How to rbindlist in R to make one data table from many?

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The rbindlist() function in R is useful for combining multiple data tables into one. It takes a list of data frames as its input, and then binds the rows of the data frames together into a single data table. The columns of the input data frames must have matching names in order for the function to work properly. The combined data table is returned as the output of the function.

The **rbindlist()** function in R can be used to create one data.table from a list of many data.table or data.frame objects.

This function uses the following basic syntax:

rbindlist(l, use.names="check", fill=FALSE, idcol=NULL)

where:

l: List containing data.table, data.frame, or list objects.
use.names: TRUE binds by column names. FALSE binds by position.
fill: TRUE fills missing values with NA.
idcol: Creates columnshowing which list item those rows came from.

The following example shows how to use this function in practice.

Example: Use rbindlist to Make One Data Table

Suppose we have the following list of data.table and data.frame objects in R:

```
library(data.table)

#create data frames and data tables
data1 <- data.table(team=c('A', 'B', 'C'),
points=c(22, 27, 38))

data2 <- data.table(team=c('D', 'E', 'F'),
points=c(22, 14, 20))

data3 <- data.frame(team=c('G', 'H', 'I'),
points=c(11, 15, 18))

#view data frames and data tables
print(data1)
print(data2)
print(data3)
```

team points
1: A 22
2: B 27
3: C 38
team points
1: D 22
2: E 14
3: F 20
team points
1 G 11
2 H 15
3 I 18

We can use the following **rbindlist()** function to bind together the list of data.table and data.frame objects into one data.table:

#define list of objects to bind together
data_list <- list(data1, data2, data3)

#bind together list of objects
big_data <- rbindlist(data_list)

#view result
big_data

team points
1: A 22
2: B 27
3: C 38
4: D 22
5: E 14
6: F 20
7: G 11
8: H 15
9: I 18

The result is a data.table object with nine rows that are composed of the rows from the list of objects we provided.

We can also use the **class()** function to verify that the result is indeed a data.table object:

#view class of resulting object
class(big_data)

"data.table" "data.frame"

We can see that the result is indeed a data.table object.

The Benefit of Using rbindlist

The alternative to using **rbindlist** would be to use **do.call** with the function in base R:

#use rbind to bind together list of objects
do.call("rbind", data_list)

team points
1: A 22
2: B 27
3: C 38
4: D 22
5: E 14
6: F 20
7: G 11
8: H 15
9: I 18

This code produces the same result but it turns out that **rbindlist** is significantly faster, especially for extremely large data.table or data.frame objects.