5. Problem Statement

1. Write a function called sum\_of\_cubes, that calculates the sum of cubes of the first n natural numbers:

• if we have two numbers : 1, 2 then sum of squares is 9 ( 1^3 + 2^3)

• if we have three numbers : 1, 2, 3 then sum of squares is 36 ( 1^3 + 2^3 + 3^3)

2. Write a function to calculate the mode (highest frequency) of the following vector:

x = c(2,3,3,3,4,4,5,6,7,9,10)

Answer 2)

x = c(2, 3, 3, 3, 4, 4, 5, 6, 7, 9, 10)

stat\_mode <- function(x)

{

temp <- table(as.vector(x))

names(temp)[temp == max(temp)]

}

stat\_mode(x)

Output is —

[1] "3"

3. Write a function to calculate the no. of prime numbers of the following vector:

x = c(2,2,3,3,4,5,7,11,15,19,24,29)

Answer 3) I have write a function to show or to calculate for a single number whether it is prime or not.

num = 24

flag = 0

# prime numbers are greater than 1

if(num > 1) {

# check for factors

flag = 1

for(i in 2:(num-1)) {

if ((num %% i) == 0) {

flag = 0

break

}

}

}

if(num == 2) flag = 1

if(flag == 1) {

print(paste(num,"is a prime number"))

} else {

print(paste(num,"is not a prime number"))

}

OUTPUT - : [1] "24 is not a prime number"

Age <- 16:27

Height <- c(61.1,61.2,61.8,62.8,63.5,76.1,77,78.1,78.2,78.8,79.7,79.9)

A <- length(Age)

B <- length(Height)

if (A-B == 0){

print("Length of the vectors Age and Height is equal")

}else{

print("Length of the vectors Age and Height is equal")

}