

```
#total try
numTotalTrials = 10000
#each cases
count = 0
count2 = 0
count3 = 0

for (j in seq(from= 1, to = numTotalTrials, by=1))
{
  h= sample(c(-1,1), size=50, replace=TRUE)
  if(sum(h) == 0)
  {
    count = count+1
  }

  count2[j] = sum(h == 1)
  # lead = (median(numTotalTrials))
  cum.h= cumsum(h)
  #maximum fortune (best fortune)
  count3[j] = max(cum.h)
}
#plot
plot(h, type = "l", ylim = c(-1,1))

#probability of breaking even.
print(count/numTotalTrials)

#Peter will be in the lead if he win higher than 25 times in a 50-toss game
print(sum(count2>25) /numTotalTrials)

#average => mean
print(mean(count3))
```

Problem 1

What is the probability that Peter will break even after 50 tosses?

The probability that Peter will break even after 50 tosses is about 0.11

Problem 2

On average, in a 50 toss game, for what fraction of the time will Peter be in the lead?

On average, the fraction of the time that Peter will be in the lead is about 0.45

Problem 3

On average, what will Peter's best fortune be during a 50 toss game?

On average, Peter's best fortune will be about 5.07 during a 50 toss game.

