Unit 9 - Week 8 - Graphics and plots, statistical functions for central tendency, variation, skewness and kurtosis, handling of bivarite data through graphics, correlations, programming and illustration with examples.

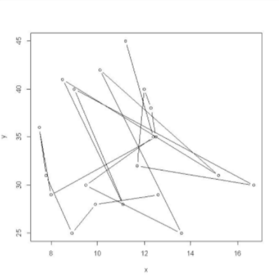
Assignment 8

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-23, 23:59 IST.

1) The paired data on medicine given (**x**) in grams and reduction in blood pressure (**y**) in mmHg of to 20 persons is obtained. Which one of the following is the correct command to obtain the scatter plot of the following type in R for the given data? *1 point*

x = c(11.2,12.4,9.5,13.6,10.1,15.2,8.5,11.1,9.0,16.7,11.7,12.0,12.3,12.5,8.0,7.5,7.8,8.9,9.9,12.6)
y = c(45,35,30,25,42,31,41,28,40,30,32,40,38,35,29,36,31,25,28,29)



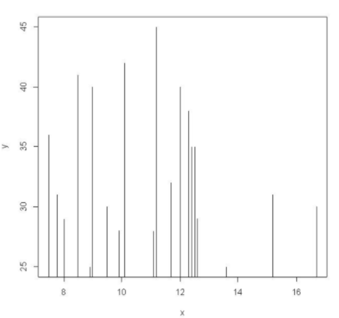
○ **plot(x,y, "l")**
○ **plot(x,y, "s")**
○ **plot(x,y, "h")**
○ **plot(x,y, "b")**

No, the answer is incorrect.
Score: 0

Accepted Answers:
plot(x,y, "b")

2) The paired data on medicine given (**x**) in grams and reduction in blood pressure (**y**) in mmHg of to 20 persons is obtained. Which one of the following is the correct command to obtain the scatter plot of the following type in R for the given data? *1 point*

x = c(11.2,12.4,9.5,13.6,10.1,15.2,8.5,11.1,9.0,16.7,11.7,12.0,12.3,12.5,8.0,7.5,7.8,8.9,9.9,12.6)
y = c(45,35,30,25,42,31,41,28,40,30,32,40,38,35,29,36,31,25,28,29)



Course outline

How to access the portal

Week - 1 - Basic fundamentals, installation and use of software, data editing, use of R as a calculator, functions and assignments.

Week 2 - Use of R as a calculator, functions and matrix operations, missing data and logical operators.

Week 3 - Conditional executions and loops, data management with sequences.

Week 4 - Data management with repeats, sorting, ordering, and lists

Week 5 - Vector indexing, factors, Data management with strings, display and formatting.

Week 6 - Data management with display paste, split, find and replacement, manipulations with alphabets, evaluation of strings, data frames.

Week 7 - Data frames, import of external data in various file formats, statistical functions, compilation of data.

Week 8 - Graphics and plots, statistical functions for central tendency, variation, skewness and kurtosis, handling of bivarite data through graphics, correlations, programming and illustration with examples.

- ● Lecture 39 : Statistical Functions - Bivariate three dimensional plot.
- ○ Lecture 40 : Statistical Functions - Correlation and Examples of Programming
- ○ Lecture 41: Examples of Programming
- ● Lecture 42 : Examples of More Programming
- ○ **Quiz : Assignment 8**
- ○ Assignment 8 Solution

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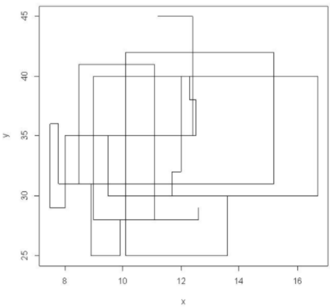
○ plot(x,y, "l")
○ plot(x,y, "h")
○ plot(x,y, "s")
○ plot(x,y, "b")

No, the answer is incorrect.
Score: 0

Accepted Answers:
plot(x,y, "h")

3) The paired data on medicine given (x) in grams and reduction in blood pressure (y) in mmHg of to 20 persons is obtained. Which one of the following is the correct command to obtain the scatter plot of the following type in R for the given data? *1 point*

x = c(11.2,12.4,9.5,13.6,10.1,15.2,8.5,11.1,9.0,16.7,11.7,12.0,12.3,12.5,8.0,7.5,7.8,8.9,9.9,12.6)
y = c(45,35,30,25,42,31,41,28,40,30,32,40,38,35,29,36,31,25,28,29)



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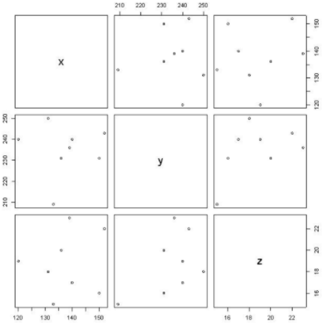
○ plot(x,y, "h")
○ plot(x,y, "l")
○ plot(x,y, "s")
○ plot(x,y, "b")

No, the answer is incorrect.
Score: 0

Accepted Answers:
plot(x,y, "s")

4) Which one of the following is the correct command to obtain the scatter plot of the following type in R for the given data x = c(133,131,136,139,140,150,120,152), y = c(209,250,231,236,240,231,240,243) and z = c(15,18,20,23,17,16,19,22) ? *1 point*



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○ plots(cbind(x,y,z))

○ `plot(c(x,y,z))`
○ `pairs(c(x,y,z))`
○ `pairs(cbind(x,y,z))`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`pairs(cbind(x,y,z))`

5) The covariance between the following data **1 point**

`x = c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0)`, and
`y = c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9)` is correctly obtained by which of the following command in R?

○ `cov((11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), (3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`
○ `cov(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`
○ `covar(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`
○ `cvar(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`cov(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`

6) The correlation between the following data **1 point**

`x = c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0)`, and
`y = c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9)` is correctly obtained by which of the following command in R?

○ `corr(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9))`
○ `corr((11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), (3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`
○ `cor(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`
○ `cor((11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), (3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`cor(c(11.2,9.5,10.1,8.5,9.0,11.7,12.0,12.5,8.0,7.0), c(3.5,2.5,3.1,2.8,3.0,4.0,3.5,3.6,2.5,2.9) )`

7) The following paired data is collected on the voltage (in volts) supplied and rotation per minute (rpm) of a wheel from 10 **1 point** different machines. Which one of the following correctly specify the command to obtain the covariance between the claim and surplus from received premium and the value?

Machine	RPM	Voltage
Machine 1	425	400
Machine 2	373	300
Machine 3	515	430
Machine 4	487	440
Machine 5	434	420
Machine 6	342	290
Machine 7	359	285
Machine 8	458	410

○ `covar(c(425,373,515,487,434,342,359,458),c(400,300,430,440,420,290,285,410)]`and `-3916.161` respectively.
○ `cov(c(425,373,515,487,434,342,359,458),c(400,300,430,440,420,290,285,410))` and `3916.161` respectively.
○ `cov[c(425,373,515,487,434,342,359,458),c(400,300,430,440,420,290,285,410)]` and `-3916.161` respectively.
○ `covar[c(425,373,515,487,434,342,359,458),c(400,300,430,440,420,290,285,410)]` and `3916.161` respectively.

No, the answer is incorrect.
Score: 0

Accepted Answers:
`cov(c(425,373,515,487,434,342,359,458),c(400,300,430,440,420,290,285,410))` and `3916.161` respectively.

8) The following data are the claims (in millions Rupees) for health insurance from 8 different companies along with their **1 point** surplus from received insurance premium (in millions Rupees) . Which one of the following correctly specify the command to obtain the correlation coefficient between the claim and surplus from received premium and its value?

Company	Claims	Surplus
Company 1	1425	277
Company 2	273	100
Company 3	915	120
Company 4	1687	259
Company 5	234	40
Company 6	142	25
Company 7	259	57
Company 8	258	31

○ `cor(c(1425,273,915,1687,234,142,259,258),c(277,100,120,259,40,25,57,31))` and `0.9572336` respectively.

○ `cor(c(1,425,273,915,1,687,234,142,259,258),c(277,100,120,259,40,25,57,31)) and 0.9572336 respectively.`

○ `corr[c(1,425,273,915,1,687,234,142,259,258),c(277,100,120,259,40,25,57,31)]`and `0.857236` respectively.

○ `corr[c(1425,273,915,1687,234,142,259,258),c(277,100,120,259,40,25,57,31)]` and `0.857236` respectively.

No, the answer is incorrect.
Score: 0

Accepted Answers:
`cor(c(1425,273,915,1687,234,142,259,258),c(277,100,120,259,40,25,57,31))`and `0.9572336` respectively.

9) Which one of the following is the correct function to obtain the square root of the sum of cubes of two numbers? *1 point*

○

```
cubsqrt <- function(x, y) {

   res1 <- x^3 + y^3

   res2 <- sqrt(res1)

   print{paste("The value of sum of", x, "cube and", y, "cube is", res1, "and its square root
is", res2)}

}
```

○

```
cubsqrt <- function(x, y) [

   res1 <- x^3 + y^3

   res2 <- sqrt(res1)

   print(paste("The value of sum of", x, "cube and", y, "cube is", res1, "and its square root
is", res2))

]
```

○

```
cubsqrt <- function(x, y) {

   res1 <- x^3 + y^3

   res2 <- sqrt(res1)

   print(paste("The value of sum of", x, "cube and", y, "cube is", res1, "and its square root
is", res2))

}
```

○

```
 cubsqrt <- function(x, y) {
         res1 <- x^3 + y^3
         res2 <- sqrt(res1)
         print{paste{"The value of sum of", x, "cube and", y, "cube is", res1, "and its square
root is", res2}}
}
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
cubsqrt <- function(x, y) {

   res1 <- x^3 + y^3

   res2 <- sqrt(res1)

   print(paste("The value of sum of", x, "cube and", y, "cube
is", res1, "and its square root is", res2))

}
```

10) Which one of the following is the correct code of the function to obtain the value of following function on the basis of given data values of $x = (x_1, x_2, \ldots, x_n)$ and $y = (y_1, y_2, \ldots, y_n)$. *1 point*

$$f(x, y) = \frac{\sum_{i=1}^{n} \left(\frac{x_i}{y_i}\right)^4}{\sqrt[3]{\sum_{i=1}^{n} \left(\frac{x_i}{y_i}\right)^4} + \log\left(\sum_{i=1}^{n} \left(\frac{x_i}{y_i}\right)^4\right)^{1/5}}$$

○

```
x=c(x1,x2,...,xn)

y=c(y1,y2,...,yn)
```

```
g <-  function(x,y)
{
  n <- length(x)
  z <- 0
  for (i in 1:n)
  (
    z[i] <- (x[i]/y[i])^4
  )
  sum(z)
}

f<-function()
{
fxy <- g(x,y)^2/g(x,y)^(1/3) + (log(g(x,y)))^(1/5)
fxy
}
```

○

```
x=c(x1,x2,...,xn),
y=c(y1,y2,...,yn)

g <-  function(x,y)
{
  n <- length(x)
  z <- 0
  for (i in 1:n)
  {
    z[i] <- (x[i]/y[i])^4
  }
  sum(z)
}

f<-function()
{
fxy <- g(x,y)^2/(g(x,y)^(1/3) + (log(g(x,y)))^(1/5))
fxy
}
```

○

```
x=c(x1,x2,...,xn),
y=c(y1,y2,...,yn)

g <-  function(x,y)
{
  n <- length(x)
  z <- 0
  for (i in 1:n)
  {
```

```
    z[i] <- (x[i]/y[i])^4
  }
  sum(z)
}

f<-function()
{
fxy <- g(x,y)^2/g(x,y)^(1/3) + (log(g(x,y)))^(1/5)
fxy
}
```

○

```
x=c(x1,x2,...,xn),
y=c(y1,y2,...,yn)

g <-  function(x,y)
[
  n <- length(x)
  z <- 0
  for (i in 1:n)
  {
    z[i] <- (x[i]/y[i])^4
  }
  sum(z)
]

f<-function()
[
fxy <- g(x,y)^2/(g(x,y)^(1/3) + (log(g(x,y)))^(1/5))
fxy
]
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
x=c(x1,x2,...,xn),
y=c(y1,y2,...,yn)

g <-  function(x,y)
{
  n <- length(x)
  z <- 0
  for (i in 1:n)
  {
    z[i] <- (x[i]/y[i])^4
  }
  sum(z)
}
```

```
f<-function()

{

fxy <- g(x,y)^2/(g(x,y)^(1/3) + (log(g(x,y)))^(1/5))

fxy

}
```