

CDF

Md Ashiqul Amin (ma3359)

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### get data and calculate key summary statistics
#Read data
#Mention the path of the data file
#header value will be true if there any header otherwise false

data <- read.table("C:/Users/Robin/Desktop/LoRaWAN/Latency.csv", header = TRUE, sep = ",")
head(data)

##      L_1  L_2  L_3
## 1 11.3 13.5 18.0
## 2 11.0 14.0 17.0
## 3 10.0 12.0 18.0
## 4 13.0 15.0 18.0
## 5 14.0 16.0 18.7
## 6 11.0 16.0 18.9

#Select specific data from the dataset
data_1= data$L_1
data_2 = data$L_2
data_3 = data$L_3
#data_4 = data$Th_44
#data_5 = data$Th_55

#Count the number of row conatining data
n = sum(!is.na(data_1))
m = sum(!is.na(data_2))
i = sum(!is.na(data_3))
#j = sum(!is.na(data_4))
#k = sum(!is.na(data_5))

#summary (optional)
summary(fivenum(data_1))

##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      9.0   10.5   11.5   12.0   13.0   16.0

summary(fivenum(data_2))

##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      9.80  13.00  14.00  13.76  15.00  17.00

summary(fivenum(data_3))

##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      14.00  16.40  17.00  16.88  18.00  19.00

#summary(fivenum(data_4))
#summary(fivenum(data_5))
```

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# ordering the data
data.ordered = sort(data_1)
head(data.ordered)

## [1] 9.0 9.0 9.0 9.0 9.0 9.3

data.ordered_1 = sort(data_2)
data.ordered_2 = sort(data_3)
#data.ordered_3 = sort(data_4)
#data.ordered_4 = sort(data_5)

#create the image in png form

png('C:/Users/Robin/Desktop/LoRaWAN/L.png',width = 300, height = 300, units = "px", bg = "white")

# plot the possible values of probability (0 to 1) against the ordered data
# notice the option type = '' for plotting the functions

#data_1
plot(data.ordered, (1:n)/n, type = 's', ylim = c(0, 1), xlab = 'Latency', ylab = 'CDF')

#data_2
#points(data.ordered_1, (1:m)/m, col="red", pch="*")
lines(data.ordered_1, (1:m)/m, col="red",lty=2,type = 's')

#data_3
#points(data.ordered_2, (1:i)/i, col="green", pch="+")
lines(data.ordered_2, (1:i)/i, col="green",lty=3,type = 's')

#data_4
#points(data.ordered_3, (1:j)/j, col="orange", pch="o")
#lines(data.ordered_3, (1:j)/j, col="orange",lty=4)

#data_5
#points(data.ordered_4, (1:k)/k, col="blue", pch="x")
#lines(data.ordered_4, (1:k)/k, col="blue",lty=5)

legend('topleft',
      legend=c("Node 1","Node 2","Node 3"), # text in the legend
      col=c("black","red","green"), # point colors
      pch=15) # specify the point type to be a square

dev.off()

## pdf
## 2

```