



ACADGILD

SESSION 5:
Data Management Using R
Assignment 2

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1. Problem Statement

- A. Obtain the elements of the union between two character vectors.

```
vec1 = c(rownames(mtcars[1:15,]))  
vec2 = c(rownames(mtcars[10:32,]))
```

- B. Get those elements that are common to both vectors

```
vec1 = c(rownames(mtcars[1:15,]))  
vec2 = c(rownames(mtcars[10:32,]))
```

- C. Get the difference of the elements between two character vectors.

```
vec1 = c(rownames(mtcars[1:15,]))  
vec2 = c(rownames(mtcars[10:32,]))
```

- D. Test the equality of two character vectors

```
vec1 = c(rownames(mtcars[1:15,]))  
vec2 = c(rownames(mtcars[11:25,]))
```

2. Solution

- A. Obtain the elements of the union between two character vectors.

The R-script for the given problem is as follows:

```
vec1 = c(rownames(mtcars[1:15,]))  
vec2 = c(rownames(mtcars[10:32,]))  
vec1  
vec2  
union(vec1, vec2)
```

Explanation:

union(vec1, vec2) returns all the elements of vec1 and vec2 without repeating common elements

The output of the R-Script (from Console window) is given as follows:

```
> vec1 = c(rownames(mtcars[1:15,]))  
> vec2 = c(rownames(mtcars[10:32,]))  
> vec1  
[1] "Mazda RX4"           "Mazda RX4 wag"       "Datsun 710"          "Hornet 4 Drive"      "Hornet Sportabout"  
[6] "Valiant"             "Duster 360"          "Merc 240D"           "Merc 230"            "Merc 280"  
[11] "Merc 280C"           "Merc 450SE"          "Merc 450SL"          "Merc 450SLC"         "Cadillac Fleetwood"  
> vec2  
[1] "Merc 280"           "Merc 280C"           "Merc 450SE"          "Merc 450SL"          "Merc 450SLC"  
[6] "Cadillac Fleetwood" "Lincoln Continental" "Chrysler Imperial"   "Fiat 128"            "Honda Civic"  
[11] "Toyota Corolla"     "Toyota Corona"       "Dodge Challenger"    "AMC Javelin"         "Camaro Z28"  
[16] "Pontiac Firebird"   "Fiat X1-9"           "Porsche 914-2"       "Lotus Europa"        "Ford Pantera L"  
[21] "Ferrari Dino"       "Maserati Bora"       "Volvo 142E"  
>
```

```
> union(vec1, vec2)
[1] "Mazda RX4"          "Mazda RX4 Wag"      "Datsun 710"         "Hornet 4 Drive"     "Hornet Sportabout"
[6] "Valiant"            "Duster 360"         "Merc 240D"         "Merc 230"          "Merc 280"
[11] "Merc 280C"          "Merc 450SE"         "Merc 450SL"        "Merc 450SLC"       "Cadillac Fleetwood"
[16] "Lincoln Continental" "Chrysler Imperial"  "Fiat 128"          "Honda Civic"        "Toyota Corolla"
[21] "Toyota Corona"      "Dodge Challenger"   "AMC Javelin"       "Camaro Z28"         "Pontiac Firebird"
[26] "Fiat X1-9"          "Porsche 914-2"      "Lotus Europa"      "Ford Pantera L"     "Ferrari Dino"
[31] "Maserati Bora"      "Volvo 142E"
```

B. Get those elements that are common to both vectors

The R-script for the given problem is as follows:

```
vec1 = c(rownames(mtcars[1:15,]))
vec2 = c(rownames(mtcars[10:32,]))

intersect(vec1,vec2)      # names of common elements
which(vec1 %in% vec2)     # index of common elements
```

Explanation:

- `intersect(vec1,vec2)` returns all the elements that are common to both vectors `vec1` and `vec2`.
- `which(vec1 %in% vec2)` determines the index of common elements.

The output of the R-Script (from Console window) is given as follows:

```
> vec1 = c(rownames(mtcars[1:15,]))
> vec2 = c(rownames(mtcars[10:32,]))
>
> intersect(vec1,vec2)      # names of common elements
[1] "Merc 280"      "Merc 280C"      "Merc 450SE"      "Merc 450SL"      "Merc 450SLC"
[6] "Cadillac Fleetwood"
>
> which(vec1 %in% vec2)     # index of common elements
[1] 10 11 12 13 14 15
```

C. Get the difference of the elements between two character vectors.

The R-script for the given problem is as follows:

```
vec1 = c(rownames(mtcars[1:15,]))
vec2 = c(rownames(mtcars[10:32,]))

setdiff(vec1, vec2) # difference of vec 1 with vec 2
setdiff(vec2, vec1) # difference of vec 2 with vec 1
```

Explanation:

Setdiff() function returns the difference of the elements between two character vectors vec1 and vec2.

The output of the R-Script (from Console window) is given as follows:

```
> vec1 = c(rownames(mtcars[1:15,]))
> vec2 = c(rownames(mtcars[10:32,]))
>
> setdiff(vec1, vec2) # difference of vec 1 with vec 2
[1] "Mazda RX4" "Mazda RX4 Wag" "Datsun 710" "Hornet 4 Drive" "Hornet Sportabout" "Valiant"
[7] "Duster 360" "Merc 240D" "Merc 230"
> setdiff(vec2, vec1) # difference of vec 2 with vec 1
[1] "Lincoln Continental" "Chrysler Imperial" "Fiat 128" "Honda Civic" "Toyota Corolla"
[6] "Toyota Corona" "Dodge Challenger" "AMC Javelin" "Camaro Z28" "Pontiac Firebird"
[11] "Fiat X1-9" "Porsche 914-2" "Lotus Europa" "Ford Pantera L" "Ferrari Dino"
[16] "Maserati Bora" "Volvo 142E"
```

D. Test the equality of two character vectors**The R-script for the given problem is as follows:**

```
vec1 = c(rownames(mtcars[1:15,]))
vec2 = c(rownames(mtcars[11:25,]))
setequal(vec1, vec2) # is vec1 equal to vec 2
# OR
setequal( union(vec1, vec2),
          c(setdiff(vec1, vec2), intersect(vec1, vec2), setdiff(vec1, vec2)))
```

Explanation:

setequal(vec1, vec2) tests the equality of two character vectors vec1 and vec2.

The output of the R-Script (from Console window) is given as follows:

```
> vec1 = c(rownames(mtcars[1:15,]))
> vec2 = c(rownames(mtcars[11:25,]))
>
> setequal(vec1, vec2) # is vec1 equal to vec 2
[1] FALSE
>
> setequal( union(vec1, vec2),
+           c(setdiff(vec1, vec2), intersect(vec1, vec2), setdiff(vec1,
vec2)))
[1] FALSE
```