

```

> # BostonHousing 데이터 셋을 불러오기 위해 mlbench 패키지를 설치해줍니다.
> install.packages("mlbench")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
'C:/Users/dayf1/Documents/R/win-library/4.1'의 위치에 패키지(들)을 설치합니다.
(왜냐하면 'lib'가 지정되지 않았기 때문입니다)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/mlbench_2.1-3.zip'
Content type 'application/zip' length 1062799 bytes (1.0 MB)
downloaded 1.0 MB

package 'mlbench' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:\Users\dayf1\AppData\Local\Temp\RtmpG8hYRL\downloaded_packages
> library(mlbench)
>
> # BostonHousing의 구조를 확인해줍니다.
> data(BostonHousing)
> head(BostonHousing)
   crim zn indus chas  nox   rm  age  dis rad tax ptratio    b lstat medv
1  0.00632 18  2.31    0 0.538 6.575 65.2 4.0900  1 296   15.3 396.90  4.98 24.0
2  0.02731  0  7.07    0 0.469 6.421 78.9 4.9671  2 242   17.8 396.90  9.14 21.6
3  0.02729  0  7.07    0 0.469 7.185 61.1 4.9671  2 242   17.8 392.83  4.03 34.7
4  0.03237  0  2.18    0 0.458 6.998 45.8 6.0622  3 222   18.7 394.63  2.94 33.4
5  0.06905  0  2.18    0 0.458 7.147 54.2 6.0622  3 222   18.7 396.90  5.33 36.2
6  0.02985  0  2.18    0 0.458 6.430 58.7 6.0622  3 222   18.7 394.12  5.21 28.7
> dim(BostonHousing)
[1] 506 14
>
> # 변수 선택 함수인 regsubsets를 사용하기 위해 leaps 패키지를 설치해줍니다.
> install.packages("leaps")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
'C:/Users/dayf1/Documents/R/win-library/4.1'의 위치에 패키지(들)을 설치합니다.
(왜냐하면 'lib'가 지정되지 않았기 때문입니다)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/leaps_3.1.zip'
Content type 'application/zip' length 102893 bytes (100 KB)
downloaded 100 KB

package 'leaps' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:\Users\dayf1\AppData\Local\Temp\RtmpG8hYRL\downloaded_packages
> library(leaps)

```

```
> # 여러 단계의 회귀 모델을 만들고, 선택된 변수들, 계수 추정치, 단계별 결정계수 값을 구해봅니다.
> m <- regsubsets(medv ~ ., data = BostonHousing, method = "forward")
```

```
> summary(m)
```

```
Subset selection object
```

```
Call: regsubsets.formula(medv ~ ., data = BostonHousing, method = "forward")
```

```
13 variables (and intercept)
```

```
Forced in Forced out
```

```
crim      FALSE      FALSE
zn        FALSE      FALSE
indus     FALSE      FALSE
chas1     FALSE      FALSE
nox       FALSE      FALSE
rm        FALSE      FALSE
age       FALSE      FALSE
dis       FALSE      FALSE
rad       FALSE      FALSE
tax       FALSE      FALSE
ptratio   FALSE      FALSE
b         FALSE      FALSE
lstat     FALSE      FALSE
```

```
1 subsets of each size up to 8
```

```
Selection Algorithm: forward
```

```
      crim zn  indus chas1 nox rm  age dis rad tax ptratio b  lstat
1 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
2 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
3 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
4 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
5 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
6 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
7 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
8 ( 1 ) " " " " " " " " " " " " " " " " " " " " " " " " " " " "
```

```
>
```

```
> print("변수 4개가 선택된 모델에서 새롭게 선택된 변수의 이름은 'dis'입니다.")
```

```
[1] "변수 4개가 선택된 모델에서 새롭게 선택된 변수의 이름은 'dis'입니다."
```

```
>
```

```
> coef(m, 4)
```

```
(Intercept)      rm      dis      ptratio      lstat
24.4713576    4.2237922 -0.5519263 -0.9736458 -0.6654360
```

```
> summary(m)$adjr2[4]
```

```
[1] 0.6878351
```