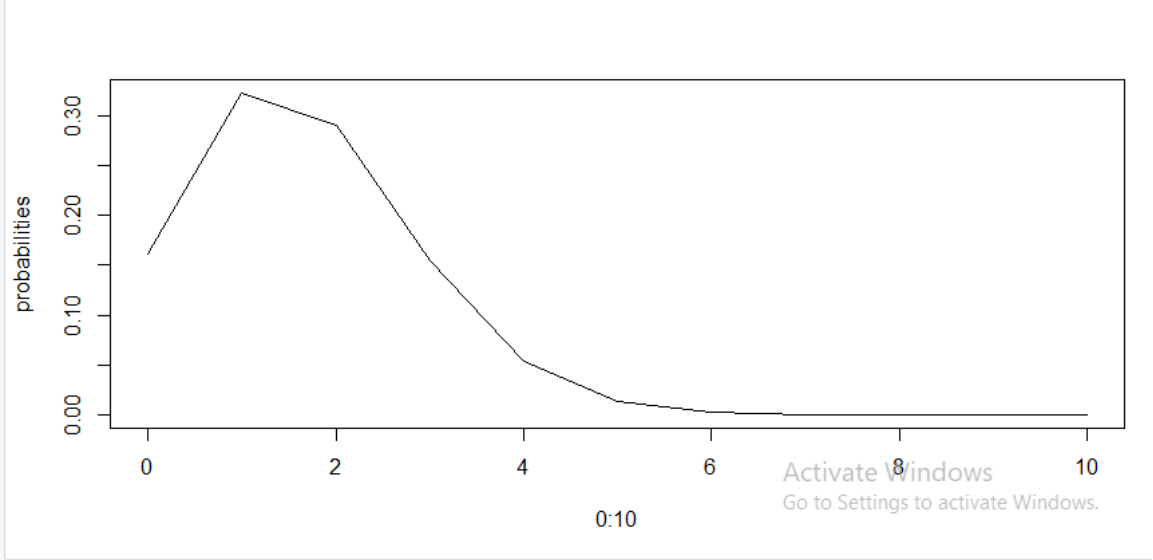
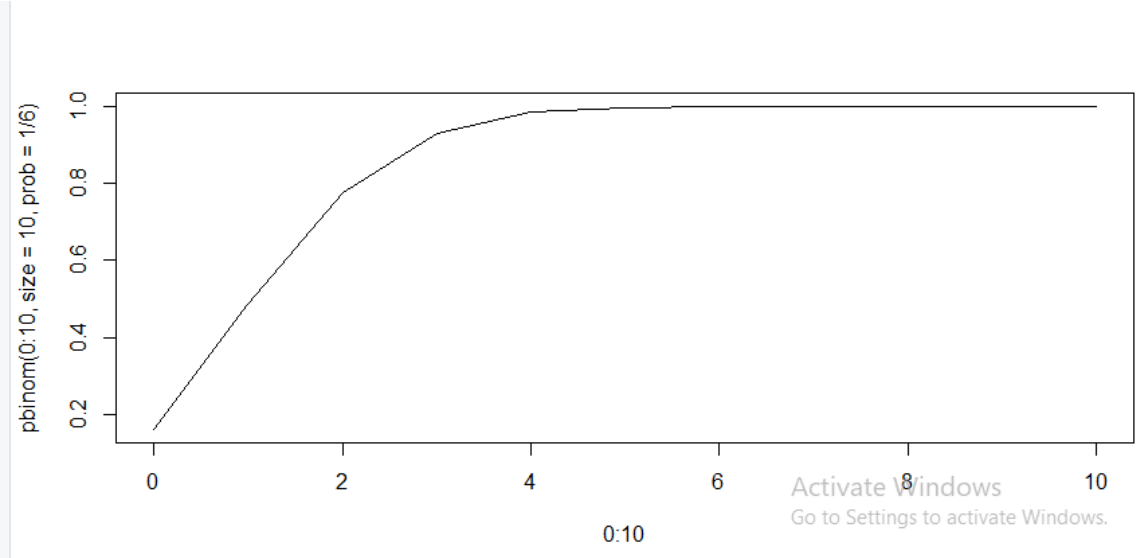
```
#Binomial Distribution
#We have four functions for handling binomial distribution in R namely:
#dbinom
dbinom(3, size = 13, prob = 1 / 6)
probabilities <- dbinom(x = c(0:10), size = 10, prob = 1 / 6)
data.frame(x, probabilities)
plot(0:10, probabilities, type = "l")
```

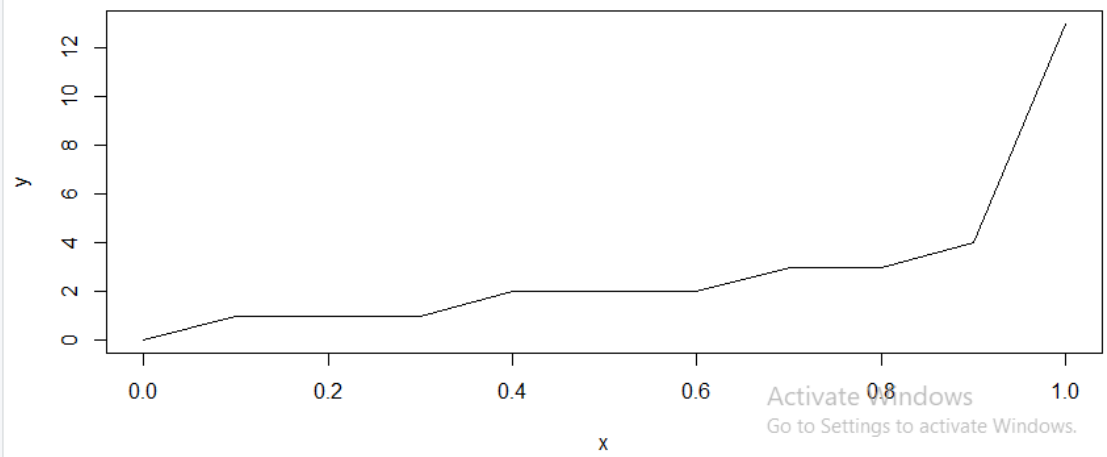



```
#pbinom
pbinom(3, size = 13, prob = 1 / 6)
plot(0:10, pbinom(0:10, size = 10, prob = 1 / 6), type = "l")
```

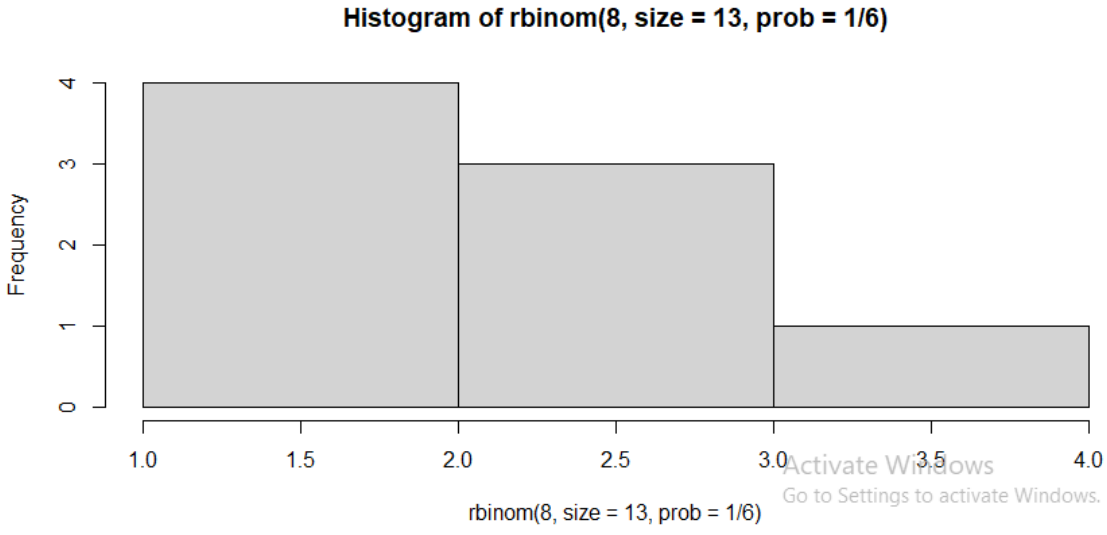



```
#qbinom
qbinom(0.8419226, size = 13, prob = 1 / 6)
x <- seq(0, 1, by = 0.1)
y <- qbinom(x, size = 13, prob = 1 / 6)
```

```
plot(x, y, type = 'l')
```

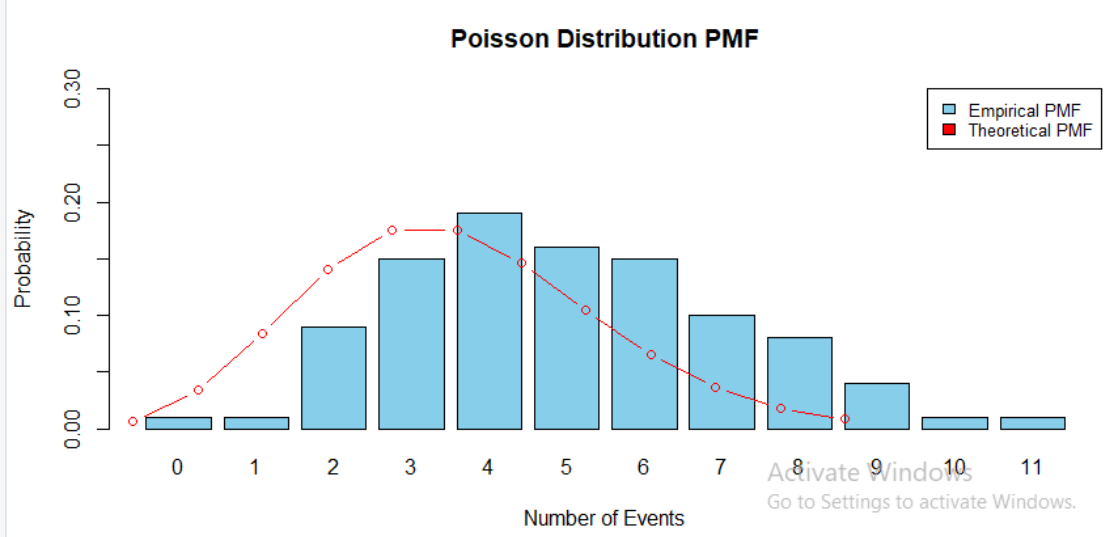



```
#rbinom
rbinom(8, size = 13, prob = 1 / 6)
hist(rbinom(8, size = 13, prob = 1 / 6))
```

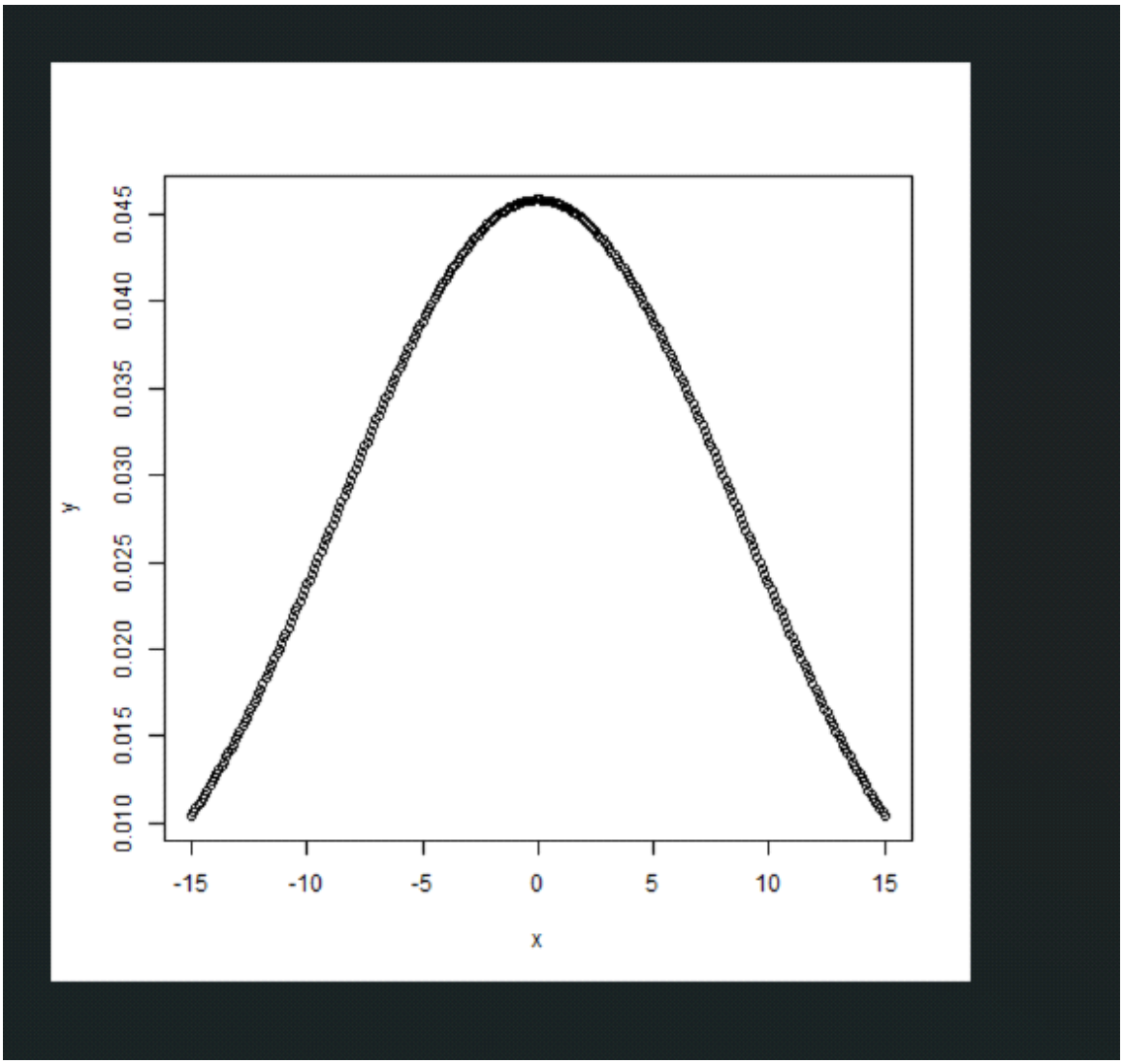



```
#Poisson Distribution
# Set the seed for reproducibility
set.seed(123)

# Generate a Poisson-distributed dataset
lambda <- 5 # Average rate of events
poisson_data <- rpois(100, lambda)

# Create a bar plot to visualize the probability mass function
barplot(table(poisson_data)/length(poisson_data),
```

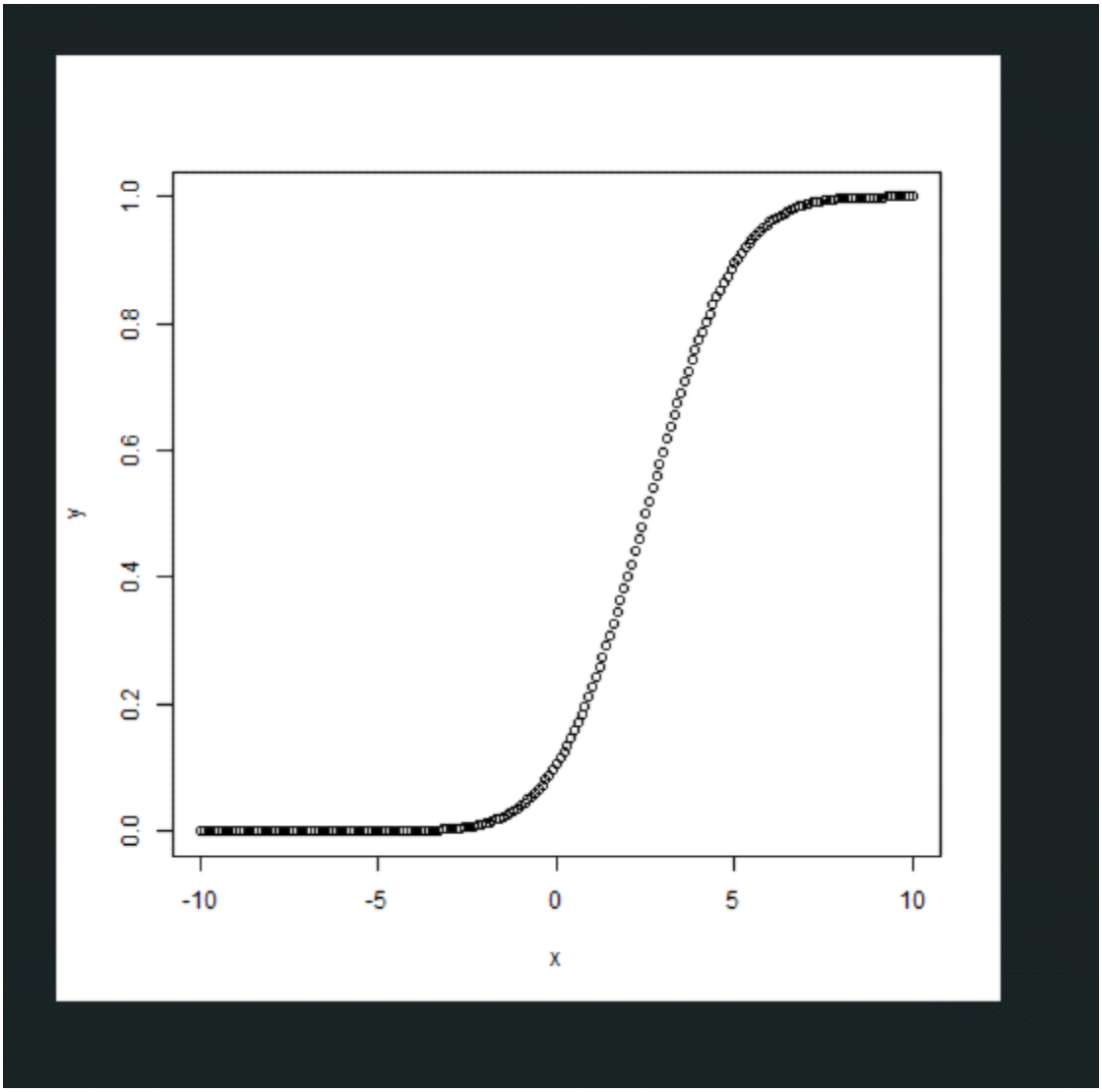
```
        col = "skyblue",
        main = "Poisson Distribution PMF",
        xlab = "Number of Events",
        ylab = "Probability",
        ylim = c(0, 0.30))

# Add a red line representing the theoretical Poisson PMF
points(0:max(poisson_data), dpois(0:max(poisson_data), lambda), type =
"b", col = "red")

# Add legend
legend("topright", legend = c("Empirical PMF", "Theoretical PMF"),
       fill = c("skyblue", "red"),
       cex = 0.8)
```



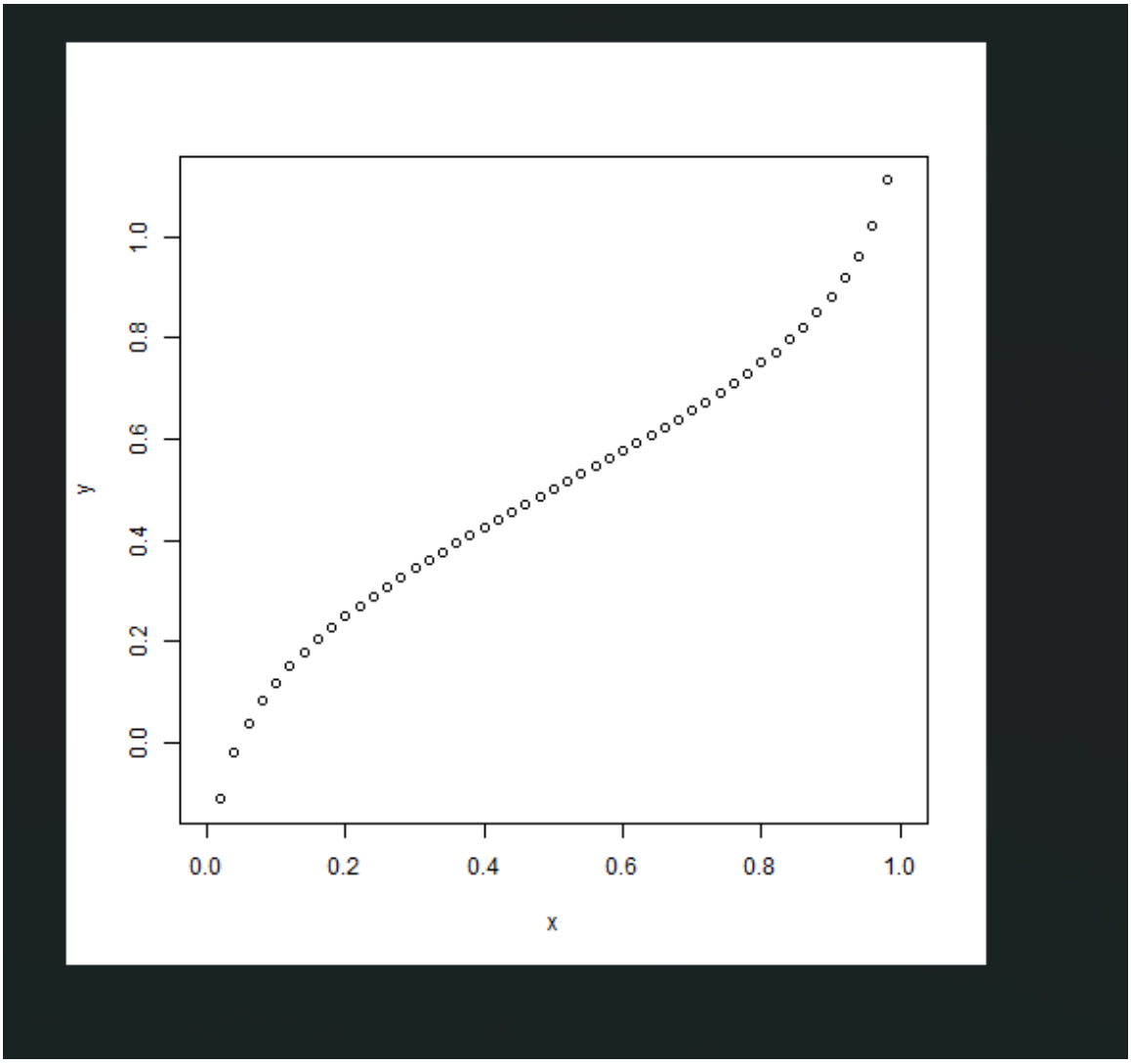

```
#Normal Distribution
#dnorm
# creating a sequence of values
# between -15 to 15 with a difference of 0.1
x = seq(-15, 15, by=0.1)

y = dnorm(x, mean(x), sd(x))

# output to be present as PNG file
png(file="dnormExample.png")

# Plot the graph.
plot(x, y)

# saving the file
dev.off()
```



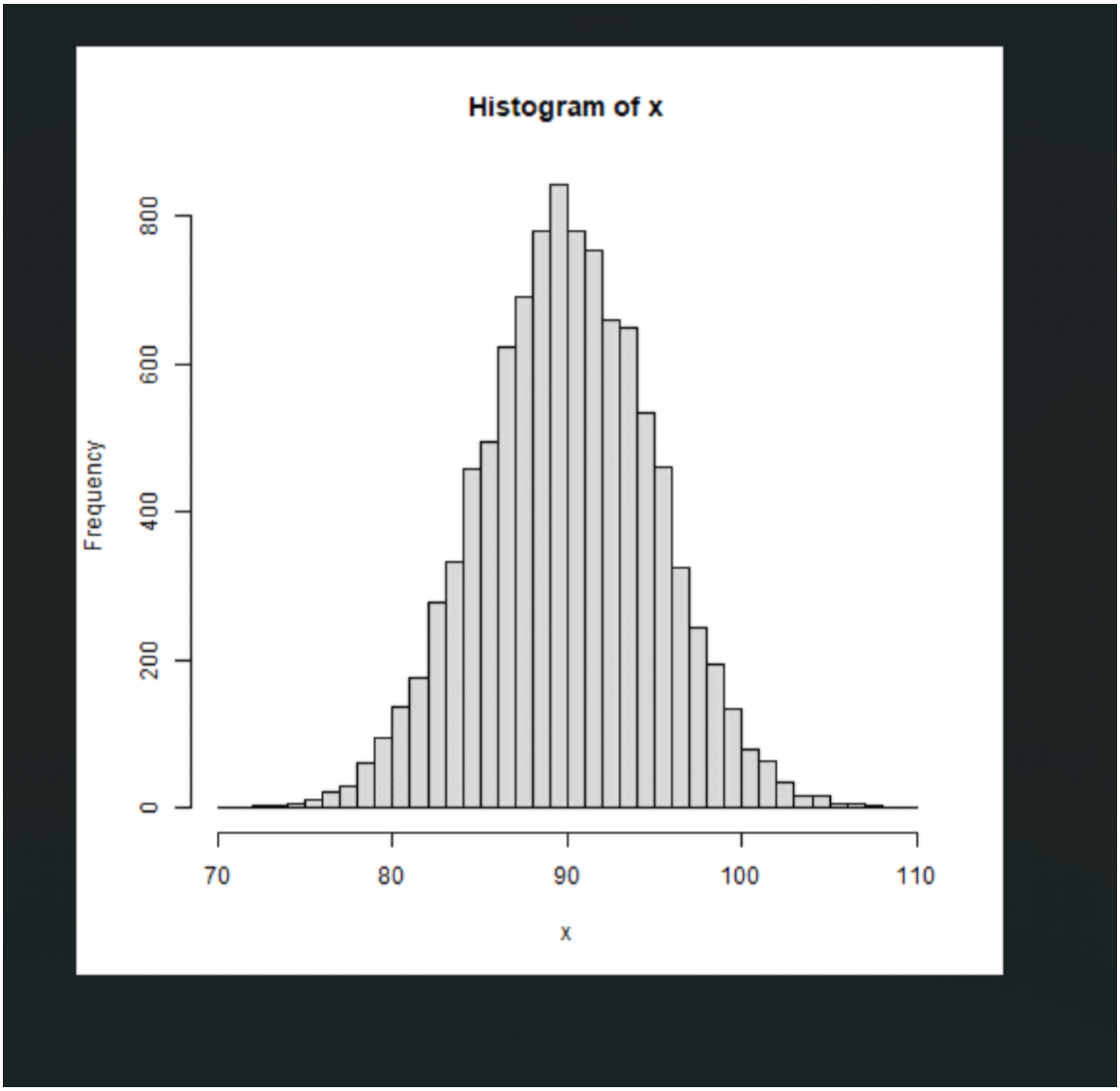

```
#pnorm
# creating a sequence of values
# between -10 to 10 with a difference of 0.1
x <- seq(-10, 10, by=0.1)

y <- pnorm(x, mean = 2.5, sd = 2)

# output to be present as PNG file
png(file="pnormExample.png")

# Plot the graph.
plot(x, y)

# saving the file
dev.off()
```




```
#qnorm
# Create a sequence of probability values
# incrementing by 0.02.
x <- seq(0, 1, by = 0.02)

y <- qnorm(x, mean(x), sd(x))

# output to be present as PNG file
png(file = "qnormExample.png")

# Plot the graph.
plot(x, y)

# Save the file.
dev.off()
```




```
#rnorm
# Create a vector of 1000 random numbers
# with mean=90 and sd=5
x <- rnorm(10000, mean=90, sd=5)

# output to be present as PNG file
png(file = "rnormExample.png")

# Create the histogram with 50 bars
hist(x, breaks=50)

# Save the file.
dev.off()
```


Histogram of x
Frequency
0
200
400
600
800
70
80
90
100
110
x