**Melting and Casting in R:**

One of the most interesting aspects of R programming is about changing the shape of the data to get a desired shape.Melting and casting in R, are the functions that can be used efficiently to [reshape](http://www.datasciencemadesimple.com/reshape-in-r-from-wide-to-long-from-long-to-wide/) the data. The functions used to do this are called **melt()**and **cast()**.

**Melt Function in R:**

The melt function is used to convert data from wide format to long format. It is in reshape 2 package .We will use the inbuilt data in R to understand how melt and cast function works.

|  |  |
| --- | --- |
| 1  2  3  4 | library(MASS)  library(reshape2)  library(reshape)  print(head(ships,n=10)) |

This will print first 10 values of the inbuilt ships data

type    year   period   service   incidents  
1    A         60       60          127             0  
2    A         60       75          63               0  
3    A         65       60          1095           3  
4    A         65       75          1095           4  
5    A         70       60          1512           6  
6    A         70       75          3353           18  
7    A         75       60          0                  0  
8    A         75       75          2244           11  
9    B         60       60          44882         39  
10  B         60       75          17176         29

Now lets keep type and year as constant(id variable) and melt (stack) the other three variables namely period, service and incidents.

|  |  |
| --- | --- |
| 1  2  3 | shipdata<-(head(ships,n=10))  molten.ships <- melt(shipdata, id = c("type","year"))  print(molten.ships) |

As the result **type** and **year** column are kept constant. Columns named period, service and incidents are stacked under the column named **variable**and their values are stacked under the column named**value.**The result of melt function is shown below

type     year      variable      value  
1   A          60         period         60  
2   A          60         period         75  
3   A          65         period         60  
4   A          65         period         75  
5   A          70         period         60  
6   A          70         period         75  
7   A          75         period         60  
8   A          75         period         75  
9   B          60         period         60  
10 B          60         period         75  
11 A          60         service        127  
12 A          60         service        63  
13 A          65         service        1095  
14 A          65         service        1095  
15 A          70         service        1512  
16 A          70         service        3353  
17 A          75         service        0  
18 A          75         service        2244  
19 B          60         service        44882  
20 B          60         service        17176  
21 A          60         incidents     0  
22 A          60         incidents     0  
23 A          65         incidents     3  
24 A          65         incidents     4  
25 A          70         incidents     6  
26 A          70         incidents     18  
27 A          75         incidents     0  
28 A          75         incidents     11  
29 B          60         incidents     39  
30 B          60         incidents     29

**Cast Function in R:**

The dcast function is used to convert data from long format to wide format. It is in reshape 2 package. First argument is data to be used . The second argument is a formula where the left hand remains as columns and right side specifies the columns that should become row names

|  |  |
| --- | --- |
| 1  2 | recasted.ship <- dcast(molten.ships, type+year~variable,sum)   print(recasted.ship) |

As the result cast function sums up the different variables for each **type** and **year**and those variables are casted back as columns and result is shown below.

type    year   period    service    incidents  
1   A        60      135           190             0  
2   A        65      135           2190           7  
3   A        70      135           4865           24  
4   A        75      135           2244           11  
5   B        60      135           62058         68

For example**Type** A **year** 60 has two periods 60 and 75. This is summed up and result 135 is recorded under the column name **period**with the help of **cast** function**.**