ECS 132 - Project

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Contents

Design

Question 1

```r
load("Traffic_data_orig.RData")
message <- "this is a secret message"
raw <- charToRaw(message)
time = Traffic_data_orig$Time
num = as.integer(rawToBits(raw))

index = 1
bitlen = length(raw)*8
encrpt <- numeric(length(raw)*8)
for (i in (0:(length(raw)-1))) {
  for (j in 1:8) {
    if (num[i*8+j] == 0) {
      encrpt[index] = 0.25
    }
    else {
      encrpt[index] = 0.75
    }
    index = index+1
    j = j-1
  }
}

time2 <- Traffic_data_orig$Time
for (i in (1:bitlen)) {
  time2[i+1] = time2[i] + encrpt[i]
}
```
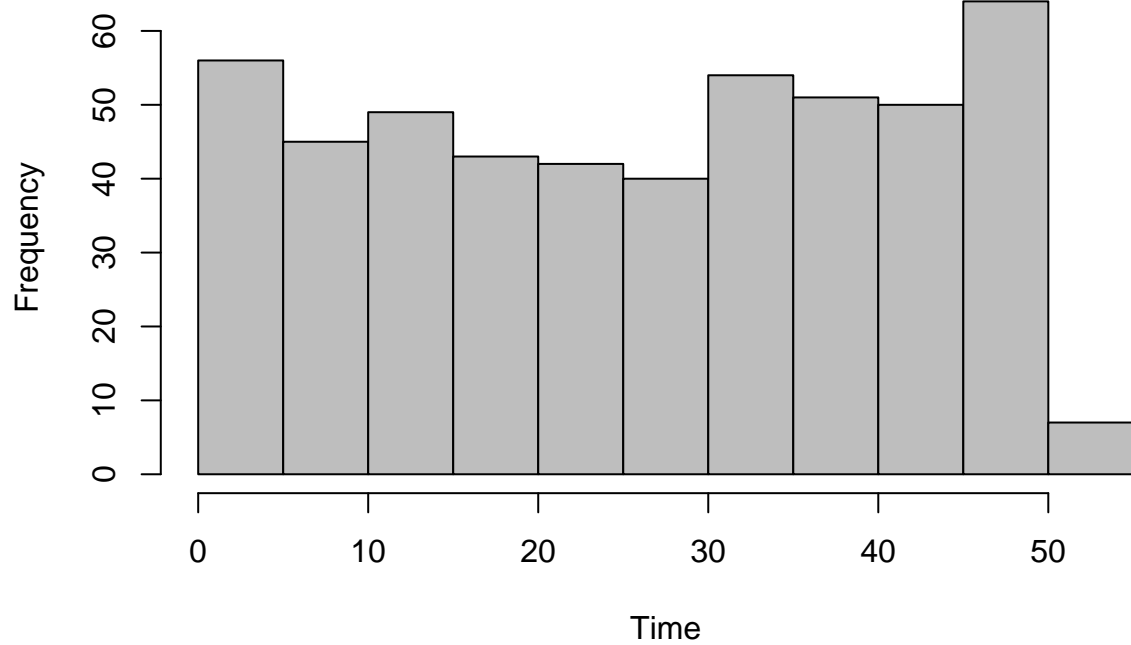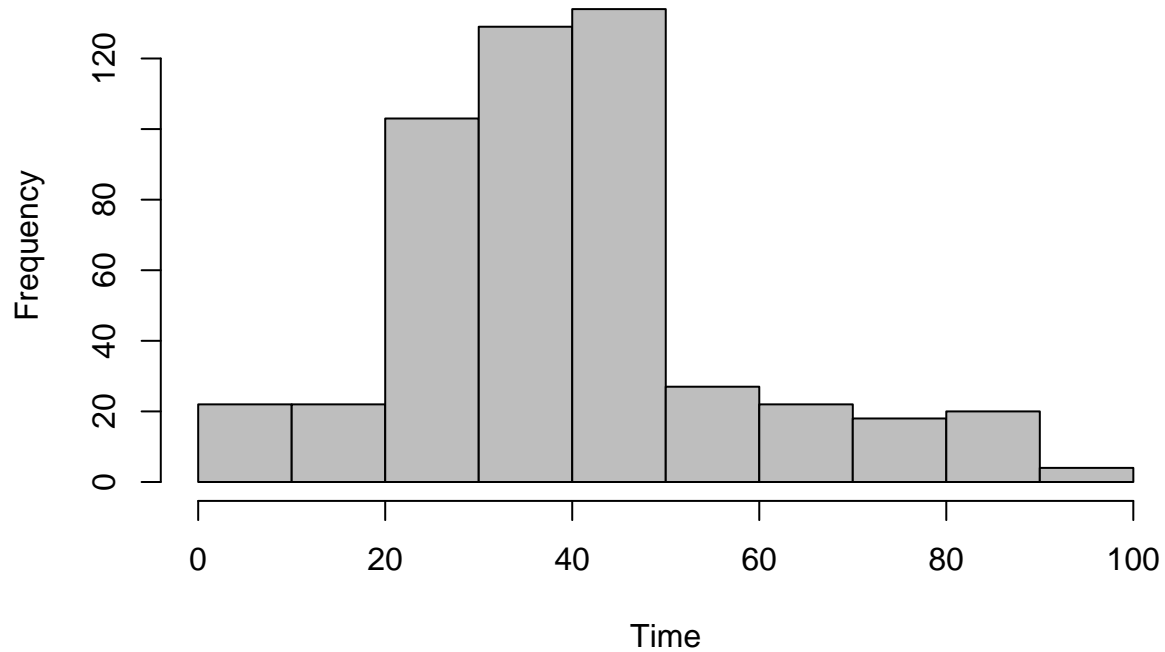
Question 2

```r
hist(time, col='grey', xlab = 'Time',
     main = 'Histogram of Overt Packet Stream')
```

Histogram of Overt Packet Stream


```
hist(time2, col='grey', xlab = 'Time',
     main = 'Histogram of Convert Packet Stream')
```

Histogram of Convert Packet Stream

Yes, Eve will be suspicious because it is obvious that the distribution changed.

Question 3

```r
load("Traffic_data_orig.RData")
message <- "this is a secret message"
raw <- charToRaw(message)
time = Traffic_data_orig$Time
num = as.integer(rawToBits(raw))
delays = numeric(length(time) - 1)
for (i in (1:(length(time) - 1))) {
  delays[i] = time[i+1] - time[i]
}
m = median(delays)
max = max(delays)
min = min(delays)

index = 1
bitlen = length(raw)*8
encrpt <- numeric(length(raw)*8)
for (i in (0:(length(raw)-1))) {
  for (j in 1:8) {
    if (num[i*8+j] == 0) {
      encrpt[index] = runif(1, min, m)
    }
    else {
      encrpt[index] = runif(1, m, max)
    }
    index = index+1
    j = j-1
  }
}

time2 <- Traffic_data_orig$Time
for (i in (1:bitlen)) {
  time2[i+1] = time2[i] + encrpt[i]
}
```
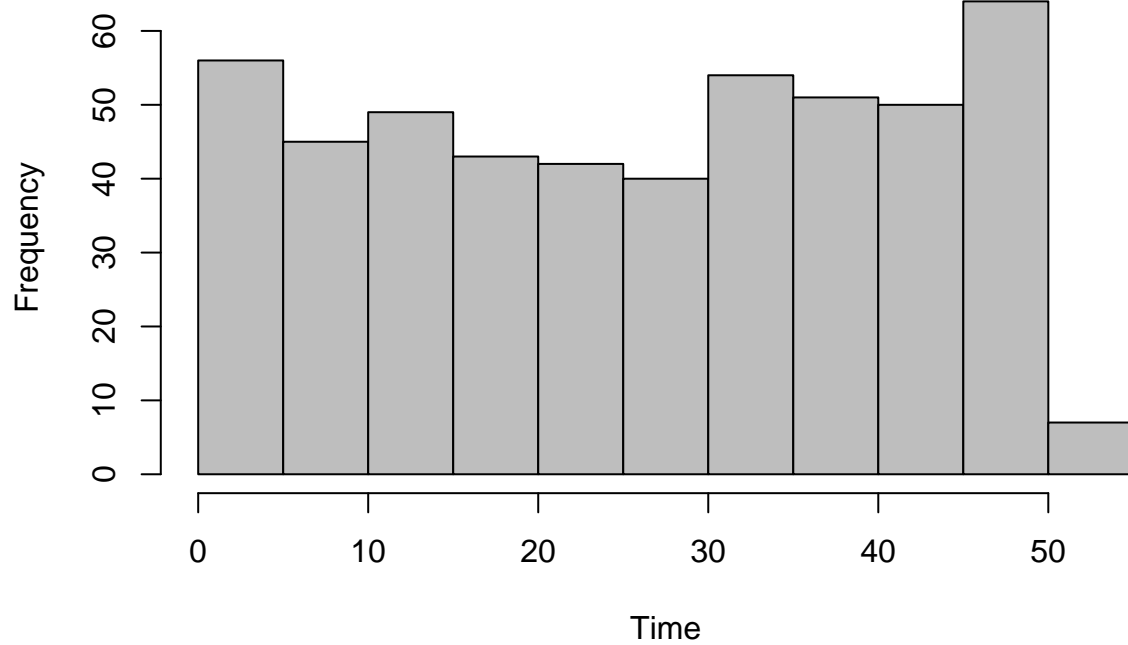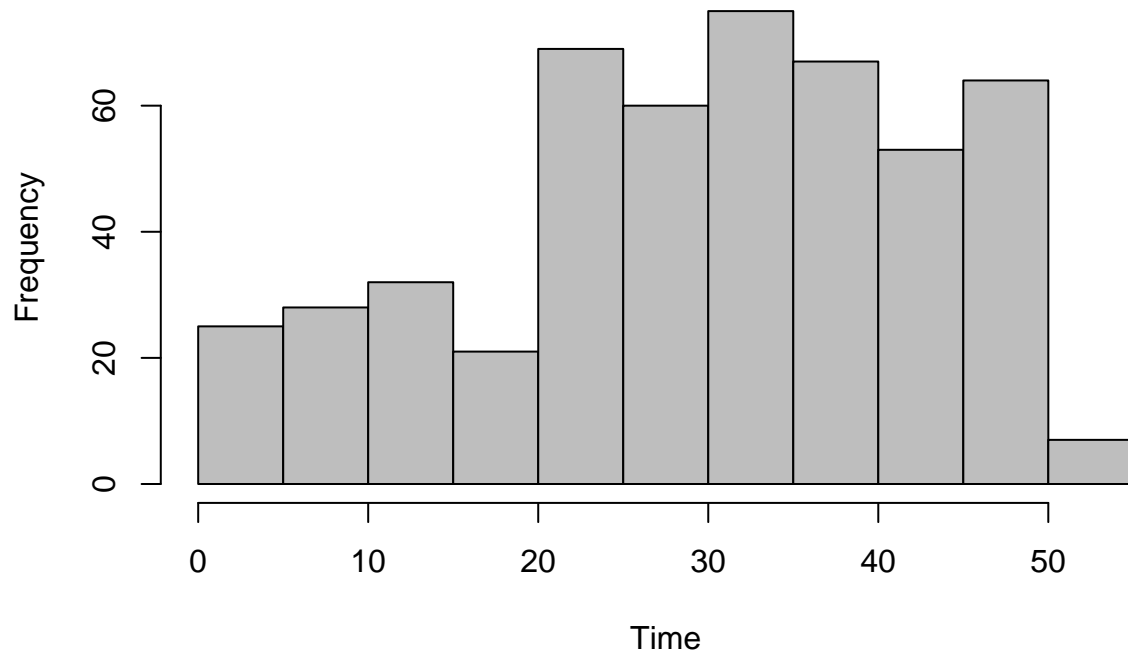
Question 4

```r
hist(time, col='grey', xlab = 'Time',
     main = 'Histogram of Overt Packet Stream')
```

Histogram of Overt Packet Stream


```
hist(time2, col='grey', xlab = 'Time',
     main = 'Histogram of Convert Packet Stream')
```

Histogram of Convert Packet Stream

I think Eva will be suspicious because it is obvious the distribution changed.

Question 5

1.
2.
3.