Godavari Foundation's

Godavari College of Engineering, Jalgaon

Department of Computer

Continuous Assessment I/II

Introduction to Data Science with R

Date:-_____

Name of Student:- _____

Class:-_____ **PRN No:-_____**

Title: -

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Aim: -

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Software Requirement: _____

Hardware Requirement:- _____

Theory:-

Create a Vector

Vectors are one-dimension arrays that can hold numeric data, character data, or logical data. In other words, a vector is a simple tool to store data.

```
numeric_vector <- c(1, 2, 3)
character_vector <- c("a", "b", "c")
boolean_vector <- c(TRUE, FALSE, TRUE)
```

Naming a vector

```
some_vector <- c("John Doe", "poker player")
names(some_vector) <- c("Name", "Profession")
```

```
       Name     Profession
  "John Doe" "poker player"
```

Naming a vector (2)

```
# Poker winnings from Monday to Friday
poker_vector <- c(140, -50, 20, -120, 240)

# Roulette winnings from Monday to Friday
roulette_vector <- c(-24, -50, 100, -350, 10)

# The variable days_vector
days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")

# Assign the names of the day to roulette_vector and poker_vector
names(poker_vector) <- days_vector
names(roulette_vector) <- days_vector
```

Calculating total winnings

```
Arithmetic calculations on vectors
c(1, 2, 3) + c(4, 5, 6)
c(1 + 4, 2 + 5, 3 + 6)
c(5, 7, 9)
Calculations with variables that represent vectors:
a <- c(1, 2, 3)
b <- c(4, 5, 6)
c <- a + b
```

Take the sum of the variables `A_vector` and `B_vector` and assign it to `total_vector`.

```
A_vector <- c(1, 2, 3)
B_vector <- c(4, 5, 6)

# Take the sum of A_vector and B_vector
total_vector <- A_vector + B_vector

# Print out total_vector
```

total_vector

Calculating total winnings (3)

Calculate the total amount of money that is won/lost with roulette and assign to the variable `total_roulette`.

```
# Poker and roulette winnings from Monday to Friday:
poker_vector <- c(140, -50, 20, -120, 240)
roulette_vector <- c(-24, -50, 100, -350, 10)
days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")
names(poker_vector) <- days_vector
names(roulette_vector) <- days_vector

# Total winnings with poker
total_poker <- sum(poker_vector)

# Total winnings with roulette
total_roulette <-  sum(roulette_vector)

# Total winnings overall
total_week <- total_roulette + total_poker

# Print out total_week
total_week
```

Comparing total winnings

```
# Poker and roulette winnings from Monday to Friday:
poker_vector <- c(140, -50, 20, -120, 240)
roulette_vector <- c(-24, -50, 100, -350, 10)
days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")
names(poker_vector) <- days_vector
names(roulette_vector) <- days_vector

# Calculate total gains for poker and roulette
total_poker <- sum(poker_vector)
total_roulette <- sum(roulette_vector)

# Check if you realized higher total gains in poker than in roulette
total_poker > total_roulette
```

Vector selection

```
# Poker and roulette winnings from Monday to Friday:
poker_vector <- c(140, -50, 20, -120, 240)
roulette_vector <- c(-24, -50, 100, -350, 10)
days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")
names(poker_vector) <- days_vector
names(roulette_vector) <- days_vector

# Define a new variable based on a selection
poker_wednesday <- poker_vector[3]

# Calculate the average of the elements in poker_vector
mean(poker_vector)
```

Source Code:-

```
## Create a Vector
numeric_vector <- c(1, 2, 3)
character_vector <- c("a", "b", "c")
boolean_vector <- c(TRUE, FALSE, TRUE)

## Naming a vector
some_vector <- c("John Doe", "poker player")
names(some_vector) <- c("Name", "Profession")

## Print some_vector
some_vector

## Naming a vector (2)
poker_vector <- c(140, -50, 20, -120, 240)
roulette_vector <- c(-24, -50, 100, -350, 10)
days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")
names(poker_vector) <- days_vector
names(roulette_vector) <- days_vector

## Print poker_vector
poker_vector

## Print roulette_vector
roulette_vector

## Calculating total winnings
A_vector <- c(1, 2, 3)
```

```
B_vector <- c(4, 5, 6)

# Take the sum of A_vector and B_vector
total_vector <- A_vector + B_vector

# Print out total_vector
total_vector

## Calculating total winnings (3)
total_poker <- sum(poker_vector)

# Print total_poker
total_poker

total_roulette <-  sum(roulette_vector)

# Print total_roulette
total_roulette
total_week <- total_roulette + total_poker

# Print out total_week
total_week

## Comparing total winnings
# Check if you realized higher total gains in poker than in roulette
total_poker > total_roulette

## Vector selection
poker_wednesday <- poker_vector[3]

# Print poker_wednesday
poker_wednesday

# Calculate the average of the elements in poker_vector
mean(poker_vector)
```

Output:-

```
> ##Create a Vector
> numeric_vector <- c(1, 2, 3)
> character_vector <- c("a", "b", "c")
> boolean_vector <- c(TRUE, FALSE, TRUE)
> ## Naming a vector
>
> some_vector <- c("John Doe", "poker player")
```

```
> names(some_vector) <- c("Name", "Profession")
>
> some_vector
        Name     Profession
   "John Doe" "poker player"
> ## Naming a vector (2)
> poker_vector <- c(140, -50, 20, -120, 240)
> roulette_vector <- c(-24, -50, 100, -350, 10)
> days_vector <- c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday")
> names(poker_vector) <- days_vector
> names(roulette_vector) <- days_vector
> poker_vector
  Monday   Tuesday Wednesday  Thursday    Friday
     140       -50        20      -120       240
> roulette_vector
  Monday   Tuesday Wednesday  Thursday    Friday
     -24       -50       100      -350        10
> ## Calculating total winnings
> A_vector <- c(1, 2, 3)
> B_vector <- c(4, 5, 6)
>
> # Take the sum of A_vector and B_vector
> total_vector <- A_vector + B_vector
> # Print out total_vector
> total_vector
[1] 5 7 9
> ## Calculating total winnings (3)
> total_poker <- sum(poker_vector)
> # Print total_poker
> total_poker
[1] 230
> total_roulette <-  sum(roulette_vector)
> # Print total_roulette
> total_roulette
[1] -314
> total_week <- total_roulette + total_poker
>
> # Print out total_week
> total_week
```

```
[1] -84
> ## Comparing total winnings
> # Check if you realized higher total gains in poker than in roulette
> total_poker > total_roulette
[1] TRUE
> ## Vector selection
> poker_wednesday <- poker_vector[3]
> # Print poker_wednesday
> poker_wednesday
Wednesday
      20
> # Calculate the average of the elements in poker_vector
> mean(poker_vector)
[1] 46
```

Conclusion:-

_____

_____