

STA 326 2.0 Programming and Data Analysis with R

Tutorial 1 - Answers

Create objects

- 1.
2. Generate a sequence using the code `seq(from=1, to=10, by=1)`. What other ways can you generate the same sequence?
3. Using the function `rep()`, create the below sequence 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4

Subsetting

4. Consider the vector

```
x <- c(80, 39, NA, 51, 51, 11, NA, NA, NA, 100, 80)
```

Write an R code to extract non-missing values in `x`

```
# Answer 4  
x[!is.na(x)]
```

```
[1] 80 39 51 51 11 100 80
```

Write an R code to extract missing values and odd-numbers in `x`

```
x[x %% 2 == 1]
```

```
[1] 39 NA 51 51 11 NA NA NA
```

Write an R code to extract odd numbers on `x`

```
y <- x[x %% 2 == 1]  
y[!is.na(y)]
```

```
[1] 39 51 51 11
```

5. Consider the vector

```
set.seed(32020)  
st_normal <- rnorm(100)  
st_normal
```

```
[1] 0.18183635 -0.92262020 2.06110995 -1.50040396 -1.69529463 2.45410426  
[7] 0.16552699 -2.20702891 -0.21274657 -0.69387976 -0.67516314 1.03136276  
[13] 0.77649171 0.60913641 -1.06664784 0.34027083 -0.47879695 -0.40281847  
[19] -1.12500580 -0.79235873 -0.89371755 -2.72593829 0.99052081 -0.53966792  
[25] 2.44848942 1.82337921 -0.52409631 -2.52099047 -0.01338390 -0.67771367  
[31] -0.26224412 -1.96067034 0.03172268 -0.83045197 1.60051305 0.04106971  
[37] 0.93303006 -1.31390340 -0.25427286 -0.61430209 -0.09897693 0.33713741  
[43] 0.45989743 -0.79752346 -0.77387974 -0.57871649 -1.24023942 -1.74035257  
[49] -0.02742062 -2.21931034 0.23715755 -0.47101092 -0.22116294 -1.45243410  
[55] 0.27650330 -1.76656058 0.01328862 -1.30263545 1.20788668 1.47504605  
[61] -2.19540879 0.44796633 0.39314554 -3.15206211 -0.32687439 -0.54550496
```

```
[67]  1.39978830 -2.19770996  1.46683852 -1.19686302  0.87487978 -0.83723410
[73]  1.37510059 -0.80996752  0.56198382  0.40264681  0.13343941 -0.05576293
[79]  1.66654211 -0.78997663  0.29758171  0.36613867  0.80338650 -1.43640458
[85] -0.56015981 -0.12409835 -0.75476839  0.32283051  1.46941104 -0.30940270
[91] -1.14718708 -0.93229533  0.06524165 -0.20590515 -0.69251943  0.93134043
[97]  0.28856808  1.04544874  0.24806814  0.22931507
```

Drop the elements corresponds to the positions multiply of 10th (10, 20, 30, ...)

```
st_normal[-seq(1, 100, by=10)]
```

```
[1] -0.92262020  2.06110995 -1.50040396 -1.69529463  2.45410426  0.16552699
[7] -2.20702891 -0.21274657 -0.69387976  1.03136276  0.77649171  0.60913641
[13] -1.06664784  0.34027083 -0.47879695 -0.40281847 -1.12500580 -0.79235873
[19] -2.72593829  0.99052081 -0.53966792  2.44848942  1.82337921 -0.52409631
[25] -2.52099047 -0.01338390 -0.67771367 -1.96067034  0.03172268 -0.83045197
[31]  1.60051305  0.04106971  0.93303006 -1.31390340 -0.25427286 -0.61430209
[37]  0.33713741  0.45989743 -0.79752346 -0.77387974 -0.57871649 -1.24023942
[43] -1.74035257 -0.02742062 -2.21931034 -0.47101092 -0.22116294 -1.45243410
[49]  0.27650330 -1.76656058  0.01328862 -1.30263545  1.20788668  1.47504605
[55]  0.44796633  0.39314554 -3.15206211 -0.32687439 -0.54550496  1.39978830
[61] -2.19770996  1.46683852 -1.19686302 -0.83723410  1.37510059 -0.80996752
[67]  0.56198382  0.40264681  0.13343941 -0.05576293  1.66654211 -0.78997663
[73]  0.36613867  0.80338650 -1.43640458 -0.56015981 -0.12409835 -0.75476839
[79]  0.32283051  1.46941104 -0.30940270 -0.93229533  0.06524165 -0.20590515
[85] -0.69251943  0.93134043  0.28856808  1.04544874  0.24806814  0.22931507
```