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Module : Aide à la décision

1ST YEAR OF MASTER'S DEGEREE IN

NETWORKS, INFORMATION SYSTEMS & SECURITY (RSSI)

2021/2022

RNORM function at different values mini TP 05

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A paper submitted in fulfilment of the requirements for the Aide à la décision TP-05

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Chapter 1

rnorm tests

Here we will be testing **rnorm** function with a mean of 1 and a standard deviation of 2 and at a different size of n 100,1000,10000,100000.

1.1 Testing rnorm at n=100?

```
al = rnorm(100,1,2) # rnorm with 100 size of randomly generated values
plot(density(al,bw=0.5))
```

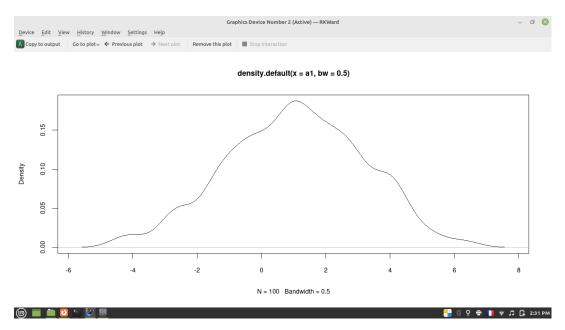


FIGURE 1.1: rnorm at 100.

1.2 Testing rnorm at n=1000?

```
a2 = rnorm(1000,1,2) # rnorm with 1000 size of randomly generated values
plot(density(a2,bw=0.5))
```

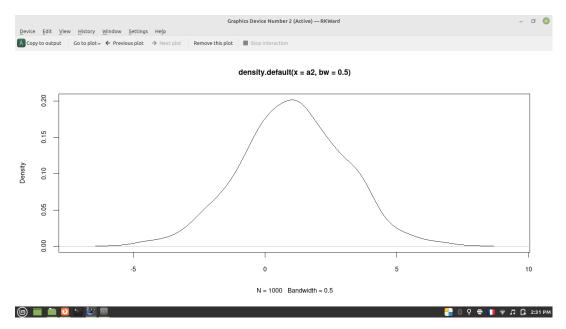


FIGURE 1.2: rnorm at 1000.

1.3 Testing rnorm at n=10000?

0.05

```
a3 = rnorm(10000,1,2) # rnorm with 10000 size of randomly generated values

plot(density(a3,bw=0.5))

Graphics Device Number 2 (Active)—RKWard

Device Edit View History Window Settings Help

Copy to output Go to plot   Previous plot  Next plot Remove this plot Stop interaction

density.default(x = a3, bw = 0.5)
```



FIGURE 1.3: rnorm at 10000.

1.4 Testing rnorm at n=100000?

```
a4 = rnorm(100000,1,2) # rnorm with 100000 size of randomly generated values plot(density(a4,bw=0.5))
```

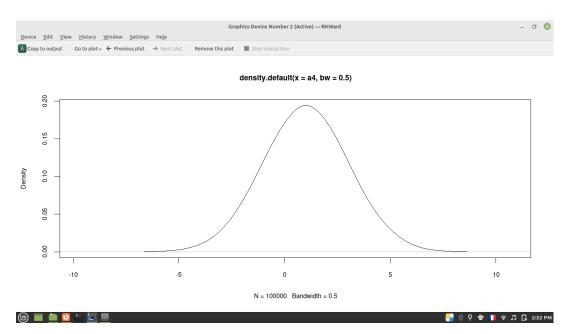


FIGURE 1.4: rnorm at 100000.

1.5 multiple plots with the help of par() function

par(mfrow=c(2,2)) # plotting 4 plots in one window Graphics Device Number 2 (Active) — RKWard <u>D</u>evice <u>E</u>dit <u>V</u>iew <u>H</u>istory <u>W</u>indow <u>S</u>ettings He<u>l</u>p A Copy to output Go to plot ← Previous plot → Next plot Remove this plot Stop interaction density.default(x = a1, bw = 0.5) density.default(x = a2, bw = 0.5) 0.20 0.20 Density 0.10 0.10 density.default(x = a3, bw = 0.5) density.default(x = a4, bw = 0.5) 0.20 0.20 0.10 0.10 0.00

FIGURE 1.5: par function.

1.6 Conclusion

N = 10000 Bandwidth = 0.5

As we notice the more we increase the size of our sample test the more the curve converges to a normal distribution curve.

Appendix A

Appendix A

A.1 R code

```
par(mfrow=c(2,2)) # plotting 4 plots in one window
10
11
  a1 = rnorm(100, 1, 2) # rnorm with 100 size of randomly generated
12
      values
  plot (density(a1,bw=0.5))
13
14
  a2 = rnorm(1000,1,2) \# rnorm with 1000 size of randomly generated
15
  plot(density(a2,bw=0.5))
16
17
  a3 = rnorm(10000, 1, 2) # rnorm with 10000 size of randomly generated
       values
  plot(density(a3,bw=0.5))
19
20
  a4 = rnorm(100000, 1, 2) # rnorm with 100000 size of randomly
21
      generated values
 plot(density(a4,bw=0.5))
```