4_RDataTypes_2

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Data Types

Data Frame

it stroe value in form of table and multiple class

```
family = data.frame("name" = c("hitesh","gajuji","Manjulaben","Rashmika","Kamakhya"),"Relation" = c("Se

View(family)

print(family)
```

excample

```
##         name Relation age occupation
## 1     hitesh     Self  22    Student
## 2     gajuji   Father  50     Farmer
## 3 Manjulaben   Mother  48  Housewife
## 4   Rashmika   Sister  30  Housewife
## 5   Kamakhya    Bhani   3         NA
```

```
name <- c("Hitesh","Gajuji")

age <- c(22,50)

occupation <- c("student", "Farmers")


data_frame_1 <- data.frame(name,age,occupation)


print(data_frame_1)
```

how to create data rame using vectors

```
##     name age occupation
## 1 Hitesh  22    student
## 2 Gajuji  50    Farmers
```

```
str(data_frame_1)
```

how to convert data frame to str

```
## 'data.frame':    2 obs. of  3 variables:
##  $ name      : chr  "Hitesh" "Gajuji"
##  $ age       : num  22 50
##  $ occupation: chr  "student" "Farmers"
```

```
data_frame_1 <- data.frame(name,age,occupation, stringsAsFactors = T)

str(data_frame_1)
```

how to enable disable factor

```
## 'data.frame':    2 obs. of  3 variables:
##  $ name      : Factor w/ 2 levels "Gajuji","Hitesh": 2 1
##  $ age       : num  22 50
##  $ occupation: Factor w/ 2 levels "Farmers","student": 2 1
```

```
data_frame_1 <- data.frame(name,age,occupation, stringsAsFactors = F)

str(data_frame_1)
```

```
## 'data.frame':    2 obs. of  3 variables:
##  $ name      : chr  "Hitesh" "Gajuji"
##  $ age       : num  22 50
##  $ occupation: chr  "student" "Farmers"
```

```
data_frame_1
```

how to extract values form data frame

```
##     name age occupation
## 1 Hitesh  22    student
## 2 Gajuji  50    Farmers
```

```
data_frame_1[2,3]
```

```
## [1] "Farmers"
```

```
data_frame_1$name[2]
```

```
## [1] "Gajuji"
```

```
data_frame_1$occupation[2]
```

```
## [1] "Farmers"
```

```
data_frame_1[c(1,2),c("occupation","age")]
```

how to get data from data from perticular

```
##   occupation age
## 1    student  22
## 2    Farmers  50
```

```
data_frame_2 <- mtcars
```

```
View(data_frame_2)
```

```
data_frame_2["Valiant",c("mpg","hp")]
```

```
##          mpg  hp
## Valiant 18.1 105
```

```
data_frame_2[[1]] #### mpg in vector
```

diffrance between [] output in dta frame and [[]] output in vector

```
##  [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2 10.4
## [16] 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4 15.8 19.7
## [31] 15.0 21.4
```

```
data_frame_2[1] #### mpg in data frame
```

```
##                      mpg
## Mazda RX4           21.0
## Mazda RX4 Wag       21.0
## Datsun 710          22.8
## Hornet 4 Drive      21.4
## Hornet Sportabout   18.7
## Valiant             18.1
```

```
## Duster 360          14.3
## Merc 240D           24.4
## Merc 230            22.8
## Merc 280            19.2
## Merc 280C           17.8
## Merc 450SE          16.4
## Merc 450SL          17.3
## Merc 450SLC         15.2
## Cadillac Fleetwood  10.4
## Lincoln Continental 10.4
## Chrysler Imperial   14.7
## Fiat 128            32.4
## Honda Civic         30.4
## Toyota Corolla      33.9
## Toyota Corona       21.5
## Dodge Challenger    15.5
## AMC Javelin         15.2
## Camaro Z28          13.3
## Pontiac Firebird    19.2
## Fiat X1-9           27.3
## Porsche 914-2       26.0
## Lotus Europa        30.4
## Ford Pantera L      15.8
## Ferrari Dino        19.7
## Maserati Bora       15.0
## Volvo 142E          21.4
```

```
data_frame_2[["Valiant",c("mpg")]] #### vector formate
```

```
## [1] 18.1
```

```
data_frame_2["Valiant",c("mpg")] #### data frame
```

```
## [1] 18.1
```

```
name <- c("hitesh","gajuji")

age <- c(22,50)


dat_frame_3 <- data.frame(name,age)

dat_frame_3
```

how to add extra row and column in data frame

```
##     name age
## 1 hitesh  22
## 2 gajuji  50
```

```r
occupation <- c("student","farmer")

dat_frame_3$occupation <- occupation

dat_frame_3
```

```
##     name age occupation
## 1 hitesh  22    student
## 2 gajuji  50     farmer
```

```r
alive <- c(T,T)

cbind(dat_frame_3,alive)
```

```
##     name age occupation alive
## 1 hitesh  22    student  TRUE
## 2 gajuji  50     farmer  TRUE
```

```r
df <- data.frame("name" = "rashmika", "age" = "30", "occupation" = "house-wife")

df
```

```
##       name age occupation
## 1 rashmika  30 house-wife
```

```r
df2 <- rbind(dat_frame_3,df)

df2
```

```
##       name age occupation
## 1   hitesh  22    student
## 2   gajuji  50     farmer
## 3 rashmika  30 house-wife
```

```r


df2
```

how to short and order data

```
##       name age occupation
## 1   hitesh  22    student
## 2   gajuji  50     farmer
## 3 rashmika  30 house-wife
```

```r
sort(df2$age)
```

```
## [1] "22" "30" "50"
```

```
ranks <- order(df2$age)

ranks
```

```
## [1] 1 3 2
```

```
df2$age
```

```
## [1] "22" "50" "30"
```

```
ranks <- order(df$name)

ranks
```

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

```


df2
```

how to order data frame

```
##       name age occupation
## 1   hitesh  22    student
## 2   gajuji  50     farmer
## 3 rashmika  30 house-wife
```

```
ranks <- order(df2$age)


df2[ranks,]
```

```
##       name age occupation
## 1   hitesh  22    student
## 3 rashmika  30 house-wife
## 2   gajuji  50     farmer
```

```
df2[order(df2$age, decreasing = F)]
```

```
##       name occupation age
## 1   hitesh    student  22
## 2   gajuji     farmer  50
## 3 rashmika house-wife  30
```

vectors

hold similar value one dimention

```r
v1 <- c("Hitesh","gajuji","manjulaben")

v2 <- c(1,2,3)

v3 <- c(T,T,T)


v1;v2;v3
```

```
## [1] "Hitesh"     "gajuji"     "manjulaben"
```

```
## [1] 1 2 3
```

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

```r
### extrenal coersion


v4 <- c("hitesh",23,T)

v4
```

```
## [1] "hitesh" "23"     "TRUE"
```

```r
### creating sequence


v5 <- 1:10
v5
```

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

```r
v5 <- seq(1,10)
v5
```

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

```r
v5 <- seq(1,10,5)
v5
```

```
## [1] 1 6
```

```r
v6 <- seq(from=21, by=5, length = 10)
v6
```

```
##  [1] 21 26 31 36 41 46 51 56 61 66
```

```r
### how to assign value to vector


tempr <- c(45,44,43,42,41)

tempr
```

```
## [1] 45 44 43 42 41
```

```r
names(tempr) <- c("mon","tue","wed","thur","fri")

tempr
```

```
##  mon  tue  wed thur  fri
##   45   44   43   42   41
```

```r
tempr["mon"]
```

```
## mon
##  45
```

```r
tempr[1]
```

```
## mon
##  45
```

```r
### ------------------------------------------------------------------

name <- c("hitesh","gajuji","rashmika","kamakhya")

age <- c(22,50,30,3)


names(age) <- name

age
```

```
##   hitesh   gajuji rashmika kamakhya
##       22       50       30        3
```

```r
### ------------------------------------------------------------------


price <- c(100:110)

price
```

```
##  [1] 100 101 102 103 104 105 106 107 108 109 110
```

```r
names(price) <- paste0("p",1:11)


price
```

```
##  p1  p2  p3  p4  p5  p6  p7  p8  p9 p10 p11
## 100 101 102 103 104 105 106 107 108 109 110
```

```r
### mathamatical operation on vector


v1 <- c(1,2,3)


v2 <- c(4,5,6)

v1 + v2
```

```
## [1] 5 7 9
```

```r
v1[1] + v2[3]
```

```
## [1] 7
```

```r
v1 * v2
```

```
## [1]  4 10 18
```

```r
v1 * v2[1]
```

```
## [1]  4  8 12
```

```r
### comparing the vectors



v1 <- c(4,5,6)

v2 <- c(7,8,9)

v1 > v2
```

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

```r
v2 > v1
```

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

```r
v2[2] > v1[2]
```

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

```r
v1 == v2
```

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

```r
v1 != v2
```

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

```r
v4 <- c(1,2,3,4,5,6,7,8)

v4 > 3
```

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

```r
v4 != 3
```

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

```r
v4 == 3
```

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

```r
### -----------------------------------------


v5 <- c(101:110)

names(v5) <- paste0("p",1:10)

v5
```

```
##  p1  p2  p3  p4  p5  p6  p7  p8  p9 p10
## 101 102 103 104 105 106 107 108 109 110
```

```r
v5[4] == v5["p4"]
```

```
##   p4
## TRUE
```

```r
### how to skeep value


v5[c(-2,-4)]
```

```
##  p1  p3  p5  p6  p7  p8  p9 p10
## 101 103 105 106 107 108 109 110
```

```
### ------------------------

v5
```

```
##  p1  p2  p3  p4  p5  p6  p7  p8  p9 p10
## 101 102 103 104 105 106 107 108 109 110
```

```
filter <- v5 > 104

v5[filter]
```

```
##  p5  p6  p7  p8  p9 p10
## 105 106 107 108 109 110
```

```
v5[v5>103]
```

```
##  p4  p5  p6  p7  p8  p9 p10
## 104 105 106 107 108 109 110
```