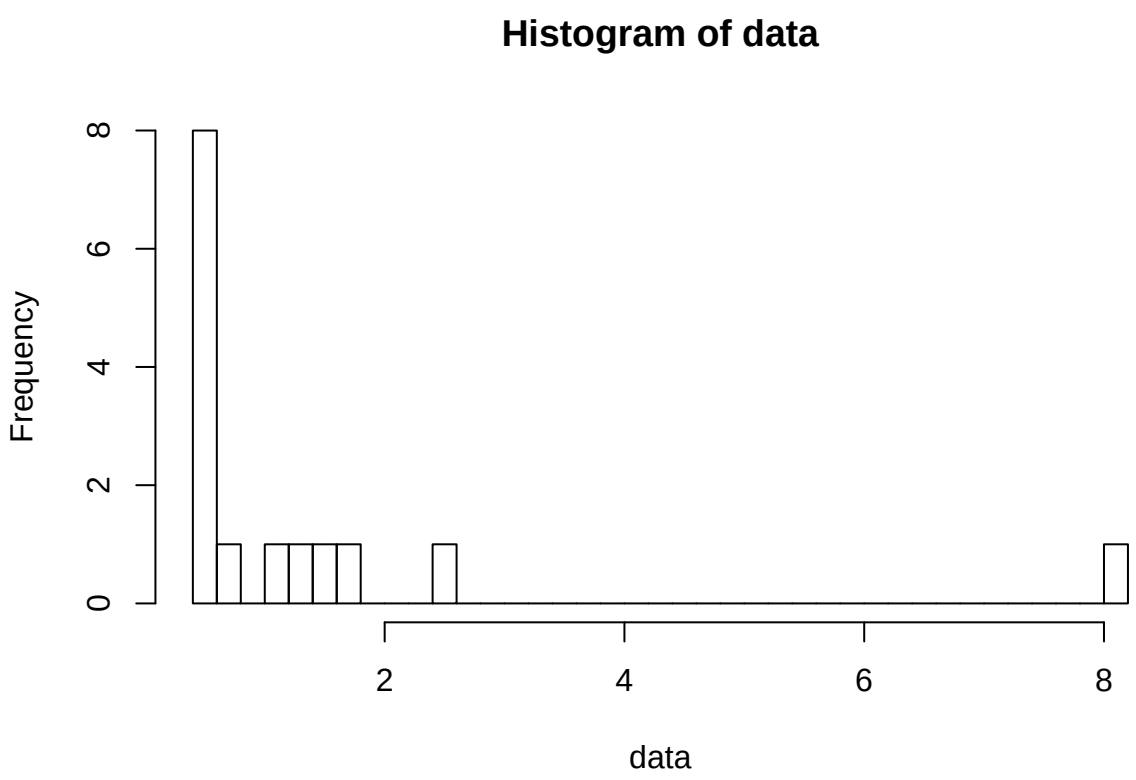
```r
# Assignment 2, Question 2
data = c(0.415, 0.417, 0.423, 0.478, 0.479,
         0.482, 0.523, 0.591, 0.717, 1.196,
         1.294, 1.527, 1.693, 2.418, 8.001)

hist(data, 30)
```




```r
l = 1/mean(data)

F_inv = function(x) {
  return (x/(1-x))
}

F_x = function(x) {
  return (x/x+1)
}

data_n=length(data)
p = 0.35
pi_bin = c(p, p, 1-2*p)
pi = c(0, p, 2*p, 1)
x_bin = F_inv(pi)
o = NULL

n = length(pi)
for (i in 2:n) {
```

```
  num = sum(data>x_bin[i-1] & data <x_bin[i])
  o = c(o, num)
}

n_pi = data_n*pi_bin

x_bin
```

```
## [1] 0.0000000 0.5384615 2.3333333       Inf
```

```
o
```

```
## [1] 7 6 2
```

```
pi_bin
```

```
## [1] 0.35 0.35 0.30
```

```
n_pi
```

```
## [1] 5.25 5.25 4.50
```

```
discrepancy = function(e, o) {
  return (sum(((e-o)^2)/e))
}

e = pi_bin*data_n
d = discrepancy(e, o)
d
```

```
## [1] 2.079365
```

```
pval = function(d, k) {
  prob = 1 - pchisq(d, k)
  return (prob)
}

p = pval(d, 2)
p
```

```
## [1] 0.3535669
```