



# VIT<sup>®</sup>

**Vellore Institute of Technology**  
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**Lab Slot: L9 + L10**

**Lab Exercise: 1**

**1. Question:**

Qn1:

- a. Create and store a vector that contains the following, in this order:
  - A sequence of length 5 from 3 to 6 (inclusive)
  - A twofold repetition of the vector `c(2,-5.1,-33)`
  - The value `7 42 + 2`
- b. Extract the first and last elements of your vector from (a), storing them as a new object.
- c. Store as a third object the values returned by omitting the first and last values of your vector from (a).
- d. Use only (b) and (c) to reconstruct (a).
- e. Overwrite (a) with the same values sorted from smallest to largest.
- f. Use the colon operator as an index vector to reverse the order of (e), and confirm this is identical to using `sort on (e) with decreasing=TRUE`.
- g. Create a vector from (c) that repeats the third element of (c) three times, the sixth element four times, and the last element once.

h. Create a new vector as a copy of (e) by assigning (e) as is to a newly named object. Using this new copy of (e), overwrite the first, the fifth to the seventh (inclusive), and the last element with the values 99 to 95 (inclusive), respectively.

## 2. Code:

```
# a
v1 <- seq(3, 6, length.out = 5)
v2 <- rep(c(2, -5.1, -33), times = 2)
ans <- 742 + 2

a <- c(v1, v2, ans)
print(a)

# b
b <- c(a[1], a[length(a)])
print(b)

# c
c_obj <- a[-c(1, length(a))]
print(c_obj)

# d
a_reconstructed <- c(b[1], c_obj, b[2])
print(a_reconstructed)

# e
a <- sort(a)
print(a)

# f
rev1 <- a[length(a):1]
rev2 <- sort(a, decreasing = TRUE)

print(identical(rev1, rev2)) # should return TRUE

# g
g <- c(
  rep(c_obj[3], 3),
  rep(c_obj[6], 4),
  c_obj[length(c_obj)]
)
```

```

print(g)

# h
h <- a      # copy of (e)

h[c(1, 5:7, length(h))] <- 99:95
print(h)

```

### 3. Output:

```

> source("C:/Users/ex3/23BDS1172/lab1/lab1.R")
[1] 3.00 3.75 4.50 5.25 6.00 2.00 -5.10 -33.00 2.00 -5.10 -33.00 744.00
[1] 3 744
[1] 3.75 4.50 5.25 6.00 2.00 -5.10 -33.00 2.00 -5.10 -33.00
[1] 3.00 3.75 4.50 5.25 6.00 2.00 -5.10 -33.00 2.00 -5.10 -33.00 744.00
[1] -33.00 -33.00 -5.10 -5.10 2.00 2.00 3.00 3.75 4.50 5.25 6.00 744.00
[1] TRUE
[1] 5.25 5.25 5.25 -5.10 -5.10 -5.10 -5.10 -33.00
[1] 99.00 -33.00 -5.10 -5.10 98.00 97.00 96.00 3.75 4.50 5.25 6.00 95.00
>

```

values	
a	num [1:12] -33 -33 -5.1 -5.1 2 2 3 3.75 4.5 5.25 ...
a_reconstructed	num [1:12] 3 3.75 4.5 5.25 6 2 -5.1 -33 2 -5.1 ...
ans	744
b	num [1:2] 3 744
c_obj	num [1:10] 3.75 4.5 5.25 6 2 -5.1 -33 2 -5.1 -33
g	num [1:8] 5.25 5.25 5.25 -5.1 -5.1 -5.1 -5.1 -33
h	num [1:12] 99 -33 -5.1 -5.1 98 97 96 3.75 4.5 5.25 ...
rev1	num [1:12] 744 6 5.25 4.5 3.75 3 2 2 -5.1 -5.1 ...
rev2	num [1:12] 744 6 5.25 4.5 3.75 3 2 2 -5.1 -5.1 ...
v1	num [1:5] 3 3.75 4.5 5.25 6
v2	num [1:6] 2 -5.1 -33 2 -5.1 -33