Assignment 16.2

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)

Answer) Formula for calculating Sum of Cubes = (n\*n(n+1)^2)/4

# Here we are assuming that function will calculate the sum of cubes of 100 numbers.

SOC = function(n){(n^2\*(n+1)^2)/4} # SOC Is sum\_of\_cubes

D=100

numb <- data.frame(D)

numb$soc <- SOC(numb$D)

print(numb)

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

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

Answer)

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

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

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

2 )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)

primefn <- function(x) {

x <- abs(as.integer(x))

!grepl('^1?$|^(11+?)\\1+$', strrep('1', x))

}

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

prime = data.frame(x)

prime$PRIMEFN = primefn(prime$x)

print(prime)