#Data Structures in R

#vectors #array #list #matrix #data frame

```r
a<-c(1,2,3,4.5,6)
a
```

```
## [1] 1.0 2.0 3.0 4.5 6.0
```

```r
b<-10:20
b
```

```
##  [1] 10 11 12 13 14 15 16 17 18 19 20
```

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

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

```r
seq<-seq(1,10,by=2)
seq
```

```
## [1] 1 3 5 7 9
```

```r
len_out<-seq(1,50,length.out=6)
len_out
```

```
## [1]  1.0 10.8 20.6 30.4 40.2 50.0
```

Numeric vector

```r
n_vec<-c(1,2,3,4,5.66,7,8)
print(n_vec)
```

```
## [1] 1.00 2.00 3.00 4.00 5.66 7.00 8.00
```

```r
class(n_vec)
```

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

```r
int_vec<-c(1,2,3,4,5)
int_vec<-as.integer(int_vec)
class(int_vec)
```

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

```r
int_vec2<-c(3L,6L,7L)
class(int_vec2)
```

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

```r
char<-c(1,2,3,4,5)
char<-as.character(char)
class(char)
```

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

```r
char1<-c("shakib","tamim","riyad","musfiq")
class(char1)
```

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

```r
print(char1)
```

```
## [1] "shakib" "tamim"  "riyad"  "musfiq"
```

```r
char_vec<-c("shakib"=12,"tamim"=30,"riyad"=60)
char_vec["tamim"]
```

```
## tamim
##    30
```

```r
a<-c(1,2,5,4,6,7,9,10)
a[c(TRUE,FALSE,TRUE,TRUE,FALSE,TRUE,FALSE,FALSE)]
```

```
## [1] 1 5 4 7
```

```r
b1<-c(1,2,3)
b2<-c("rakib","tamim","fariha")
b3<-c(b1,b2)
print(b3)
```

```
## [1] "1"      "2"      "3"      "rakib"  "tamim"  "fariha"
```

```r
b4<-c(1,2,3,8,9,10)
b5<-c(1,2,3,5,4,8)
b6<-b4+b5
print(b6)
```

```
## [1]  2  4  6 13 13 18
```

```r
v<-c("rakib","tamim","fariha","shabnur")
v[2]
```

```
## [1] "tamim"
```

```r
v[-2]
```

```
## [1] "rakib"   "fariha"  "shabnur"
```

```r
v[-1]
```

```
## [1] "tamim"   "fariha"  "shabnur"
```

```r
v[c(2,3,1,2)]
```

```
## [1] "tamim"  "fariha" "rakib"  "tamim"
```

```r
v[1: 2]
```

```
## [1] "rakib" "tamim"
```

```r
z<-c("bangla","english","math","biology","physics")
z
```

```
## [1] "bangla"  "english" "math"    "biology" "physics"
```

```r
names(z)=c("a1","b1","c1","d1","e")

z["b1"]
```

```
##        b1
## "english"
```

```r
z["e"]
```

```
##         e
## "physics"
```