Assignment 11.15: Game of Craps

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Craps is a game found at casino's around the world. The game's wild popularity is the ability that everyone is cheering for each other, instead of competing with one another. The rules are rather simple. Don't roll a 2,3, or 12 on the first roll. If you can, roll a 7 or 11 on the first roll. If neither of these five happen at first, continue to roll until another 7 is rolled.

Let's simulate 1000 turns of Craps to determine the probability of winning on any given hand.

```
games <- NULL
N<-1000
counter<-rep(0,N)


for (t in 1:N) {
  comeOut <-sample(1:6,1)+sample(1:6,1)
  roll<-0
  if(comeOut %in% c(2,3,12)){
    result <- 0
    counter[t]<-1


  } else if ( comeOut %in% c(7,11)) {
    result<-1
    counter[t]<-1
  }else{
      counter[t]<-1
      roll<-0
      while(!(roll %in% c(7,comeOut))){
        roll<-sample(1:6,1) + sample(1:6,1)
        counter[t]<-counter[t]+1

      if(roll== 7){
        result <- 0
      }

      else{
        result<-1
```

```
      }



    }


  }
  games[t]<- result
  games
  gtable<-table(games)
  gtable
  probtowin<-gtable[1]/N
  probtowin
}


gtable
```

```
## games
##   0   1
## 497 503
```

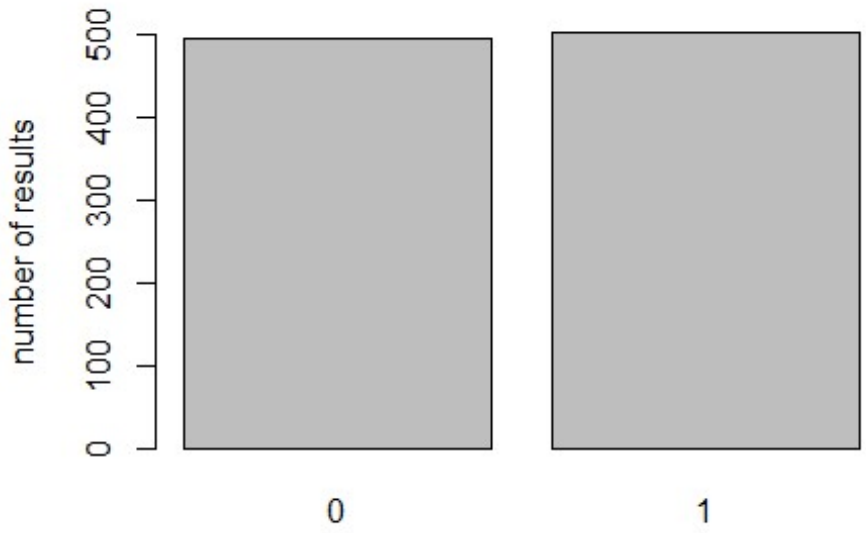
```
probtowin
```

```
##     0
## 0.497
```

```
barplot(gtable, ylab="number of results")
```

```
  0   1
```

```
496 504
```




```
mean(counter)
```

```
## [1] 3.321
```

On any given roll, you have slightly below a 50% chance of success. On average, the typical roll turn consists of 3.321 rolls.