Week1_Homework

ChrisCoussa

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```r
# Sec 1.2, Question 3

myData = read.table("exer01-0203.txt", header = TRUE, sep = "\r")
print(myData)
```

```
##      C1
## 1  0.31
## 2  0.35
## 3  0.36
## 4  0.36
## 5  0.37
## 6  0.38
## 7  0.40
## 8  0.40
## 9  0.40
## 10 0.41
## 11 0.41
## 12 0.42
## 13 0.42
## 14 0.42
## 15 0.42
## 16 0.42
## 17 0.43
## 18 0.44
## 19 0.45
## 20 0.46
## 21 0.46
## 22 0.47
## 23 0.48
## 24 0.48
## 25 0.48
## 26 0.51
## 27 0.54
## 28 0.54
## 29 0.55
## 30 0.58
## 31 0.62
## 32 0.66
## 33 0.66
## 34 0.67
## 35 0.68
## 36 0.75
```

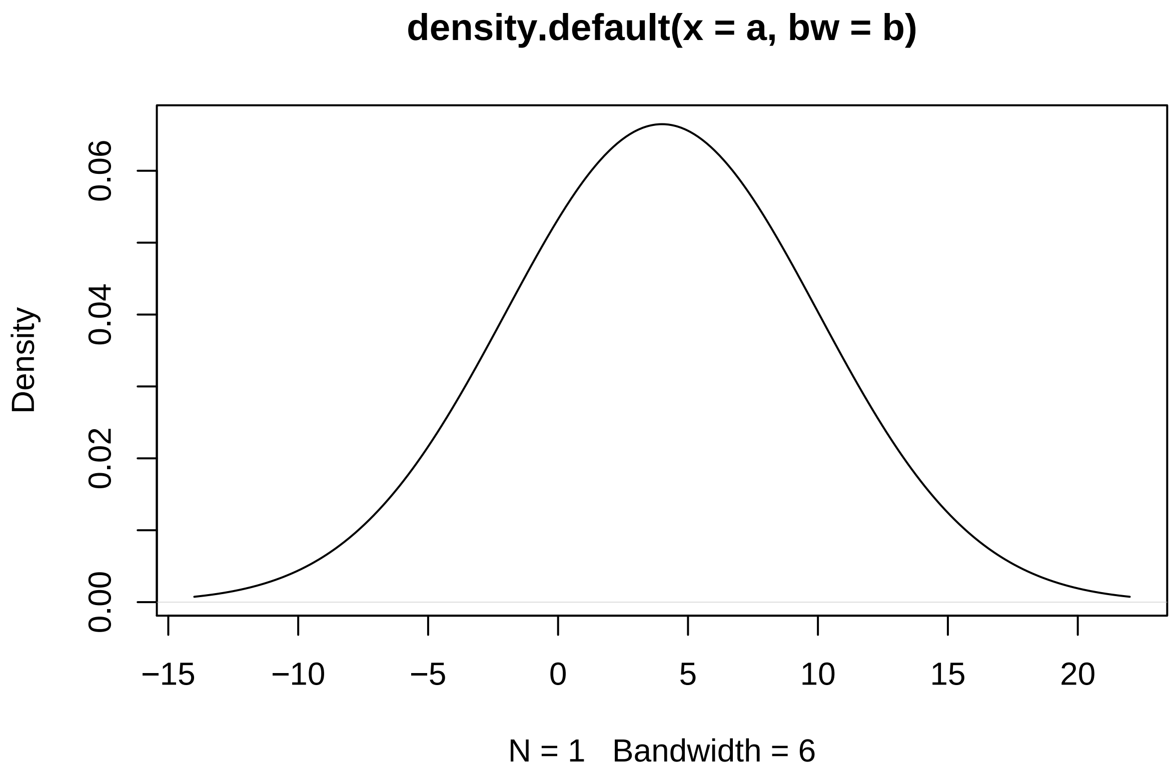
```r
stem(myData$C1)
```

```
##
##   The decimal point is 1 digit(s) to the left of the |
##
```

```
##    3 | 1
##    3 | 56678
##    4 | 000112222234
##    4 | 5667888
##    5 | 144
##    5 | 58
##    6 | 2
##    6 | 6678
##    7 |
##    7 | 5
```

```
# Sec 1.3, Question 19

# Part a
a = 4
b = 6
data = c(a, b)
plot(density(a, b))
```




```
# Density curve is plotted. To verify the area under the curve is 1, use the formula for
# Area, A= bh where base is 6-4=2 and height is 1/(b-a) = .5 Therefore A = 2(.5) = 1

# Part b
# To find out what portion of the forms will be processed between 4.5 and 5.5 minuntes
# you use the same formula of 1/(b-a) but put it in the integral formula. Integral from
# 4.5 to 5.5 of 1/(6-4) dx = 1/2x form 4.5 to 5.5 = (.5)(5.5) - (.5)(4.5) = .5 So 50%
# of the forms will be processed in that time.

# Part C
# To find what value separates the slower half from the faster half, you can examine the
```

```r
# graph and see it's 5, or you can solve for the mean. mu = (4 + 6) / 2 = 5

# Part d (extra, did it then saw the instructions to only do a, b, and c)
# The best 10% will happen before a + 10%(b-a) = 4 + (.1)(6-4) = 4 + .2 = 4.2  4.2 is the
# value that separates the best 10% from the other 90%


# Sec 1.4 Question 32 (all parts)
# Part a
# The value of z such that the area under the standard normal curve is .9082 is 1.33

# Part b
# The value of z such that the area under the standard normal curve to the left of the
# value is .9080 is 1.325. To get this value find the row with .9080. It's close to 1.32
# and 1.33. Take the average of the two and you get 1.325

# Part c
#Value of z such that the area under the curve to the right of z is .121 In order to use
# the z table to find the area to the right (or above) the z number, you subtract
# 1 - .121 = .879 Find that on the table and the value of z is 1.17.

# Part d
# What value of z* is such that the area under the standard normal curve between -z and z
# is .754?
# Since the standard curve is symmetrical, we can divide the percentage in half to get both
# sides. .754/2 = .377 is the percentage in the middle of the two points.
# Find the -z value that corresponds with .377, -z = -.31 (This is the area to the left)
# Find the +z value (the area to the right) 1 - .377 = .623, z = .31
# Therefore z = +- .31

# Part e
# How far to the right of 0 would you have to go to capture an upper-tail(to the right of)
# z curve area of .002? How far to the left would you have to go to capture this same
# lower-tail area?
# Upper-tail: 1 - .002 = .998 gives a z value of 2.88
# Using symmetry to get the same curve on the left we get z = -2.88.

# Sec 2.1 Question 1

# Part a
myData2 = read.table("exer02-0101.txt", header = TRUE, sep = "\r")
# print(myData2$Sales)
myMean = mean(myData2$Sales)
print(myMean)
```

```
## [1] 640.5
```

```r
myMedian = median(myData2$Sales)
print(myMedian)
```

```
## [1] 582.5
```

```r
# Part b
myData2 = read.table("exer02-0101 copy.txt", header = TRUE, sep = "\r")
# print(myData2$Sales)
```

```r
myMean = mean(myData2$Sales)
print(myMean)
```

```
## [1] 610.5
```

```r
myMedian = median(myData2$Sales)
print(myMedian)
```

```
## [1] 582.5
```

```r
# Question 8
# A target is located at the point 0 on the horizontal axis. Let x be
# the landing point of a shot aimed at the target, a continuous
# variable with density function f(x) = .75(1-x^2) for -1<x<1.
# What is the mean value of x?
# Using the integral formula for mean: Integral from -1 to 1
# of.75x(1-x^)dx = .75 integral from -1 to 1 of (x-x^3) dx = 0
# Therefore mean value of x is 0.
```