2016년 분기별 강원 회귀분석

데이터 준비 및 확인

```
load("../../../refinedata/analysis/analysis_total_Fixed.rda")
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 3.6.3
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

1분기

```
analysis_2016_quarter1 <- analysis_total_Fixed  %>% filter(substr(일시,1,7)=='2016-01'|substr(일시,1,7)=='2016-02')

analysis_2016_quarter1 <- analysis_2016_quarter1 %>% filter(시도 %in% c("강원"))

analysis_2016_quarter1 <- analysis_2016_quarter1 %>% dplyr::select(-일시,-시도,-년도,-인구수,-`최다풍향(16방위)`,-발생건수)

analysis_2016_quarter1 <- analysis_2016_quarter1[-1]

analysis_2016_quarter1 <- as.data.frame(scale(analysis_2016_quarter1))
```

2분기

```
analysis_2016_quarter2 <- analysis_total_Fixed %>% filter(substr(일시,1,7)=='2016-03'|substr(일시,1,7)=='2016-04'|substr(일시,1,7)=='2016-05')

analysis_2016_quarter2 <- analysis_2016_quarter2 %>% filter(시도 %in% c("강원"))


analysis_2016_quarter2 <- analysis_2016_quarter2 %>% dplyr::select(-일시,-시도,-년도,-인구수,-`최다풍향(16방위)`,-발생건수)

analysis_2016_quarter2 <- analysis_2016_quarter2[-1]

analysis_2016_quarter2 <- as.data.frame(scale(analysis_2016_quarter2))
```

3분기

```
analysis_2016_quarter3 <- analysis_total_Fixed %>% filter(substr(일시,1,7)=='2016-06'|substr(일시,1,7)=='2016-07'|substr(일시,1,7)=='2016-08')

analysis_2016_quarter3 <- analysis_2016_quarter3 %>% filter(시도 %in% c("강원"))

analysis_2016_quarter3 <- analysis_2016_quarter3 %>% dplyr::select(-일시,-시도,-년도,-인구수,-`최다풍향(16방위)`,-발생건수)

analysis_2016_quarter3 <- analysis_2016_quarter3[-1]

analysis_2016_quarter3 <- as.data.frame(scale(analysis_2016_quarter3))
```

4분기

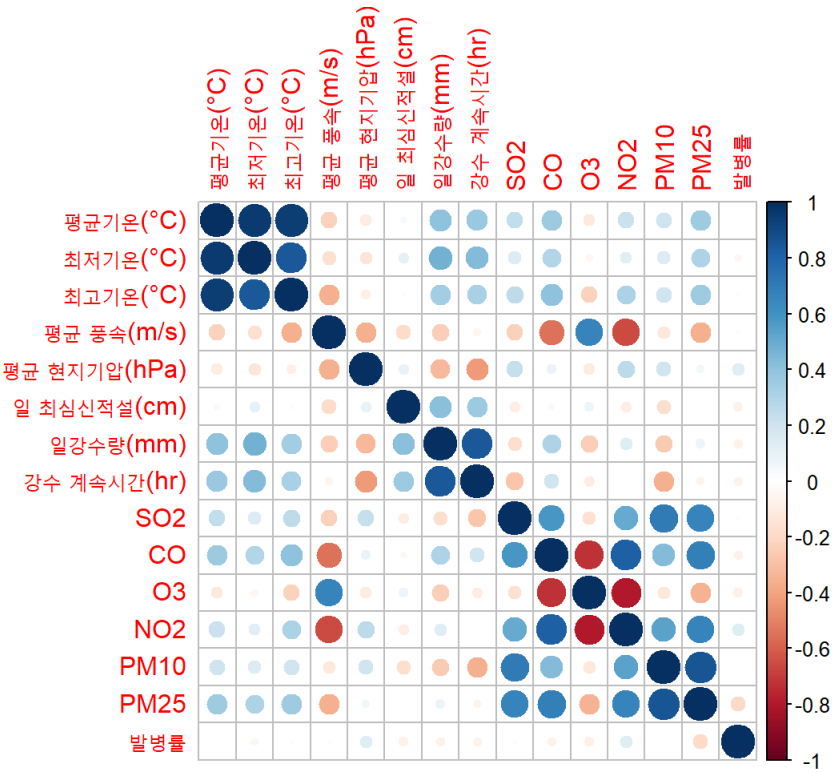
```
analysis_2016_quarter4 <- analysis_total_Fixed %>% filter(substr(일시,1,7)=='2016-09'|substr(일시,1,7)=='2016-10'|substr(일시,1,7)=='2016-11')

analysis_2016_quarter4 <- analysis_2016_quarter4 %>% filter(시도 %in% c("강원"))

analysis_2016_quarter4 <- analysis_2016_quarter4 %>% dplyr::select(-일시,-시도,-년도,-인구수,-`최다풍향(16방위)`,-발생건수)

analysis_2016_quarter4 <- analysis_2016_quarter4[-1]

analysis_2016_quarter4 <- as.data.frame(scale(analysis_2016_quarter4))
```

상관계수 확인

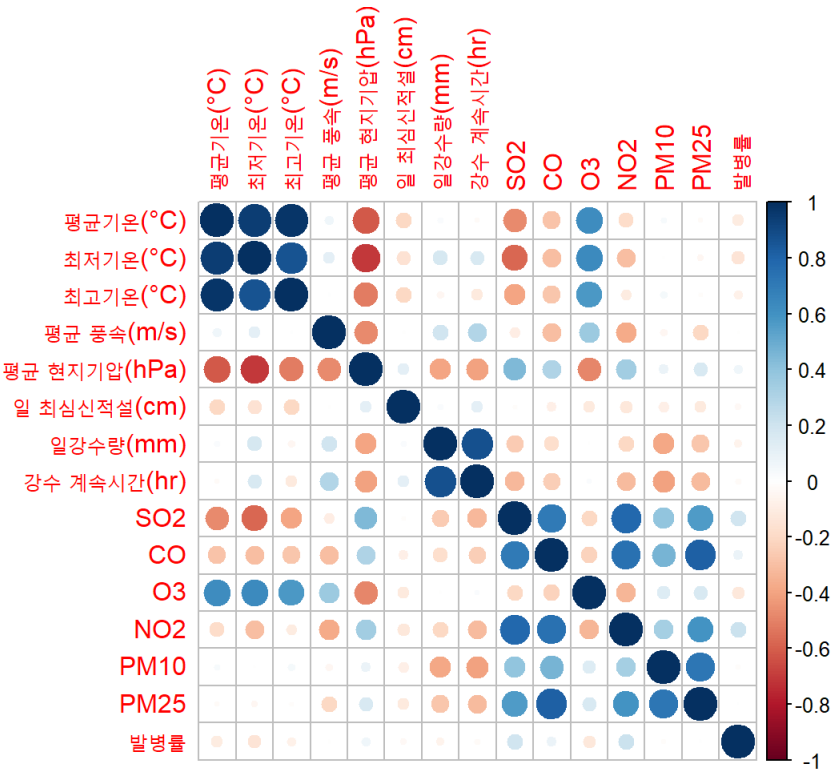
```
library(corrplot, quietly = TRUE)
```

```
## corrplot 0.84 loaded
```

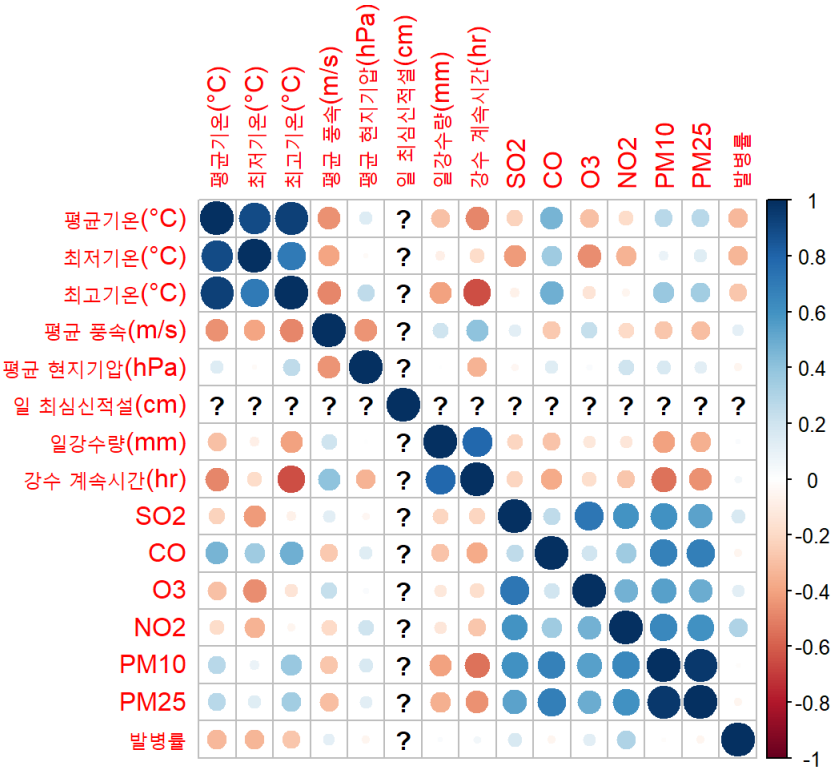
```
corrplot(cor(analysis_2016_quarter1 ), method="circle")
```



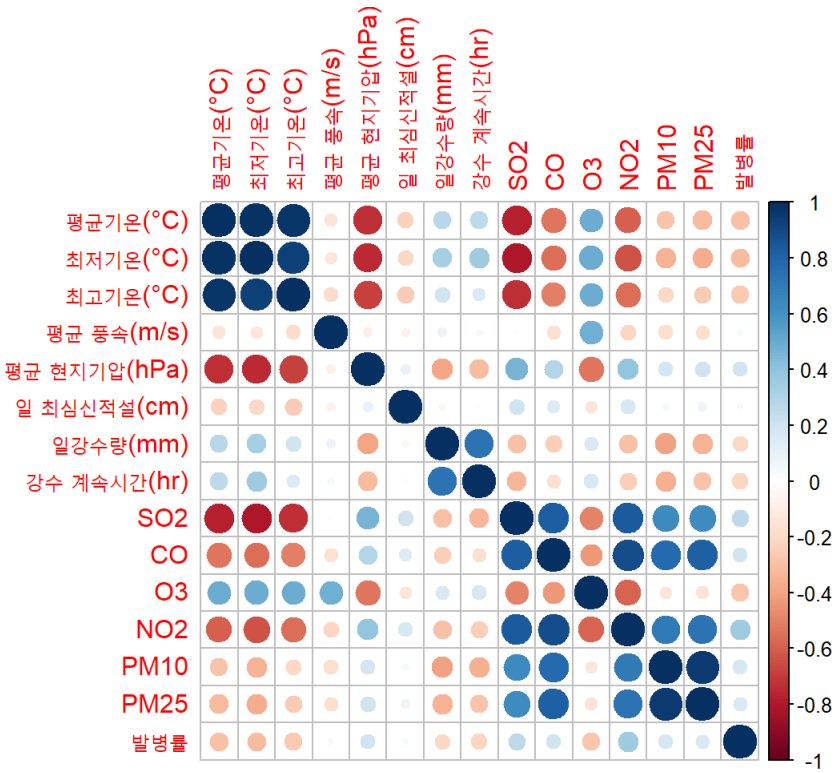

```
corrplot(cor(analysis_2016_quarter2 ), method="circle")
```




```
corrplot(cor(analysis_2016_quarter3 ), method="circle")
```




```
corrplot(cor(analysis_2016_quarter4 ), method="circle")
```




```
cor(analysis_2016_quarter1 )
```

```
##                      평균기온(°C) 최저기온(°C) 최고기온(°C) 평균 풍속(m/s)
## 평균기온(°C)         1.000000000    0.95978262    0.94789638    -0.22925028
## 최저기온(°C)         0.959782618    1.00000000    0.84748901    -0.16712522
## 최고기온(°C)         0.947896385    0.84748901    1.00000000    -0.35724439
## 평균 풍속(m/s)      -0.229250280   -0.16712522   -0.35724439     1.00000000
## 평균 현지기압(hPa)  -0.107194521   -0.13032052   -0.08796058    -0.35025687
## 일 최심신적설(cm)    0.037312891    0.10081188    0.01257420    -0.18162078
## 일강수량(mm)          0.406663089    0.47238122    0.34892853    -0.24990443
## 강수 계속시간(hr)    0.373293956    0.43331736    0.32004748    -0.05930252
## SO2                   0.240226976    0.14905487    0.25495087    -0.23639938
## CO                    0.360902514    0.29856846    0.40639036    -0.54737355
## O3                   -0.116726815   -0.04406009   -0.22917072     0.66417576
## NO2                   0.218962712    0.12013544    0.31036603    -0.65257603
## PM10                  0.205449672    0.14520136    0.19966641    -0.12850658
## PM25                  0.351890234    0.30881950    0.35437692    -0.35989044
## 발병률               -0.009067687   -0.04494165   -0.01453186    -0.01196358
##                      평균 현지기압(hPa) 일 최심신적설(cm) 일강수량(mm)
## 평균기온(°C)              -0.10719452       0.037312891   0.40666309
## 최저기온(°C)              -0.13032052       0.100811882   0.47238122
## 최고기온(°C)              -0.08796058       0.012574201   0.34892853
## 평균 풍속(m/s)             -0.35025687      -0.181620784  -0.24990443
## 평균 현지기압(hPa)          1.00000000       0.092860313  -0.32878489
## 일 최심신적설(cm)           0.09286031       1.000000000   0.41147145
## 일강수량(mm)               -0.32878489       0.411471454   1.00000000
## 강수 계속시간(hr)          -0.42633239       0.364017324   0.84728470
## SO2                          0.23004983      -0.092119858  -0.17155067
## CO                           0.08916678      -0.038586118   0.30486555
## O3                          -0.10508321       0.076275546  -0.24216717
## NO2                          0.26280567      -0.093931796   0.13053719
## PM10                         0.19213600      -0.171693071  -0.25672949
## PM25                         0.05933861      -0.009791969   0.07701609
## 발병률                       0.13192377      -0.078009923  -0.07280363
##                      강수 계속시간(hr)          SO2           CO          O3
## 평균기온(°C)             0.373293956  0.24022698  0.36090251 -0.11672682
## 최저기온(°C)             0.433317362  0.14905487  0.29856846 -0.04406009
## 최고기온(°C)             0.320047485  0.25495087  0.40639036 -0.22917072
## 평균 풍속(m/s)          -0.059302523 -0.23639938 -0.54737355  0.66417576
## 평균 현지기압(hPa)       -0.426332393  0.23004983  0.08916678 -0.10508321
## 일 최심신적설(cm)         0.364017324 -0.09211986 -0.03858612  0.07627555
## 일강수량(mm)              0.847284701 -0.17155067  0.30486555 -0.24216717
## 강수 계속시간(hr)         1.000000000 -0.27921045  0.19390764 -0.09964004
## SO2                      -0.279210452  1.00000000  0.58135539 -0.15545006
## CO                        0.193907635  0.58135539  1.00000000 -0.72881679
## O3                       -0.099640040 -0.15545006 -0.72881679  1.00000000
## NO2                      -0.002640463  0.50416825  0.81095446 -0.79218515
## PM10                     -0.354084834  0.70473178  0.43731966 -0.12699723
## PM25                     -0.060587650  0.66232310  0.68912236 -0.34462844
## 발병률                   -0.065417146 -0.01568813 -0.07241016 -0.08578519
##                                NO2         PM10         PM25       발병률
## 평균기온(°C)          0.218962712  0.205449672  0.351890234 -0.009067687
## 최저기온(°C)          0.120135439  0.145201360  0.308819496 -0.044941649
## 최고기온(°C)          0.310366032  0.199666413  0.354376916 -0.014531858
## 평균 풍속(m/s)       -0.652576029 -0.128506585 -0.359890439 -0.011963579
## 평균 현지기압(hPa)    0.262805668  0.192135997  0.059338609  0.131923771
## 일 최심신적설(cm)    -0.093931796 -0.171693071 -0.009791969 -0.078009923
## 일강수량(mm)          0.130537190 -0.256729486  0.077016090 -0.072803634
## 강수 계속시간(hr)    -0.002640463 -0.354084834 -0.060587650 -0.065417146
## SO2                    0.504168254  0.704731781  0.662323101 -0.015688129
## CO                     0.810954456  0.437319664  0.689122359 -0.072410158
## O3                    -0.792185151 -0.126997228 -0.344628438 -0.085785191
## NO2                    1.000000000  0.531370470  0.665714148  0.132125912
## PM10                   0.531370470  1.000000000  0.856651687 -0.006801248
## PM25                   0.665714148  0.856651687  1.000000000 -0.195309311
## 발병률                 0.132125912 -0.006801248 -0.195309311  1.000000000
```

```
cor(analysis_2016_quarter2 )
```

```
##                      평균기온(°C) 최저기온(°C) 최고기온(°C) 평균 풍속(m/s)
## 평균기온(°C)          1.00000000    0.94158175   0.977159469    0.067980776
## 최저기온(°C)          0.94158175    1.00000000   0.861062335    0.119336166
## 최고기온(°C)          0.97715947    0.86106234   1.000000000    0.006084596
## 평균 풍속(m/s)        0.06798078    0.11933617   0.006084596    1.000000000
## 평균 현지기압(hPa)    -0.61374485   -0.70887317  -0.518365415   -0.478998628
## 일 최심신적설(cm)     -0.20842145   -0.15741970  -0.203009788   -0.007011182
## 일강수량(mm)           0.02703018    0.17667042  -0.045835785    0.196531401
## 강수 계속시간(hr)     -0.02003389    0.16504130  -0.113548308    0.290478691
## SO2                   -0.47461407   -0.57321456  -0.395537780   -0.098856337
## CO                    -0.28661146   -0.30526942  -0.272230346   -0.303259347
## O3                     0.62741715    0.63594673   0.577999185    0.369564498
## NO2                   -0.18535072   -0.30406112  -0.100433860   -0.371509692
## PM10                   0.03075102   -0.00254352   0.048843332   -0.049989955
## PM25                  -0.02383104   -0.04078338  -0.016222178   -0.204454526
## 발병률                -0.10922647   -0.14557422  -0.074837518   -0.006508444
##                      평균 현지기압(hPa) 일 최심신적설(cm) 일강수량(mm)
## 평균기온(°C)              -0.61374485      -0.208421448   0.02703018
## 최저기온(°C)              -0.70887317      -0.157419698   0.17667042
## 최고기온(°C)              -0.51836542      -0.203009788  -0.04583579
## 평균 풍속(m/s)             -0.47899863      -0.007011182   0.19653140
## 평균 현지기압(hPa)          1.00000000       0.114461961  -0.39204809
## 일 최심신적설(cm)           0.11446196       1.000000000   0.02986978
## 일강수량(mm)               -0.39204809       0.029869784   1.00000000
## 강수 계속시간(hr)          -0.40725797       0.112814568   0.87348914
## SO2                          0.44417930      -0.011611366  -0.25663491
## CO                           0.30614955      -0.083124434  -0.17664066
## O3                          -0.48768678      -0.110517097  -0.00296101
## NO2                          0.34824918      -0.123990290  -0.20365305
## PM10                         0.08801699      -0.089572827  -0.38203378
## PM25                         0.16266354      -0.117473517  -0.27556892
## 발병률                       0.06729303      -0.032779321  -0.06252210
##                      강수 계속시간(hr)          SO2           CO          O3
## 평균기온(°C)             -0.02003389 -0.47461407 -0.28661146  0.62741715
## 최저기온(°C)              0.16504130 -0.57321456 -0.30526942  0.63594673
## 최고기온(°C)             -0.11354831 -0.39553778 -0.27223035  0.57799919
## 평균 풍속(m/s)             0.29047869 -0.09885634 -0.30325935  0.36956450
## 평균 현지기압(hPa)        -0.40725797  0.44417930  0.30614955 -0.48768678
## 일 최심신적설(cm)          0.11281457 -0.01161137 -0.08312443 -0.11051710
## 일강수량(mm)               0.87348914 -0.25663491 -0.17664066 -0.00296101
## 강수 계속시간(hr)          1.00000000 -0.32846799 -0.24179386  0.02327348
## SO2                       -0.32846799  1.00000000  0.70126099 -0.20743792
## CO                        -0.24179386  0.70126099  1.00000000 -0.22372927
## O3                         0.02327348 -0.20743792 -0.22372927  1.00000000
## NO2                       -0.31436133  0.78599628  0.74852376 -0.33663094
## PM10                      -0.40313196  0.39927573  0.46974396  0.14652405
## PM25                      -0.31553396  0.56925766  0.81254846  0.16300982
## 발병률                    -0.02576666  0.19908582  0.08268529 -0.12700730
##                             NO2        PM10          PM25        발병률
## 평균기온(°C)       -0.1853507  0.03075102 -0.0238310413 -0.1092264722
## 최저기온(°C)       -0.3040611 -0.00254352 -0.0407833798 -0.1455742172
## 최고기온(°C)       -0.1004339  0.04884333 -0.0162221784 -0.0748375184
## 평균 풍속(m/s)      -0.3715097 -0.04998995 -0.2044545258 -0.0065084439
## 평균 현지기압(hPa)  0.3482492  0.08801699  0.1626635401  0.0672930312
## 일 최심신적설(cm)  -0.1239903 -0.08957283 -0.1174735172 -0.0327793214
## 일강수량(mm)        -0.2036530 -0.38203378 -0.2755689241 -0.0625221020
## 강수 계속시간(hr)  -0.3143613 -0.40313196 -0.3155339594 -0.0257666566
## SO2                   0.7859963  0.39927573  0.5692576577  0.1990858212
## CO                    0.7485238  0.46974396  0.8125484643  0.0826852917
## O3                   -0.3366309  0.14652405  0.1630098161 -0.1270073040
## NO2                   1.0000000  0.33498373  0.5945034742  0.2138767191
## PM10                  0.3349837  1.00000000  0.7252397396 -0.0189372956
## PM25                  0.5945035  0.72523974  1.0000000000  0.0003144544
## 발병률                0.2138767 -0.01893730  0.0003144544  1.0000000000
```

```
cor(analysis_2016_quarter3 )
```

```
##                      평균기온(°C) 최저기온(°C) 최고기온(°C) 평균 풍속(m/s)
## 평균기온(°C)          1.0000000    0.89211243    0.93954572     -0.4598246
## 최저기온(°C)          0.8921124    1.00000000    0.70030720     -0.3934879
## 최고기온(°C)          0.9395457    0.70030720    1.00000000     -0.4851105
## 평균 풍속(m/s)       -0.4598246   -0.39348791   -0.48511050      1.0000000
## 평균 현지기압(hPa)    0.1427329   -0.02078022    0.25795237     -0.4480794
## 일 최심신적설(cm)            NA            NA            NA             NA
## 일강수량(mm)         -0.2908223   -0.08772462   -0.40833478      0.2029424
## 강수 계속시간(hr)    -0.4835807   -0.18149963   -0.64566145      0.4048598
## SO2                  -0.2252342   -0.42428159   -0.07939190      0.1213044
## CO                    0.4626534    0.35610556    0.48638963     -0.2676879
## O3                   -0.2997381   -0.46568864   -0.14222877      0.2326109
## NO2                  -0.1884648   -0.34791877   -0.05947353     -0.1962683
## PM10                  0.2741867    0.08557445    0.37336017     -0.2768821
## PM25                  0.2700146    0.13843093    0.34267861     -0.3013650
## 발병률               -0.3276582   -0.33751267   -0.27631266      0.1187079
##                      평균 현지기압(hPa) 일 최심신적설(cm) 일강수량(mm)
## 평균기온(°C)              0.142732935               NA -0.290822282
## 최저기온(°C)             -0.020780217               NA -0.087724624
## 최고기온(°C)              0.257952371               NA -0.408334780
## 평균 풍속(m/s)           -0.448079404               NA  0.202942352
## 평균 현지기압(hPa)        1.000000000               NA  0.005392309
## 일 최심신적설(cm)                  NA                1           NA
## 일강수량(mm)              0.005392309               NA  1.000000000
## 강수 계속시간(hr)        -0.343622109               NA  0.783070564
## SO2                      -0.048165675               NA -0.215397194
## CO                        0.137731771               NA -0.288811195
## O3                        0.029158889               NA -0.129106218
## NO2                       0.205604956               NA -0.136588285
## PM10                      0.169321512               NA -0.409944839
## PM25                      0.122971675               NA -0.351127219
## 발병률                   -0.054849891               NA  0.023866144
##                      강수 계속시간(hr)          SO2          CO          O3
## 평균기온(°C)             -0.48358072 -0.22523422  0.4626534 -0.29973812
## 최저기온(°C)             -0.18149963 -0.42428159  0.3561056 -0.46568864
## 최고기온(°C)             -0.64566145 -0.07939190  0.4863896 -0.14222877
## 평균 풍속(m/s)             0.40485977  0.12130436 -0.2676879  0.23261085
## 평균 현지기압(hPa)        -0.34362211 -0.04816568  0.1377318  0.02915889
## 일 최심신적설(cm)                  NA          NA         NA          NA
## 일강수량(mm)               0.78307056 -0.21539719 -0.2888112 -0.12910622
## 강수 계속시간(hr)          1.00000000 -0.21972833 -0.3746323 -0.17960911
## SO2                       -0.21972833  1.00000000  0.2503716  0.72199283
## CO                        -0.37463230  0.25037160  1.0000000  0.19701006
## O3                        -0.17960911  0.72199283  0.1970101  1.00000000
## NO2                       -0.27884040  0.59374504  0.3552999  0.47960951
## PM10                      -0.54078420  0.60781192  0.6779645  0.54282982
## PM25                      -0.45573048  0.53231550  0.6875696  0.49628402
## 발병률                     0.05017688  0.16765523 -0.0576358  0.12937314
##                             NO2        PM10        PM25      발병률
## 평균기온(°C)       -0.18846482  0.27418666  0.27001461 -0.32765819
## 최저기온(°C)       -0.34791877  0.08557445  0.13843093 -0.33751267
## 최고기온(°C)       -0.05947353  0.37336017  0.34267861 -0.27631266
## 평균 풍속(m/s)      -0.19626833 -0.27688209 -0.30136496  0.11870791
## 평균 현지기압(hPa)   0.20560496  0.16932151  0.12297167 -0.05484989
## 일 최심신적설(cm)            NA          NA          NA          NA
## 일강수량(mm)        -0.13658828 -0.40994484 -0.35112722  0.02386614
## 강수 계속시간(hr)   -0.27884040 -0.54078420 -0.45573048  0.05017688
## SO2                  0.59374504  0.60781192  0.53231550  0.16765523
## CO                   0.35529987  0.67796449  0.68756962 -0.05763580
## O3                   0.47960951  0.54282982  0.49628402  0.12937314
## NO2                  1.00000000  0.64750430  0.60907463  0.30197329
## PM10                 0.64750430  1.00000000  0.96890020 -0.01268202
## PM25                 0.60907463  0.96890020  1.00000000 -0.05797738
## 발병률               0.30197329 -0.01268202 -0.05797738  1.00000000
```

```
cor(analysis_2016_quarter4 )
```

```
##                      평균기온(°C) 최저기온(°C) 최고기온(°C) 평균 풍속(m/s)
## 평균기온(°C)          1.0000000     0.9866756     0.9779397    -0.14238700
## 최저기온(°C)          0.9866756     1.0000000     0.9391300    -0.13067687
## 최고기온(°C)          0.9779397     0.9391300     1.0000000    -0.18729745
## 평균 풍속(m/s)       -0.1423870    -0.1306769    -0.1872974     1.00000000
## 평균 현지기압(hPa)    -0.7388062    -0.7451803    -0.6845185    -0.08435696
## 일 최심신적설(cm)     -0.2200172    -0.2058940    -0.2500988    -0.07105387
## 일강수량(mm)           0.2734427     0.3317480     0.1976407     0.08050660
## 강수 계속시간(hr)      0.2658856     0.3504961     0.1515835     0.04435044
## SO2                   -0.7761618    -0.8047669    -0.7323464    -0.01587988
## CO                    -0.5331260    -0.5597440    -0.5088471    -0.16911596
## O3                     0.4980428     0.4996770     0.4912788     0.48681710
## NO2                   -0.5933663    -0.6317135    -0.5507570    -0.21125407
## PM10                  -0.2840267    -0.3443673    -0.2019580    -0.17842589
## PM25                  -0.3180454    -0.3662312    -0.2515512    -0.17077957
## 발병률                -0.2937525    -0.3148754    -0.2668434     0.04036014
##                      평균 현지기압(hPa) 일 최심신적설(cm) 일강수량(mm)
## 평균기온(°C)             -0.73880620       -0.22001715   0.27344265
## 최저기온(°C)             -0.74518027       -0.20589404   0.33174799
## 최고기온(°C)             -0.68451851       -0.25009882   0.19764071
## 평균 풍속(m/s)           -0.08435696       -0.07105387   0.08050660
## 평균 현지기압(hPa)        1.00000000        0.09003158  -0.39885587
## 일 최심신적설(cm)         0.09003158        1.00000000  -0.04239275
## 일강수량(mm)             -0.39885587       -0.04239275   1.00000000
## 강수 계속시간(hr)        -0.31735937        0.01952639   0.73137492
## SO2                       0.46101371        0.20107680  -0.29148277
## CO                        0.29093360        0.14081546  -0.24237824
## O3                       -0.53922002       -0.13273853   0.16788800
## NO2                       0.39538083        0.17684848  -0.29100697
## PM10                      0.18641360        0.04567532  -0.40026649
## PM25                      0.20538983        0.07936426  -0.34952976
## 발병률                    0.19327728        0.03473644  -0.20414424
##                      강수 계속시간(hr)          SO2          CO          O3
## 평균기온(°C)              0.26588556 -0.77616178 -0.5331260  0.4980428
## 최저기온(°C)              0.35049614 -0.80476688 -0.5597440  0.4996770
## 최고기온(°C)              0.15158346 -0.73234638 -0.5088471  0.4912788
## 평균 풍속(m/s)            0.04435044 -0.01587988 -0.1691160  0.4868171
## 평균 현지기압(hPa)       -0.31735937  0.46101371  0.2909336 -0.5392200
## 일 최심신적설(cm)         0.01952639  0.20107680  0.1408155 -0.1327385
## 일강수량(mm)              0.73137492 -0.29148277 -0.2423782  0.1678880
## 강수 계속시간(hr)         1.00000000 -0.33326767 -0.1712839  0.1791795
## SO2                      -0.33326767  1.00000000  0.8236266 -0.4919570
## CO                       -0.17128395  0.82362658  1.0000000 -0.4315077
## O3                        0.17917948 -0.49195703 -0.4315077  1.0000000
## NO2                      -0.24244591  0.83940138  0.8854232 -0.5858511
## PM10                     -0.35954166  0.63430852  0.7700573 -0.1364772
## PM25                     -0.28616461  0.62188146  0.8100745 -0.1420273
## 발병률                   -0.21816657  0.26127662  0.1909535 -0.2779300
##                            NO2        PM10        PM25      발병률
## 평균기온(°C)       -0.5933663 -0.28402667 -0.31804541 -0.29375249
## 최저기온(°C)       -0.6317135 -0.34436732 -0.36623123 -0.31487544
## 최고기온(°C)       -0.5507570 -0.20195803 -0.25155121 -0.26684344
## 평균 풍속(m/s)      -0.2112541 -0.17842589 -0.17077957  0.04036014
## 평균 현지기압(hPa)   0.3953808  0.18641360  0.20538983  0.19327728
## 일 최심신적설(cm)    0.1768485  0.04567532  0.07936426  0.03473644
## 일강수량(mm)        -0.2910070 -0.40026649 -0.34952976 -0.20414424
## 강수 계속시간(hr)   -0.2424459 -0.35954166 -0.28616461 -0.21816657
## SO2                   0.8394014  0.63430852  0.62188146  0.26127662
## CO                    0.8854232  0.77005731  0.81007454  0.19095355
## O3                   -0.5858511 -0.13647723 -0.14202729 -0.27793002
## NO2                   1.0000000  0.70864824  0.73404016  0.35716337
## PM10                  0.7086482  1.00000000  0.95848645  0.17740063
## PM25                  0.7340402  0.95848645  1.00000000  0.16825482
## 발병률                0.3571634  0.17740063  0.16825482  1.00000000
```

회귀분석

1분기

```
library(MASS)
```

```
##
## Attaching package: 'MASS'
```

```
## The following object is masked from 'package:dplyr':
##
##     select
```

```
fitdata <- analysis_2016_quarter1
fit1 <- lm(발병률 ~ .,data = fitdata)
fit2 <- lm(발병률 ~ 1,data = fitdata)
stepAIC(fit2,direction="both",scope=list(upper=fit1,lower=fit2))
```

```
## Start:  AIC=0.99
## 발병률 ~ 1
##
##                          Df Sum of Sq    RSS     AIC
## + PM25                    1   2.25060 56.749 0.65803
## <none>                                59.000 0.99157
## + NO2                     1   1.02998 57.970 1.93489
## + `평균 현지기압(hPa)`    1   1.02683 57.973 1.93815
## + O3                      1   0.43419 58.566 2.54839
## + `일 최심신적설(cm)`     1   0.35905 58.641 2.62532
## + `일강수량(mm)`          1   0.31272 58.687 2.67270
## + CO                      1   0.30935 58.691 2.67615
## + `강수 계속시간(hr)`     1   0.25248 58.748 2.73426
## + `최저기온(°C)`          1   0.11917 58.881 2.87027
## + SO2                     1   0.01452 58.985 2.97680
## + `최고기온(°C)`          1   0.01246 58.988 2.97890
## + `평균 풍속(m/s)`        1   0.00844 58.992 2.98298
## + `평균기온(°C)`          1   0.00485 58.995 2.98664
## + PM10                    1   0.00273 58.997 2.98880
##
## Step:  AIC=0.66
## 발병률 ~ PM25
##
##                          Df Sum of Sq    RSS     AIC
## + NO2                     1    7.2815 49.468 -5.5812
## + PM10                    1    5.7113 51.038 -3.7064
## <none>                                56.749  0.6580
## + O3                      1    1.5692 55.180  0.9756
## - PM25                    1    2.2506 59.000  0.9916
## + SO2                     1    1.3581 55.391  1.2047
## + `평균 현지기압(hPa)`    1    1.2195 55.530  1.3547
## + `평균 풍속(m/s)`        1    0.4586 56.291  2.1712
## + CO                      1    0.4344 56.315  2.1969
## + `일 최심신적설(cm)`     1    0.3769 56.372  2.2582
## + `강수 계속시간(hr)`     1    0.3534 56.396  2.2832
## + `평균기온(°C)`          1    0.2397 56.510  2.4041
## + `최고기온(°C)`          1    0.2017 56.548  2.4443
## + `일강수량(mm)`          1    0.1980 56.551  2.4483
## + `최저기온(°C)`          1    0.0154 56.734  2.6417
##
## Step:  AIC=-5.58
## 발병률 ~ PM25 + NO2
##
##                          Df Sum of Sq    RSS      AIC
## + PM10                    1    7.1627 42.305 -12.9661
## + O3                      1    2.3620 47.106  -6.5168
## + CO                      1    2.0956 47.372  -6.1784
## <none>                                49.468  -5.5812
## + `평균 풍속(m/s)`        1    1.3160 48.152  -5.1990
## + SO2                     1    0.7493 48.719  -4.4970
## + `일강수량(mm)`          1    0.5427 48.925  -4.2431
## + `강수 계속시간(hr)`     1    0.5358 48.932  -4.2346
## + `평균기온(°C)`          1    0.3012 49.167  -3.9476
## + `최저기온(°C)`          1    0.2046 49.263  -3.8299
## + `평균 현지기압(hPa)`    1    0.0959 49.372  -3.6976
## + `일 최심신적설(cm)`     1    0.0899 49.378  -3.6904
```

```
## + `일 최심신적설(cm)`     1    0.0699 49.378  -3.6904
## + `최고기온(°C)`          1    0.0263 49.442  -3.6131
## - NO2                     1    7.2815 56.749   0.6580
## - PM25                    1    8.5021 57.970   1.9349
##
## Step:  AIC=-12.97
## 발병률 ~ PM25 + NO2 + PM10
##
##                           Df Sum of Sq    RSS      AIC
## + `일강수량(mm)`          1    1.4193 40.886 -13.0136
## + `최저기온(°C)`          1    1.4036 40.902 -12.9905
## <none>                                 42.305 -12.9661
## + `평균기온(°C)`          1    1.2379 41.067 -12.7479
## + `강수 계속시간(hr)`     1    1.0606 41.245 -12.4894
## + `최고기온(°C)`          1    0.5352 41.770 -11.7300
## + `일 최심신적설(cm)`     1    0.3909 41.914 -11.5231
## + `평균 현지기압(hPa)`    1    0.3367 41.969 -11.4455
## + O3                      1    0.1402 42.165 -11.1652
## + CO                      1    0.0667 42.239 -11.0607
## + SO2                     1    0.0188 42.286 -10.9928
## + `평균 풍속(m/s)`        1    0.0117 42.294 -10.9826
## - PM10                    1    7.1627 49.468  -5.5812
## - NO2                     1    8.7329 51.038  -3.7064
## - PM25                    1   15.1773 57.482   3.4281
##
## Step:  AIC=-13.01
## 발병률 ~ PM25 + NO2 + PM10 + `일강수량(mm)`
##
##                           Df Sum of Sq    RSS      AIC
## <none>                                 40.886 -13.0136
## - `일강수량(mm)`          1    1.4193 42.305 -12.9661
## + `최저기온(°C)`          1    0.5434 40.342 -11.8164
## + `평균기온(°C)`          1    0.5190 40.367 -11.7800
## + `최고기온(°C)`          1    0.1788 40.707 -11.2766
## + CO                      1    0.1673 40.719 -11.2596
## + O3                      1    0.0987 40.787 -11.1586
## + `평균 현지기압(hPa)`    1    0.0837 40.802 -11.1365
## + `일 최심신적설(cm)`     1    0.0763 40.810 -11.1256
## + `강수 계속시간(hr)`     1    0.0281 40.858 -11.0548
## + `평균 풍속(m/s)`        1    0.0045 40.881 -11.0202
## + SO2                     1    0.0000 40.886 -11.0136
## - PM10                    1    8.0393 48.925  -4.2431
## - NO2                     1    8.3189 49.205  -3.9012
## - PM25                    1   15.4915 56.377   4.2634
```

```
##
## Call:
## lm(formula = 발병률 ~ PM25 + NO2 + PM10 + `일강수량(mm)`, data = fitdata)
##
## Coefficients:
##    (Intercept)            PM25             NO2            PM10  `일강수량(mm)`
##     -2.430e-16      -1.336e+00       5.066e-01       9.198e-01       2.001e-01
```

```
fit <-  lm(formula = 발병률 ~ NO2 + PM25 + PM10 + `평균 풍속(m/s)`, data = analysis_2016_quarter1)

summary(fit)
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + PM25 + PM10 + `평균 풍속(m/s)`, data = analysis_2016_quarter1)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.81551 -0.54280  0.03208  0.61515  2.06701
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)      -2.611e-16  1.132e-01   0.000  1.00000
## NO2               5.325e-01  1.926e-01   2.765  0.00773 **
## PM25             -1.114e+00  2.603e-01  -4.279 7.56e-05 ***
## PM10              6.672e-01  2.417e-01   2.760  0.00783 **
## `평균 풍속(m/s)`  2.034e-02  1.652e-01   0.123  0.90245
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8769 on 55 degrees of freedom
## Multiple R-squared:  0.2832, Adjusted R-squared:  0.231
## F-statistic: 5.431 on 4 and 55 DF,  p-value: 0.0009288
```

2분기

```
fitdata <- analysis_2016_quarter2
fit1 <- lm(발병률 ~ .,data = fitdata)
fit2 <- lm(발병률 ~ 1,data = fitdata)
stepAIC(fit2,direction="both",scope=list(upper=fit1,lower=fit2))
```

```
## Start:  AIC=0.99
## 발병률 ~ 1
##
##                         Df Sum of Sq    RSS      AIC
## + NO2                    1    4.1626 86.837 -1.31315
## + SO2                    1    3.6068 87.393 -0.72614
## <none>                               91.000  0.99453
## + `최저기온(°C)`        1    1.9285 89.072  1.02392
## + O3                     1    1.4679 89.532  1.49839
## + `평균기온(°C)`        1    1.0857 89.914  1.89033
## + CO                     1    0.6222 90.378  2.36337
## + `최고기온(°C)`        1    0.5097 90.490  2.47782
## + `평균 현지기압(hPa)`  1    0.4121 90.588  2.57697
## + `일강수량(mm)`         1    0.3557 90.644  2.63419
## + `일 최심신적설(cm)`    1    0.0978 90.902  2.89562
## + `강수 계속시간(hr)`    1    0.0604 90.940  2.93342
## + PM10                   1    0.0326 90.967  2.96153
## + `평균 풍속(m/s)`       1    0.0039 90.996  2.99063
## + PM25                   1    0.0000 91.000  2.99452
##
## Step:  AIC=-1.31
## 발병률 ~ NO2
##
##                         Df Sum of Sq    RSS      AIC
## + PM25                   1    2.2642 84.573 -1.74378
## <none>                               86.837 -1.31315
## + CO                     1    1.2400 85.597 -0.63636
## + PM10                   1    0.8411 85.996 -0.20854
## + `최저기온(°C)`        1    0.6505 86.187 -0.00488
## + `평균 풍속(m/s)`       1    0.5618 86.276  0.08972
## + `평균기온(°C)`        1    0.4563 86.381  0.20216
## + O3                     1    0.3106 86.527  0.35723
## + `최고기온(°C)`        1    0.2617 86.576  0.40916
## + SO2                    1    0.2285 86.609  0.44445
## + `강수 계속시간(hr)`    1    0.1736 86.664  0.50270
## + `일강수량(mm)`         1    0.0341 86.803  0.65067
## + `평균 현지기압(hPa)`  1    0.0054 86.832  0.68118
## + `일 최심신적설(cm)`    1    0.0036 86.834  0.68302
## - NO2                    1    4.1626 91.000  0.99453
##
## Step:  AIC=-1.74
## 발병률 ~ NO2 + PM25
##
##                         Df Sum of Sq    RSS      AIC
## <none>                               84.573 -1.74378
## - PM25                   1    2.2642 86.837 -1.31315
## + SO2                    1    0.6461 83.927 -0.44931
## + `평균 풍속(m/s)`       1    0.6128 83.960 -0.41279
## + `최저기온(°C)`        1    0.2923 84.281 -0.06230
## + `평균기온(°C)`        1    0.2643 84.309 -0.03176
## + `일강수량(mm)`         1    0.2397 84.333 -0.00492
## + `최고기온(°C)`        1    0.1853 84.388  0.05446
## + O3                     1    0.0351 84.538  0.21804
## + PM10                   1    0.0315 84.542  0.22192
## + `강수 계속시간(hr)`    1    0.0274 84.546  0.22643
## + `평균 현지기압(hPa)`  1    0.0263 84.547  0.22766
## + `일 최심신적설(cm)`    1    0.0204 84.553  0.23400
## + CO                     1    0.0111 84.562  0.24415
## - NO2                    1    6.4268 91.000  2.99452
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + PM25, data = fitdata)
##
## Coefficients:
## (Intercept)          NO2         PM25
##   1.559e-16    3.305e-01   -1.962e-01
```

```
fit <- lm(formula = 발병률 ~ NO2 + CO + `평균 풍속(m/s)`, data = analysis_2016_quarter2)

summary(fit)
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + CO + `평균 풍속(m/s)`, data = analysis_2016_quarter2)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -1.9271 -0.3058  0.1278  0.5199  1.9837
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)        8.763e-17  1.025e-01   0.000   1.0000
## NO2                3.718e-01  1.597e-01   2.328   0.0222 *
## CO                -1.715e-01  1.556e-01  -1.102   0.2734
## `평균 풍속(m/s)`  7.962e-02  1.111e-01   0.716   0.4756
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9834 on 88 degrees of freedom
## Multiple R-squared:  0.06483,    Adjusted R-squared:  0.03294
## F-statistic: 2.033 on 3 and 88 DF,  p-value: 0.115
```

3분기

```
fitdata <- analysis_2016_quarter3 %>% dplyr::select(-`일 최심신적설(cm)`)
fit1 <- lm(발병률 ~ .,data = fitdata)
fit2 <- lm(발병률 ~ 1,data = fitdata)
stepAIC(fit2,direction="both",scope=list(upper=fit1,lower=fit2))
```

```
## Start:  AIC=0.99
## 발병률 ~ 1
##
##                         Df Sum of Sq    RSS     AIC
## + `최저기온(°C)`        1   10.3662 80.634 -8.1322
## + `평균기온(°C)`        1    9.7697 81.230 -7.4541
## + NO2                   1    8.2981 82.702 -5.8022
## + `최고기온(°C)`        1    6.9477 84.052 -4.3122
## + SO2                   1    2.5579 88.442  0.3715
## <none>                             91.000  0.9945
## + O3                    1    1.5231 89.477  1.4417
## + `평균 풍속(m/s)`      1    1.2823 89.718  1.6889
## + PM25                  1    0.3059 90.694  2.6848
## + CO                    1    0.3023 90.698  2.6884
## + `평균 현지기압(hPa)`  1    0.2738 90.726  2.7173
## + `강수 계속시간(hr)`   1    0.2291 90.771  2.7626
## + `일강수량(mm)`        1    0.0518 90.948  2.9421
## + PM10                  1    0.0146 90.985  2.9797
##
## Step:  AIC=-8.13
## 발병률 ~ `최저기온(°C)`
##
##                         Df Sum of Sq    RSS      AIC
## + NO2                   1    3.5260 77.108 -10.2458
## <none>                             80.634  -8.1322
## + CO                    1    0.4078 80.226  -6.5986
## + `평균 현지기압(hPa)`  1    0.3484 80.285  -6.5305
## + `평균기온(°C)`        1    0.3144 80.319  -6.4916
## + `최고기온(°C)`        1    0.2850 80.349  -6.4579
## + O3                    1    0.0898 80.544  -6.2347
## + SO2                   1    0.0664 80.567  -6.2079
## + PM10                  1    0.0241 80.610  -6.1596
## + `평균 풍속(m/s)`      1    0.0214 80.612  -6.1566
## + PM25                  1    0.0118 80.622  -6.1456
## + `강수 계속시간(hr)`   1    0.0116 80.622  -6.1453
## + `일강수량(mm)`        1    0.0030 80.631  -6.1356
## - `최저기온(°C)`        1   10.3662 91.000   0.9945
```

```
##
## Step:  AIC=-10.25
## 발병률 ~ `최저기온(°C)` + NO2
##
##                         Df Sum of Sq    RSS      AIC
## + PM25                   1    4.1421 72.966 -13.3256
## + PM10                   1    3.0687 74.039 -11.9821
## <none>                               77.108 -10.2458
## + `평균기온(°C)`         1    1.3222 75.785  -9.8371
## + O3                     1    1.2154 75.892  -9.7076
## + `최고기온(°C)`         1    1.1943 75.913  -9.6819
## + `평균 현지기압(hPa)`   1    1.0213 76.086  -9.4725
## + SO2                    1    0.7345 76.373  -9.1264
## + `강수 계속시간(hr)`    1    0.4023 76.705  -8.7271
## + `평균 풍속(m/s)`       1    0.3949 76.713  -8.7182
## + CO                     1    0.2154 76.892  -8.5032
## + `일강수량(mm)`         1    0.0816 77.026  -8.3432
## - NO2                    1    3.5260 80.634  -8.1322
## - `최저기온(°C)`         1    5.5942 82.702  -5.8022
##
## Step:  AIC=-13.33
## 발병률 ~ `최저기온(°C)` + NO2 + PM25
##
##                         Df Sum of Sq    RSS      AIC
## - `최저기온(°C)`         1    1.2708 74.236 -13.7370
## <none>                               72.966 -13.3256
## + `평균 현지기압(hPa)`   1    1.1623 71.803 -12.8029
## + `평균기온(°C)`         1    0.6257 72.340 -12.1179
## + CO                     1    0.4510 72.515 -11.8960
## + `최고기온(°C)`         1    0.4246 72.541 -11.8625
## + `평균 풍속(m/s)`       1    0.4046 72.561 -11.8371
## + PM10                   1    0.2126 72.753 -11.5940
## + `일강수량(mm)`         1    0.1355 72.830 -11.4966
## + SO2                    1    0.0172 72.948 -11.3472
## + `강수 계속시간(hr)`    1    0.0064 72.959 -11.3337
## + O3                     1    0.0034 72.962 -11.3298
## - PM25                   1    4.1421 77.108 -10.2458
## - NO2                    1    7.6563 80.622  -6.1456
##
## Step:  AIC=-13.74
## 발병률 ~ NO2 + PM25
##
##                         Df Sum of Sq    RSS      AIC
## + `평균기온(°C)`         1    1.8811 72.355 -14.0983
## <none>                               74.236 -13.7370
## + `최고기온(°C)`         1    1.5030 72.734 -13.6187
## + `평균 현지기압(hPa)`   1    1.3187 72.918 -13.3859
## + `최저기온(°C)`         1    1.2708 72.966 -13.3256
## + `평균 풍속(m/s)`       1    1.1689 73.068 -13.1972
## + O3                     1    0.5142 73.722 -12.3765
## + SO2                    1    0.4414 73.795 -12.2857
## + PM10                   1    0.2633 73.973 -12.0639
## + `일강수량(mm)`         1    0.1509 74.086 -11.9243
## + `강수 계속시간(hr)`    1    0.0686 74.168 -11.8221
## + CO                     1    0.0462 74.190 -11.7943
## - PM25                   1    8.4654 82.702  -5.8022
## - NO2                    1   16.4576 90.694   2.6848
##
## Step:  AIC=-14.1
## 발병률 ~ NO2 + PM25 + `평균기온(°C)`
##
##                         Df Sum of Sq    RSS      AIC
## <none>                               72.355 -14.0983
## - `평균기온(°C)`         1    1.8811 74.236 -13.7370
## + `평균 현지기압(hPa)`   1    0.7556 71.600 -13.0641
## + PM10                   1    0.7018 71.654 -12.9951
## + CO                     1    0.6685 71.687 -12.9522
## + `일강수량(mm)`         1    0.4411 71.914 -12.6609
## + `평균 풍속(m/s)`       1    0.2401 72.115 -12.4041
## + `강수 계속시간(hr)`    1    0.1965 72.159 -12.3485
## + SO2                    1    0.0510 72.304 -12.1632
## + `최고기온(°C)`         1    0.0191 72.336 -12.1226
## + `최저기온(°C)`         1    0.0154 72.340 -12.1179
```

```
## + O3                      1    0.0076 72.348 -12.1080
## - PM25                    1    3.4302 75.786 -11.8370
## - NO2                     1    8.7836 81.139  -5.5575
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + PM25 + `평균기온(°C)`, data = fitdata)
##
## Coefficients:
##     (Intercept)              NO2             PM25  `평균기온(°C)`
##       8.835e-17        4.417e-01       -2.816e-01       -1.684e-01
```

```
 fit <- lm(formula = 발병률 ~ NO2 + PM25 + CO,
data = analysis_2016_quarter3)

summary(fit)
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + PM25 + CO, data = analysis_2016_quarter3)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.97877 -0.42983  0.01696  0.51344  2.90044
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3.903e-17  9.573e-02   0.000   1.0000
## NO2          5.394e-01  1.221e-01   4.417 2.84e-05 ***
## PM25        -4.080e-01  1.572e-01  -2.595   0.0111 *
## CO           3.123e-02  1.334e-01   0.234   0.8154
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9182 on 88 degrees of freedom
## Multiple R-squared:  0.1847, Adjusted R-squared:  0.1569
## F-statistic: 6.646 on 3 and 88 DF,  p-value: 0.0004251
```

4분기

```
fitdata <- analysis_2016_quarter4
fit1 <- lm(발병률 ~ .,data = fitdata)
fit2 <- lm(발병률 ~ 1,data = fitdata)
stepAIC(fit2,direction="both",scope=list(upper=fit1,lower=fit2))
```

```
## Start:  AIC=0.99
## 발병률 ~ 1
##
##                         Df Sum of Sq    RSS     AIC
## + NO2                    1   11.4809 78.519 -9.4241
## + `최저기온(°C)`         1    8.9232 81.077 -6.5071
## + `평균기온(°C)`         1    7.7661 82.234 -5.2176
## + O3                     1    6.9521 83.048 -4.3212
## + `최고기온(°C)`         1    6.4085 83.592 -3.7275
## + SO2                    1    6.1439 83.856 -3.4399
## + `강수 계속시간(hr)`    1    4.2837 85.716 -1.4433
## + `일강수량(mm)`         1    3.7507 86.249 -0.8792
## + `평균 현지기압(hPa)`   1    3.3620 86.638 -0.4701
## + CO                     1    3.2817 86.718 -0.3857
## + PM10                   1    2.8324 87.168  0.0846
## + PM25                   1    2.5479 87.452  0.3811
## <none>                              90.000  0.9945
## + `평균 풍속(m/s)`       1    0.1466 89.853  2.8461
## + `일 최심신적설(cm)`    1    0.1086 89.891  2.8846
##
## Step:  AIC=-9.42
## 발병률 ~ NO2
##
##                         Df Sum of Sq    RSS      AIC
## + CO                     1    6.5396 71.979 -15.3375
## + PM25                   1    1.7213 76.798  -9.4412
## <none>                              78.519  -9.4241
## + `강수 계속시간(hr)`    1    1.6554 76.864  -9.3631
## + `평균 풍속(m/s)`       1    1.2635 77.256  -8.9004
## + `최저기온(°C)`         1    1.1930 77.326  -8.8173
## + PM10                   1    1.0361 77.483  -8.6329
## + `일강수량(mm)`         1    0.9873 77.532  -8.5757
## + `평균기온(°C)`         1    0.9300 77.589  -8.5084
## + O3                     1    0.6465 77.873  -8.1765
## + `최고기온(°C)`         1    0.6354 77.884  -8.1635
## + SO2                    1    0.4522 78.067  -7.9497
## + `평균 현지기압(hPa)`   1    0.2891 78.230  -7.7598
## + `일 최심신적설(cm)`    1    0.0751 78.444  -7.5112
## - NO2                    1   11.4809 90.000   0.9945
##
## Step:  AIC=-15.34
## 발병률 ~ NO2 + CO
##
##                         Df Sum of Sq    RSS      AIC
## <none>                              71.979 -15.3375
## + `평균 풍속(m/s)`       1    1.5030 70.477 -15.2578
## + `최저기온(°C)`         1    1.1994 70.780 -14.8666
## + `강수 계속시간(hr)`    1    1.0929 70.887 -14.7298
## + `평균기온(°C)`         1    1.0354 70.944 -14.6560
## + `최고기온(°C)`         1    0.8803 71.099 -14.4573
## + `일강수량(mm)`         1    0.8213 71.158 -14.3819
## + `일 최심신적설(cm)`    1    0.1313 71.848 -13.5037
## + O3                     1    0.0474 71.932 -13.3975
## + `평균 현지기압(hPa)`   1    0.0343 71.945 -13.3809
## + SO2                    1    0.0223 71.957 -13.3657
## + PM10                   1    0.0109 71.969 -13.3513
## + PM25                   1    0.0003 71.979 -13.3379
## - CO                     1    6.5396 78.519  -9.4241
## - NO2                    1   14.7388 86.718  -0.3857
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + CO, data = fitdata)
##
## Coefficients:
## (Intercept)          NO2           CO
##  -6.045e-16    8.707e-01   -5.800e-01
```

```
fit<- lm(formula = 발병률 ~ NO2 + CO + `평균 현지기압(hPa)` + `평균 풍속(m/s)`, data =analysis_2016_quarter4)

summary(fit)
```

```
##
## Call:
## lm(formula = 발병률 ~ NO2 + CO + `평균 현지기압(hPa)` + `평균 풍속(m/s)`,
##     data = analysis_2016_quarter4)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.07583 -0.32097  0.08789  0.39105  2.27507
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)           -7.171e-16  9.488e-02   0.000  1.00000
## NO2                    8.951e-01  2.177e-01   4.111 8.96e-05 ***
## CO                    -5.852e-01  2.074e-01  -2.822  0.00593 **
## `평균 현지기압(hPa)`  2.081e-02  1.049e-01   0.198  0.84318
## `평균 풍속(m/s)`      1.322e-01  9.768e-02   1.354  0.17939
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9051 on 86 degrees of freedom
## Multiple R-squared:  0.2173, Adjusted R-squared:  0.1809
## F-statistic: 5.969 on 4 and 86 DF,  p-value: 0.0002752
```