4_RObjects

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introducing R objects

vectors

hold values of same class and declared using vector () and c()

```
v1 <- c(1,2,3,4,5,6,7,8,9,10)

v1
```

```
## [1]  1  2  3  4  5  6  7  8  9 10
```

```
class(v1)
```

```
## [1] "numeric"
```

```
v2 <- c("hitesh","gajuji","solanki")

v2
```

```
## [1] "hitesh"  "gajuji"  "solanki"
```

```
class(v2)
```

```
## [1] "character"
```

```
v3 <- c(T,F)

v3
```

```
## [1]  TRUE FALSE
```

```
class(v3)
```

```
## [1] "logical"
```

```r
### how to create vactor using vactor ()

v4 <- vector("numeric", length = 20)

v4
```

```
##  [1] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```r
class(v4)
```

```
## [1] "numeric"
```

```r
length(v4)
```

```
## [1] 20
```

```r
### concatinating vector meaning mixing two vector of diffrent class and auto assigning mutual class

v5 <- c("hitesh" , "gajuji")

v6 <- c(1,2)

v7 <- c(v5,v6)

v7
```

```
## [1] "hitesh" "gajuji" "1"      "2"
```

```r
class(v7)
```

```
## [1] "character"
```

```r
v8 <- c(T,F)

class(v8)
```

```
## [1] "logical"
```

```r
v9 <- c("True", "False")

class(v9)
```

```
## [1] "character"
```

```r
v10 <- c(v8,v9)

v10
```

```
## [1] "TRUE"  "FALSE" "True"  "False"
```

```r
class(v10)
```

```
## [1] "character"
```

how to print ABCD

```r
v11 <- letters[1:26]
v11
```

```
##  [1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s"
## [20] "t" "u" "v" "w" "x" "y" "z"
```

how to do external cohersion using as.xxx() function

```r
v12 <- 1:10
v12
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10
```

```r
class(v12)
```

```
## [1] "integer"
```

```r
v13 <-as.numeric(v12)
class(v13)
```

```
## [1] "numeric"
```

```r
v14 <- as.character(v12)
class(v14)
```

```
## [1] "character"
```

```r
v15 <- as.logical(v12)
v15
```

```
##  [1] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
```

```r
class(v15)
```

```
## [1] "logical"
```

```
v16 <- "hitesh"

v17 <- as.numeric(v16)
```

```
## Warning: NAs introduced by coercion
```

```
class(v17)
```

```
## [1] "numeric"
```

```
v17
```

```
## [1] NA
```

```
### how to get attributes
```

```
v18 <- "my name is hitesh"

attributes(v18)
```

```
## NULL
```

list ()

can hold value of multiple class

```
### while creating list each item is seperate vector

l1 <- list("hitesh", 5 , T)

l1
```

```
## [[1]]
## [1] "hitesh"
##
## [[2]]
## [1] 5
##
## [[3]]
## [1] TRUE
```

```
class(l1)
```

```
## [1] "list"
```

```
attributes(l1)
```

```
## NULL
```

how to assign names to list objects

```
l2 <- list("names" = c("hitesh","gajuji"), "Age" = c(22,50), "alive"= c(T,T))
```

```
l2
```

```
## $names
## [1] "hitesh" "gajuji"
##
## $Age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
```

```
class(l2)
```

```
## [1] "list"
```

```
attributes(l2)
```

```
## $names
## [1] "names" "Age"    "alive"
```

hoe to check if it is list

```
class(l2)
```

```
## [1] "list"
```

```
is.list(l2)
```

```
## [1] TRUE
```

how to give name to list after creating list

```
l3 <- list(c("hitesh","gajuji"),c(22,50), c(T,T))
```

```
l3
```

```
## [[1]]
## [1] "hitesh" "gajuji"
##
## [[2]]
## [1] 22 50
##
## [[3]]
## [1] TRUE TRUE
```

```r
names(l3) <- c("name","age","alive")
```

```r
l3
```

```
## $name
## [1] "hitesh" "gajuji"
##
## $age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
```

how to get value from list

```r
l3
```

```
## $name
## [1] "hitesh" "gajuji"
##
## $age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
```

```r
l3[[1]]
```

```
## [1] "hitesh" "gajuji"
```

```r
l3[[2]]
```

```
## [1] 22 50
```

```r
l3[[3]]
```

```
## [1] TRUE TRUE
```

```r
l3
```

```
## $name
## [1] "hitesh" "gajuji"
##
## $age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
```

```
### how to get well output using str

l4 <-str(l3)
```

```
## List of 3
##  $ name : chr [1:2] "hitesh" "gajuji"
##  $ age  : num [1:2] 22 50
##  $ alive: logi [1:2] TRUE TRUE
```

```
l4
```

```
## NULL
```

```
### how to get specific output from list

l3[[1]]
```

```
## [1] "hitesh" "gajuji"
```

```
l3$name[[1]]
```

```
## [1] "hitesh"
```

```
l3$name[[2]]
```

```
## [1] "gajuji"
```

```
# using similar function

l4 <- list("name" = "rashmika", "age" = 30, "alive" = T)

l2 <- list("names" = c("hitesh","gajuji"), "Age" = c(22,50), "alive"= c(T,T), similar = l4)

l2
```

```
## $names
## [1] "hitesh" "gajuji"
##
## $Age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
##
## $similar
## $similar$name
## [1] "rashmika"
##
## $similar$age
```

```
## [1] 30
##
## $similar$alive
## [1] TRUE
```

```r
# getting perticulat object from list

l2[[1]]
```

```
## [1] "hitesh" "gajuji"
```

```r
l2$names[[1]]
```

```
## [1] "hitesh"
```

```r
l2$similar[[1]]
```

```
## [1] "rashmika"
```

```r
l2$similar$name[[1]]
```

```
## [1] "rashmika"
```

accessing a list item from name

```r
l2$names
```

```
## [1] "hitesh" "gajuji"
```

```r
l2[["names"]]
```

```
## [1] "hitesh" "gajuji"
```

```r
l2[["Age"]]
```

```
## [1] 22 50
```

how to use logics to get list

```r
l2
```

```
## $names
## [1] "hitesh" "gajuji"
##
## $Age
## [1] 22 50
##
## $alive
```

```
## [1] TRUE TRUE
##
## $similar
## $similar$name
## [1] "rashmika"
##
## $similar$age
## [1] 30
##
## $similar$alive
## [1] TRUE
```

```
l2[c(T,F,T,F,T,F)]
```

```
## $names
## [1] "hitesh" "gajuji"
##
## $alive
## [1] TRUE TRUE
##
## $<NA>
## NULL
```

```
### how to add vector in list
```

```
l2
```

```
## $names
## [1] "hitesh" "gajuji"
##
## $Age
## [1] 22 50
##
## $alive
## [1] TRUE TRUE
##
## $similar
## $similar$name
## [1] "rashmika"
##
## $similar$age
## [1] 30
##
## $similar$alive
## [1] TRUE
```

```
vect <- "kamkhya"
```

```
vect2 <- 3
```

```
vect3 <- T
```

```
l2 <- list("names" = c("hitesh","gajuji", vect), "Age" = c(22,50, vect2), "alive"= c(T,T,vect3), simila

l2
```

```
## $names
## [1] "hitesh"  "gajuji"  "kamkhya"
##
## $Age
## [1] 22 50  3
##
## $alive
## [1] TRUE TRUE TRUE
##
## $similar
## $similar$name
## [1] "rashmika"
##
## $similar$age
## [1] 30
##
## $similar$alive
## [1] TRUE
```