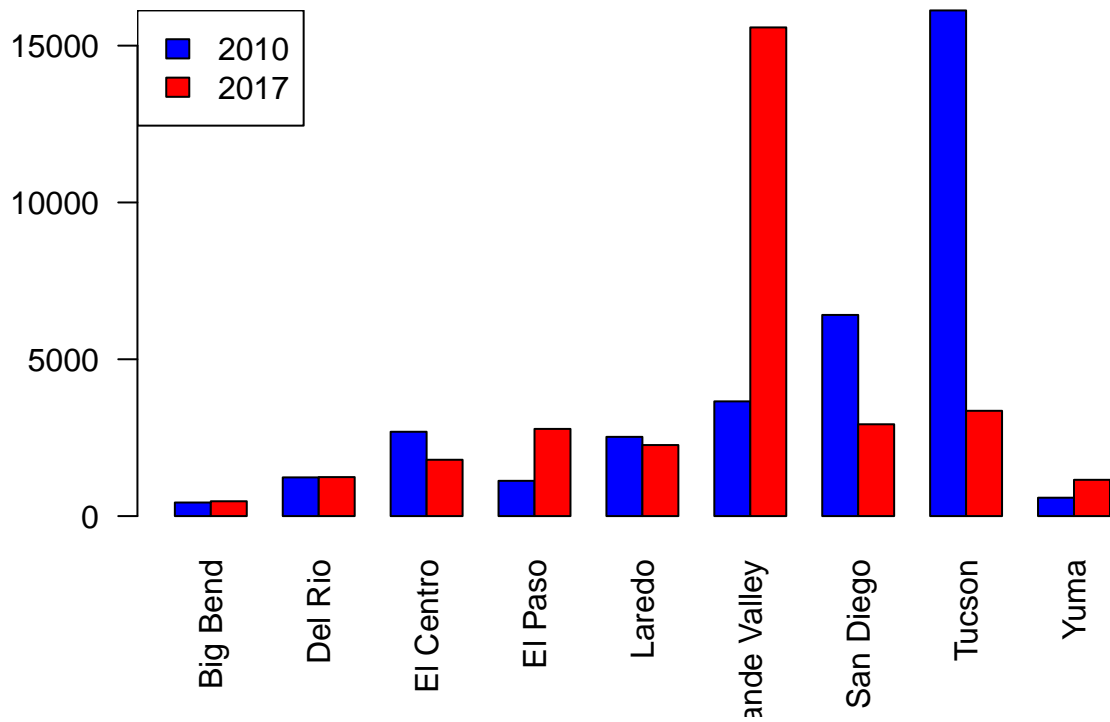
```
sideBySideBarPlot(4, "December")
```

## 2010 vs 2017 Border Patrol Apprehensions in December



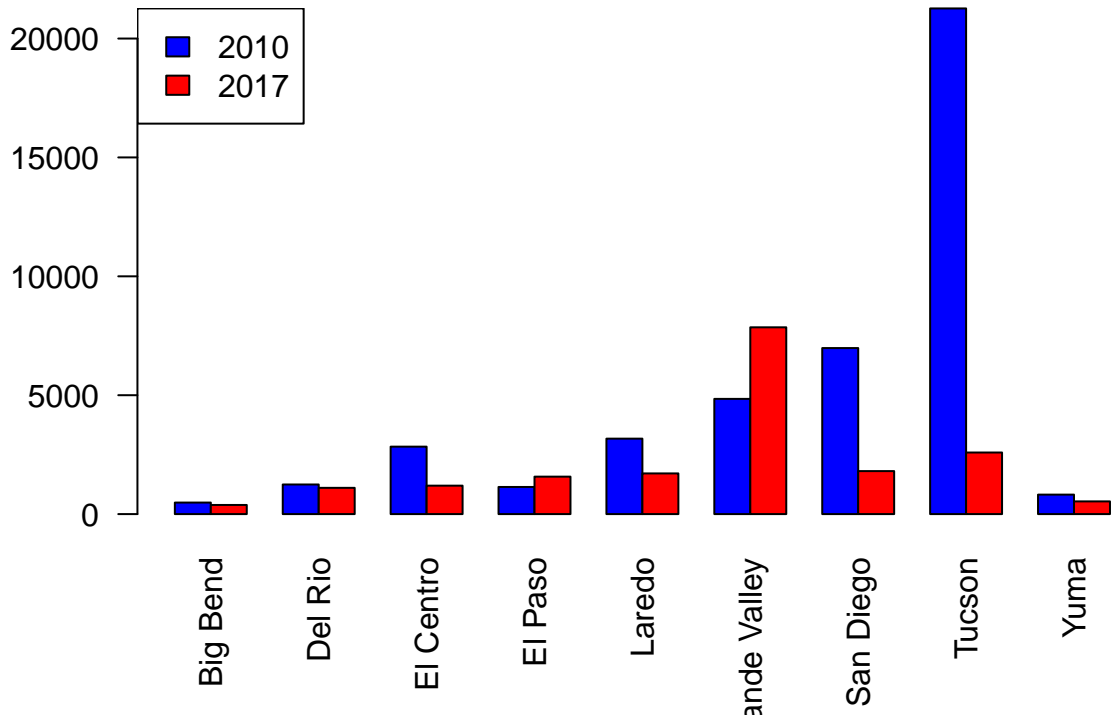
```
sideBySideBarPlot(5, "January")
```

## 2010 vs 2017 Border Patrol Apprehensions in January



```
sideBySideBarPlot(6, "February")
```

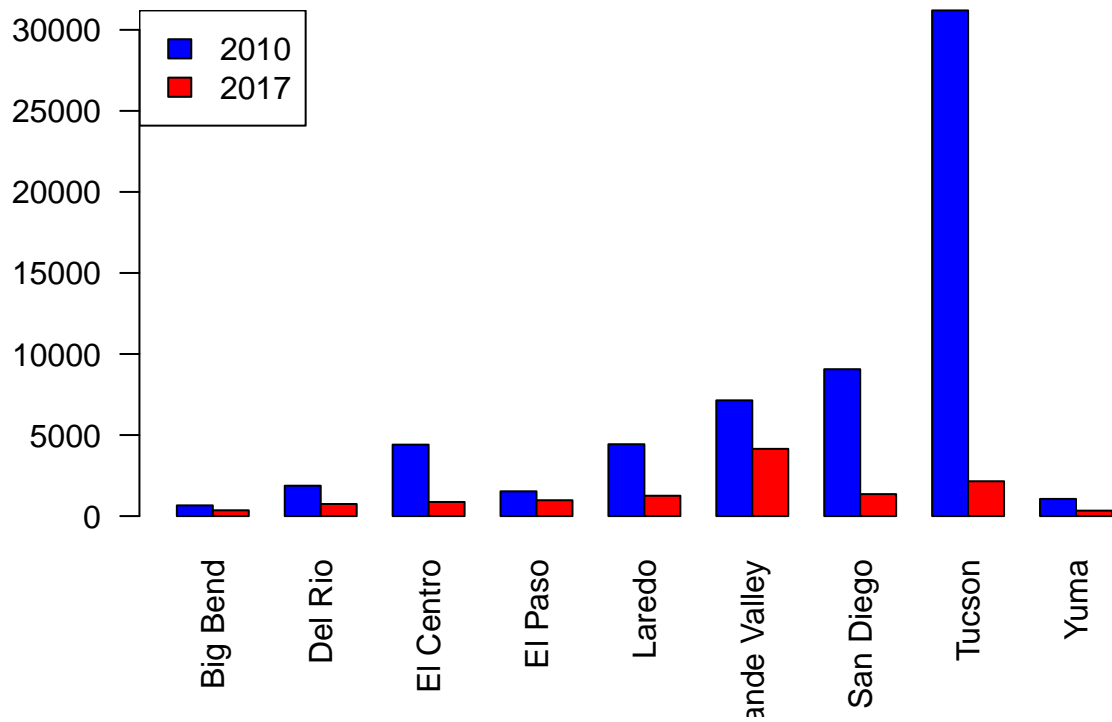
## 2010 vs 2017 Border Patrol Apprehensions in February



```
sideBySideBarPlot(7, "March")
```

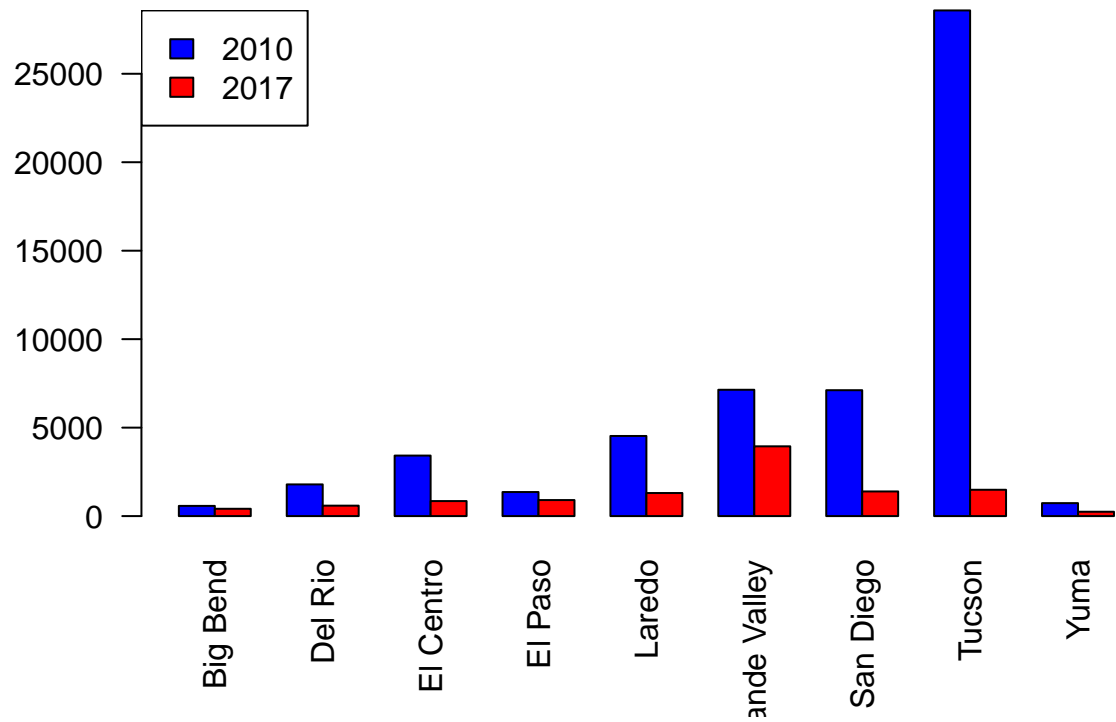


## 2010 vs 2017 Border Patrol Apprehensions in March



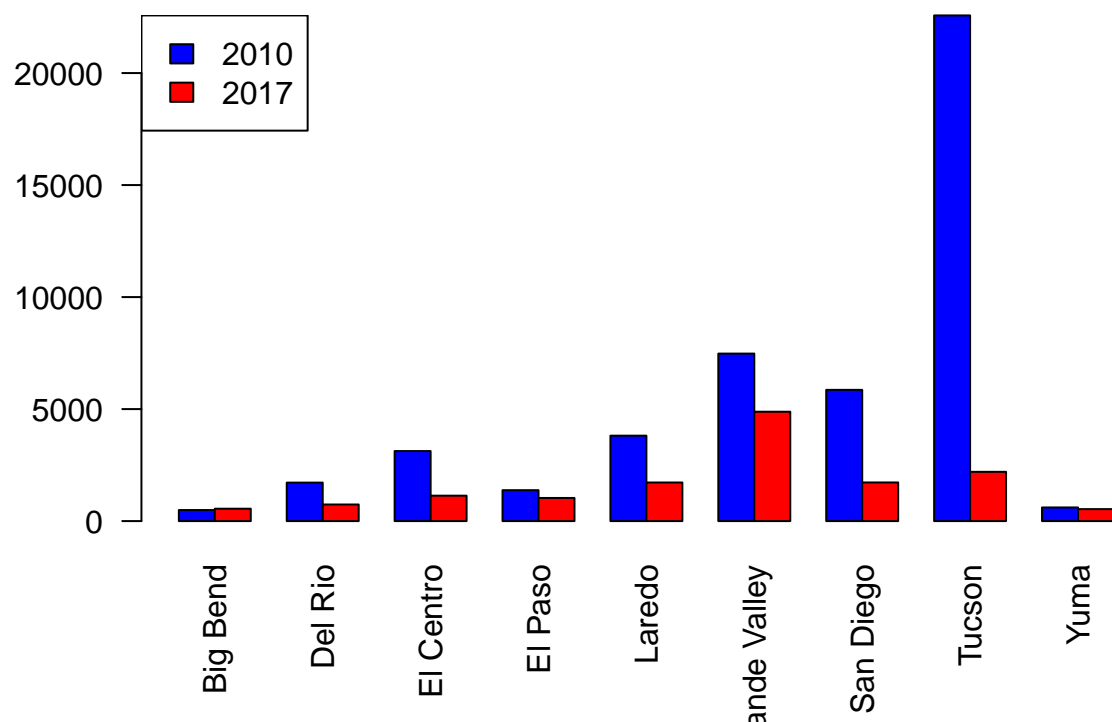
```
sideBySideBarPlot(8, "April")
```

## 2010 vs 2017 Border Patrol Apprehensions in April



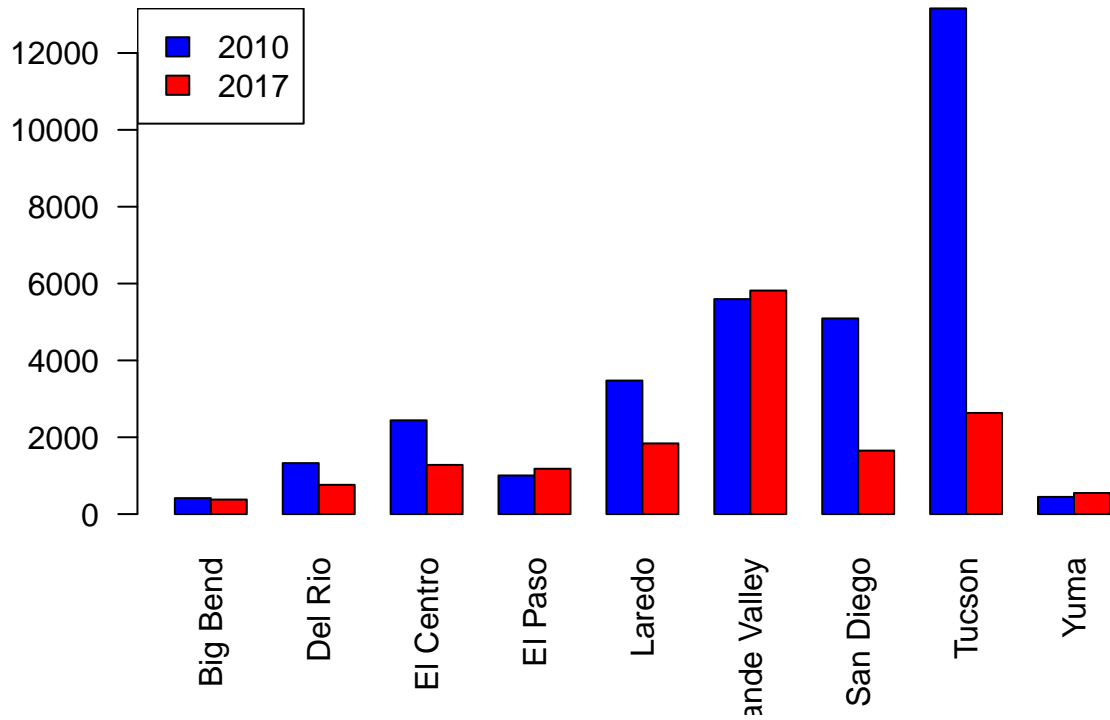
```
sideBySideBarPlot(9, "May")
```

## 2010 vs 2017 Border Patrol Apprehensions in May



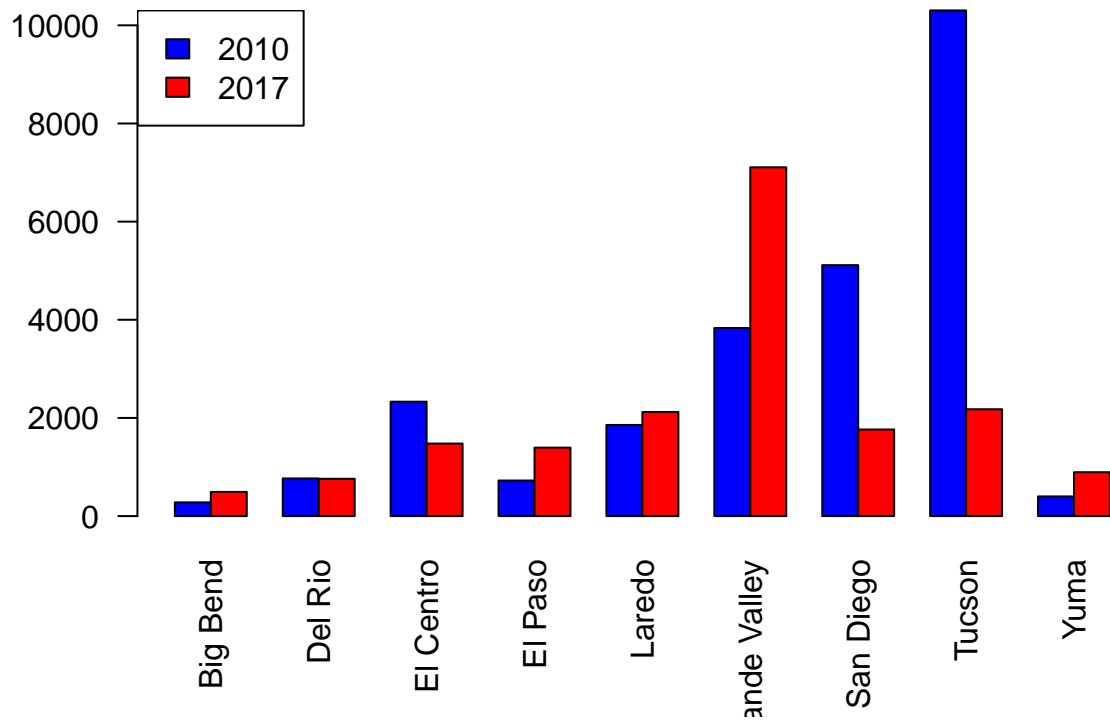
```
sideBySideBarPlot(10, "June")
```

## 2010 vs 2017 Border Patrol Apprehensions in June



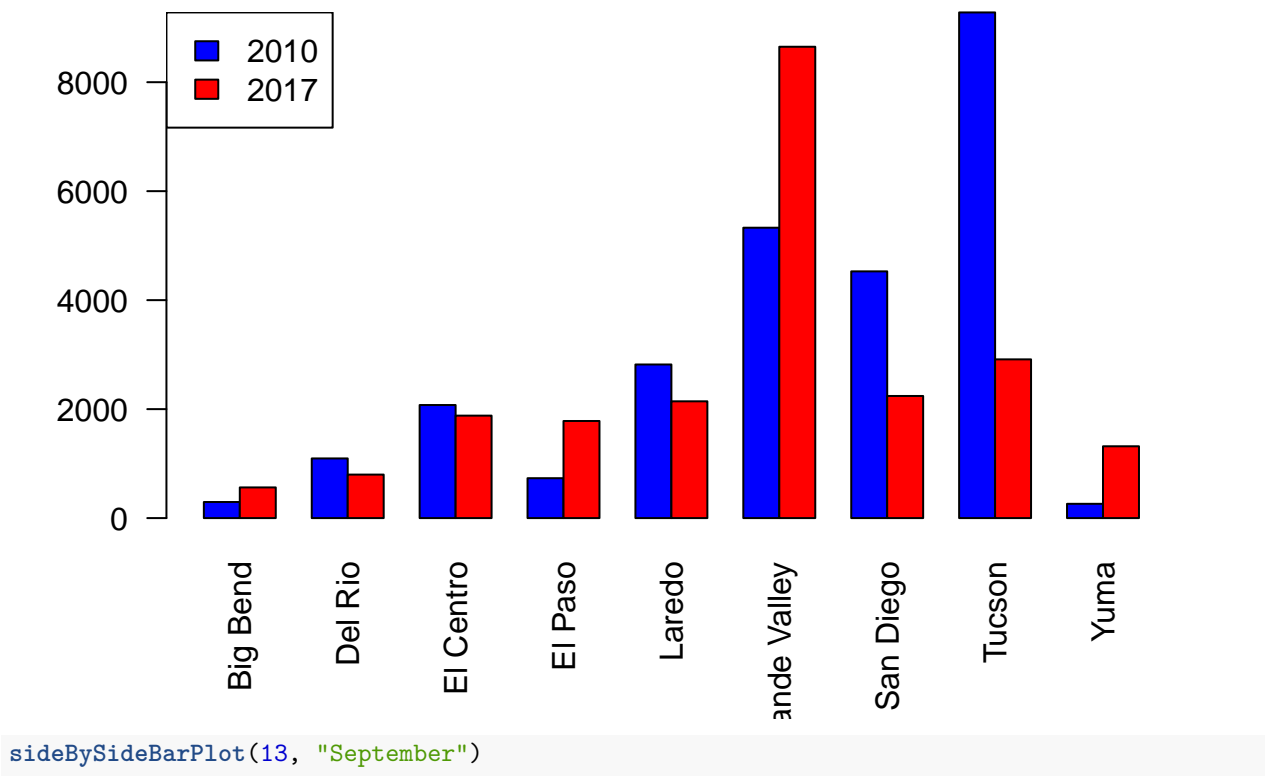
```
sideBySideBarPlot(11, "July")
```

## 2010 vs 2017 Border Patrol Apprehensions in July

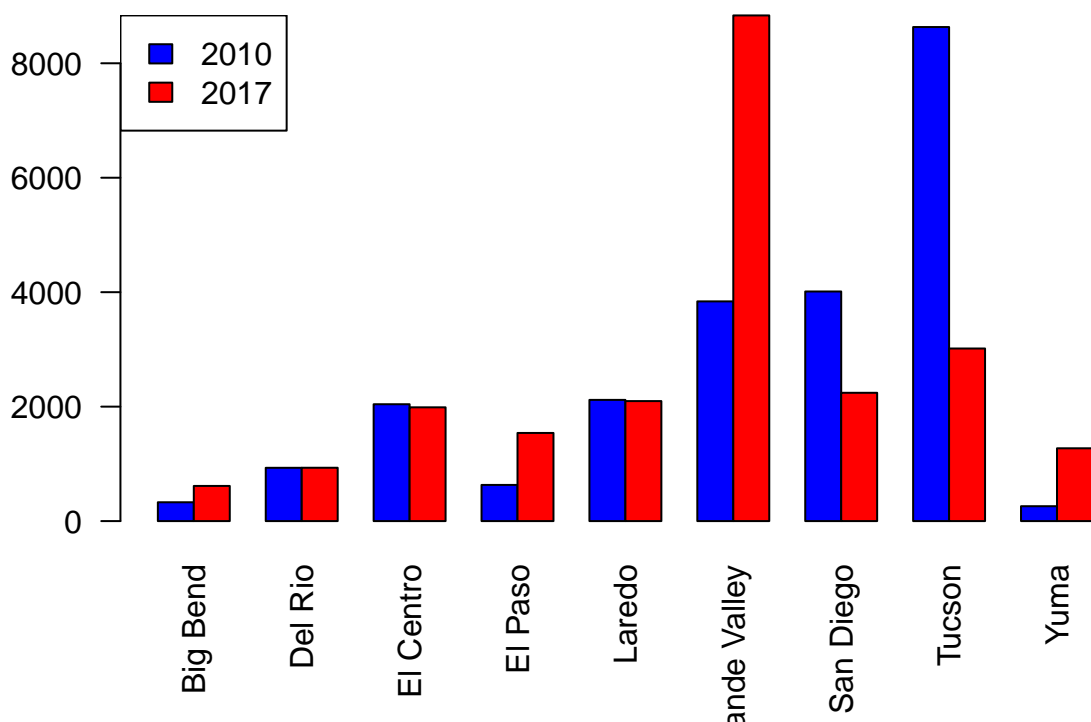


```
sideBySideBarPlot(12, "August")
```

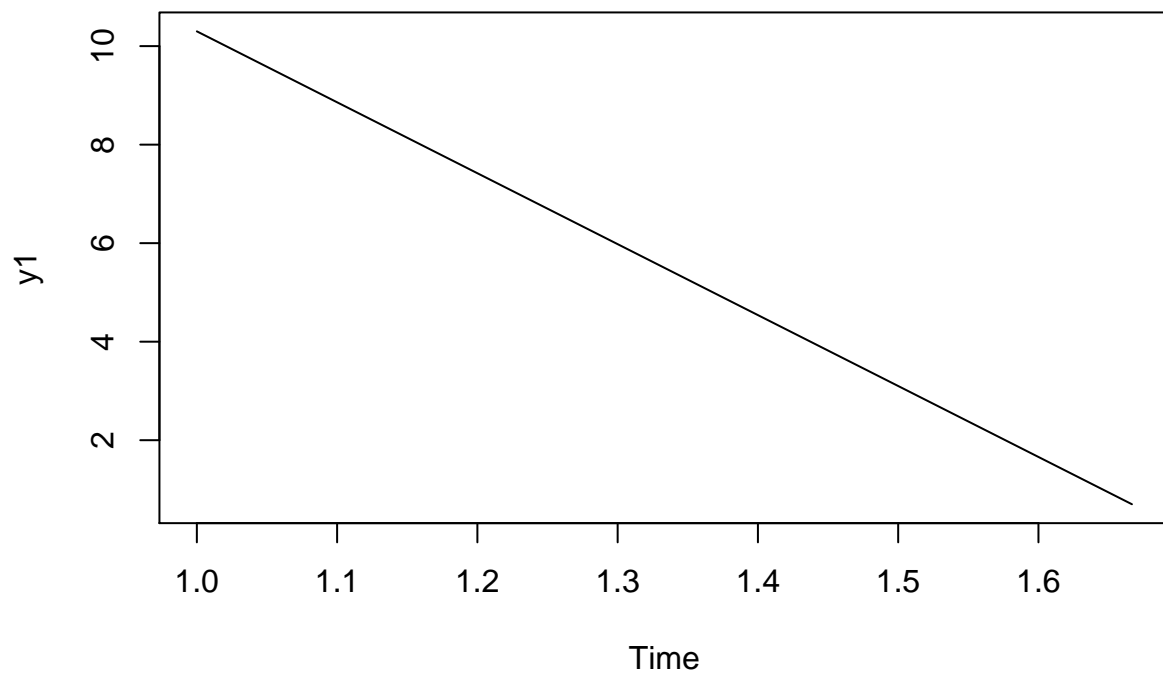
2010 vs 2017 Border Patrol Apprehensions in August



## 2010 vs 2017 Border Patrol Apprehensions in September



```
x1 <- data.frame(sideBySideMatrix(2))
x1 <- cbind(data.frame(matrix = c(2010, 2017), nrow = 2, byrow = TRUE), x1)
x1 <- as.factor(t(x))
y1 <- ts(rev(x), start = 1, frequency = 12)
ts.plot(y1)
```



```
x <- as.vector(t(PBmonthly))
y <- ts(rev(x), start = c(2000, 10), frequency = 12)
ts.plot(y, gpars=list(xlab="year", ylab="Apprehensions", lty=c(1:3)))
```



