**WEEK-3: R PROGRAMMING LAB**

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**TASKS ON VECTORS:**

1. **Write a R program to reverse the order of given vector.**

vec <- c(1, 3, 4, 5, 6, 2, -1)

print(rev(vec))

print(vec[length(vec):1]) # 2nd way to do it

**Output:**

> vec <- c(1, 3, 4, 5, 6, 2, -1)

> print(rev(vec))

[1] -1 2 6 5 4 3 1

1. **Write a R program to concatenate a vector with other**

v1 = c(1, 2, 3)

v2 = c(4, 5, 6)

print(c(v1, v2))

**Output:**

> v1 = c(1, 2, 3)

> v2 = c(4, 5, 6)

> print(c(v1, v2))

[1] 1 2 3 4 5 6

**3. Write a R program to count number of  values in a range in a given vector.**

v1 = c(1, 2, 3, 4, 5, 6)

start = 4

end = 6

print(length(v1[start:end]))

**Output:**

> x <- 1:3

> y <- 4:6

> cbind(x,y)

x y

[1,] 1 4

[2,] 2 5

[3,] 3 6

**4.Write a R program to combines two given vectors - By row and By column**

x <- 1:3

y <- 4:6

cbind(x,y)

rbind(x,y)

**Output:**

> rbind(x,y)

[,1] [,2] [,3]

x 1 2 3

y 4 5 6

1. **Write a R program to test whether the value of the element of a given vector greater than 10 or not. Return TRUE or False**

a<-c(1,2,3,4,5,11,22,33,44)

b = any(a>10)

b

**Output:**

> a<-c(1,2,3,4,5,11,22,33,44)

> b = any(a>10)

> b[1] TRUE

**6. Write a R program to create a list containing strings, numbers, vectors and a logical values.**

list1 <- list(

a = "Hello, world!",

b = 42,

c = c(1.5, 2.3, 4.7),

d = c("apple", "banana", "orange"),

e = TRUE

)

list1

**Output:**

list1 <- list(

+ a = "Hello, world!",

+ b = 42,

+ c = c(1.5, 2.3, 4.7),

+ d = c("apple", "banana", "orange"),

+ e = TRUE

+ )

> list1

$a

[1] "Hello, world!"

$b

[1] 42

$c

[1] 1.5 2.3 4.7

$d

[1] "apple" "banana" "orange"

$e

[1] TRUE

**7.Write a R program to create a list containing a vector, a matrix and a list and give names to the elements in the list. Access the first and second element of the list.**a = c(1,2,3,4,5)

b = matrix(1:4, nrow = 2)

b

list1 = list(name = "Zoro", age = 25)

list2 = list(a,b,list1)

names(list2) = c("a","b","list1")

x <- list2[[1]]

y<- list2[[2]]

x

y

**Output:**

> a = c(1,2,3,4,5)

> b = matrix(1:4, nrow = 2)

> b

[,1] [,2]

[1,] 1 3

[2,] 2 4

> list1 = list(name = "Zoro", age = 25)

> list2 = list(a,b,list1)

> names(list2) = c("a","b","list1")

> x <- list2[[1]]> y<- list2[[2]]

> x

[1] 1 2 3 4 5

> y

[,1] [,2]

[1,] 1 3

[2,] 2 4

**8.Write a R program to create a list containing a vector, a matrix and a list and add element at the end of the list**

a <- c(1, 2, 3, 4, 5)

b <- matrix(1:6, nrow = 2)

list1 <- list(name = "Zoro", age = 23)

list2 <- list(a,b,list1)

x<- "New"

list2 <- append(list2, list(x))

list2

**Output:**

> a <- c(1, 2, 3, 4, 5)

> b <- matrix(1:6, nrow = 2)

> list1 <- list(name = "Zoro", age = 23)

> list2 <- list(a,b,list1)

> x<- "New"

> list2 <- append(list2, list(x))

> list2

[[1]]

[1] 1 2 3 4 5

[[2]]

[,1] [,2] [,3]

[1,] 1 3 5

[2,] 2 4 6

[[3]]

[[3]]$name

[1] "Zoro"

[[3]]$age

[1] 23

[[4]]

[1] "New"

1. **Write a R program to select second element of a given nested list**

list1 <- list(

list(1, 2, 3),

list("a", "b", "c"),

list(TRUE, FALSE, TRUE)

)

list1[[2]]

**Output:**

> list1 <- list(

+ list(1, 2, 3),

+ list("a", "b", "c"),

+ list(TRUE, FALSE, TRUE)

+ )

> list1[[2]]

[[1]]

[1] "a"

[[2]]

[1] "b"

[[3]]