Part B

**#Birthday problem**

K is a sequence, length(K) is how many numbers are in this sequence(in this case is 13)

for (i in 1:length(K)) { #set an uncertainty i, ranges from 1 to length(K)

n = 1

prod=1 #set the initial value of n and prod

while (n<K[i]) { #start loop until n = K[i] (eg, K1, K2, K3 …)

prod=prod\*(1-n/365) # prod is the probability that each people has different birthday

n=n+1   
 }

p[i]=1-prod #the probability that at least 2 people have the same birthday

}

The reason why we need 2 lopps is because that the prod changes as the n changes. When we need people in the group have different birthdays, it seems like you are choosing n balls from 365 balls without put it back. You took one this time, at the next time, you have to choose from the rest of the balls.

**#Stock prices**

The daily return is the change rate of a stock in one day,

Thus R = (the stock price of today – the stock price of yesterday)/the stock price of yesterday

for (t in 2:n) { #t means the day

d\_msft[t]=msft[t]-msft[t-1] #d\_msft[t] means the difference of the Microsoft’s stock price between the day and yesterday

r\_msft[t]=d\_msft[t]/msft[t-1] # r\_msft[t] means the daily return of the Microsoft’s stock

d\_ge[t]=ge[t]-ge[t-1] # r\_msft[t] means the difference of the GE Company’s stock price between the day and yesterday

r\_ge[t]=d\_ge[t]/ge[t-1] # r\_msft[t] means the daily return of the GE Company’ s stock

}

id\_msft=(d\_msft>0) #Is the daily return of Microsoft’s stock greater than 0?

id\_ge=(d\_ge>0) # Is the daily return of GE Company’s stock greater than 0?

ftable(id\_ge,id\_msft) # fit a table to see the result, the result is shown as below

