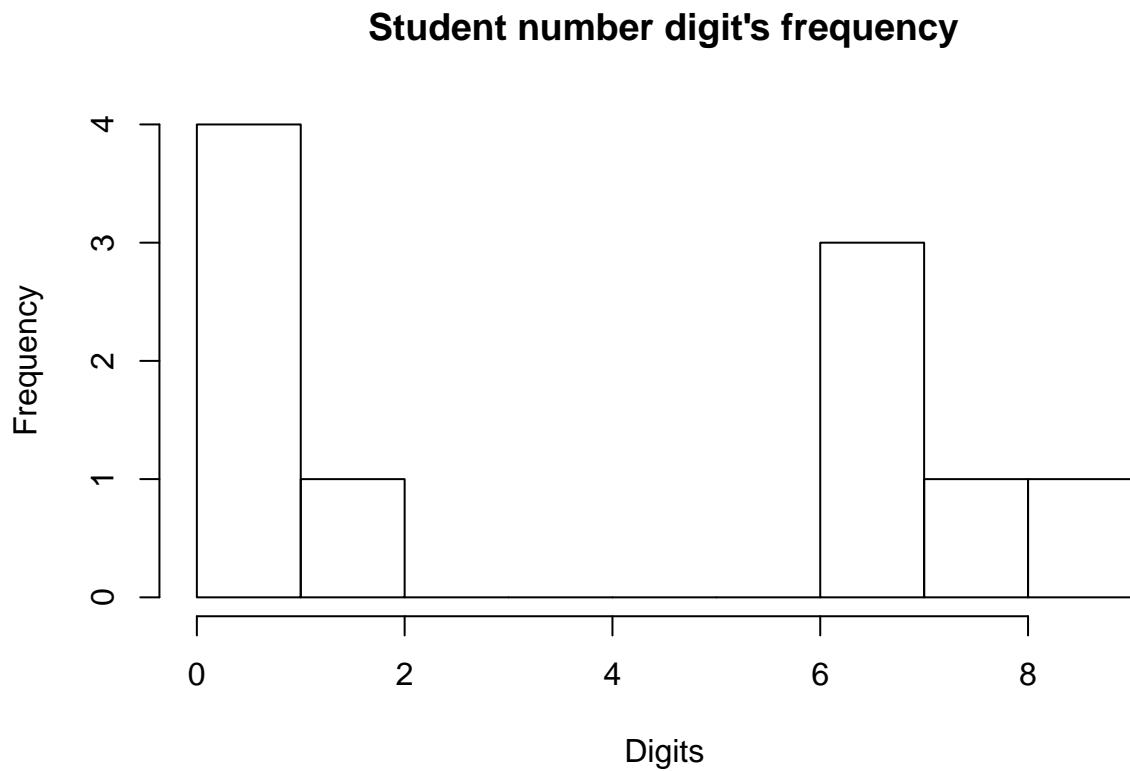# STA304A1Q2

Qizheng Wang

2/7/2020

Question 2

Question 2 (a)

Student number: 1002079877.

```
pop2a<-c(1,0,0,2,0,7,9,8,7,7)
hist(pop2a,breaks = c(0:9),freq=TRUE,xlim = c(0,9),xlab="Digits",main="Student number digit's frequency
```


Student number digit's frequency

Question 2 (b)

```
prop2b<-mean(pop2a==1)
```

By the density histgram, we can see the proportion of 0's is 0.4 and the proportion of 1's is 0.1.
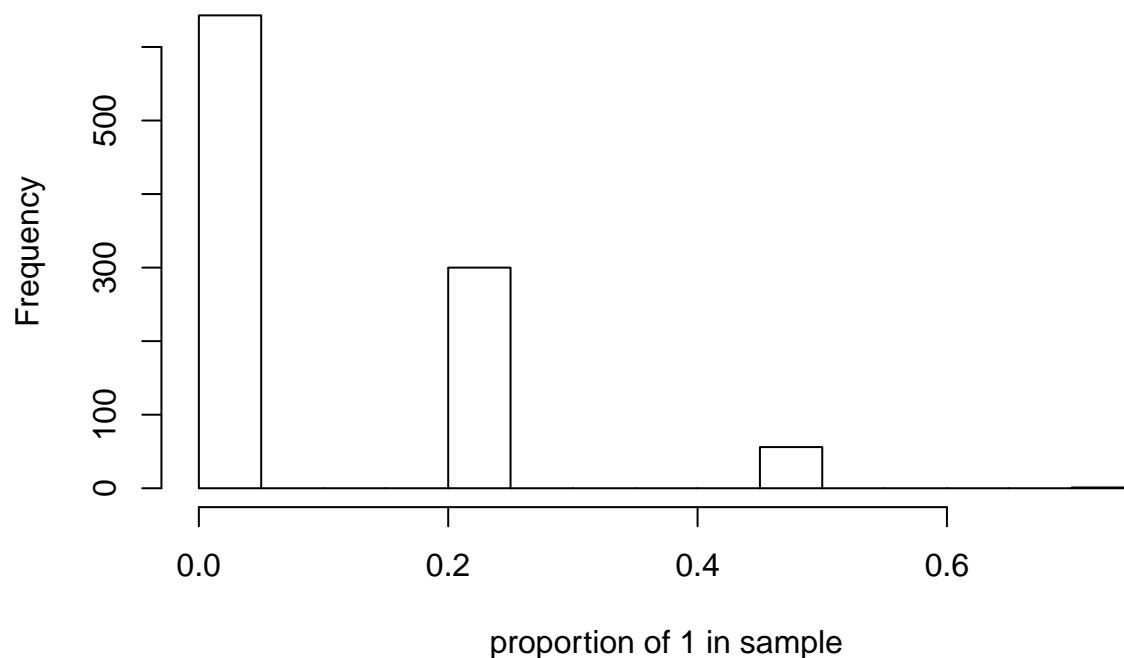
Question 2 (c)

```
sample2c<-sample(pop2a,4,replace=TRUE)
prop2c<-mean(sample2c==1)
```

The sample I draw is 8, 1, 1, 8. The proportion of 1 in sample is 0.5

Question 2 (d)

```
N<-1000
sample2d<-numeric(N)
for (i in 1:N){
  oneSample<-sample(pop2a,4,replace=TRUE)
  prop2d<-mean(oneSample==1)
  sample2d[i]<-prop2d
}
hist(sample2d,xlab = "proportion of 1 in sample",main="Histogram of proportion of 1 in randomized 1000 s
```

Histogram of proportion of 1 in randomized 1000 sample sample for 2

Question 2 (e)

```
sample2e<-sample(pop2a,4,replace=FALSE)
prop2e<-mean(sample2e==1)
```

The sample I draw is 0, 9, 1, 0. The proportion of 1 in sample is 0.25

Question 2 (f)

```
N<-1000
sample2f<-numeric(N)
for (i in 1:N){
  oneSample<-sample(pop2a,4,replace=FALSE)
  prop2f<-mean(oneSample==1)
  sample2f[i]<-prop2f
}
hist(sample2d,xlab = "proportion of 1 in sample",main="Histogram of proportion of 1 in randomized 1000 s
```

Histogram of proportion of 1 in randomized 1000 sample for 2(f)