

Step_AIC

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```
data(state)
statedata = as.data.frame(state.x77)
names(statedata) = gsub(' ', '.', names(statedata))
lmod = lm(Life.Exp ~ ., data = statedata)
step(lmod, direction = 'both')
```



```
## Start:  AIC=-22.18
## Life.Exp ~ Population + Income + Illiteracy + Murder + HS.Grad +
##      Frost + Area
##
##              Df Sum of Sq   RSS   AIC
## - Area         1    0.0011 23.298 -24.182
## - Income        1    0.0044 23.302 -24.175
## - Illiteracy    1    0.0047 23.302 -24.174
## <none>                  23.297 -22.185
## - Population   1    1.7472 25.044 -20.569
## - Frost        1    1.8466 25.144 -20.371
## - HS.Grad      1    2.4413 25.738 -19.202
## - Murder       1   23.1411 46.438  10.305
##
## Step:  AIC=-24.18
## Life.Exp ~ Population + Income + Illiteracy + Murder + HS.Grad +
##      Frost
##
##              Df Sum of Sq   RSS   AIC
## - Illiteracy    1    0.0038 23.302 -26.174
## - Income        1    0.0059 23.304 -26.170
## <none>                  23.298 -24.182
## - Population   1    1.7599 25.058 -22.541
## + Area         1    0.0011 23.297 -22.185
## - Frost        1    2.0488 25.347 -21.968
## - HS.Grad      1    2.9804 26.279 -20.163
## - Murder       1   26.2721 49.570  11.569
##
## Step:  AIC=-26.17
## Life.Exp ~ Population + Income + Murder + HS.Grad + Frost
##
##              Df Sum of Sq   RSS   AIC
## - Income        1    0.006 23.308 -28.161
## <none>                  23.302 -26.174
## - Population   1    1.887 25.189 -24.280
## + Illiteracy    1    0.004 23.298 -24.182
```

```

## + Area      1      0.000 23.302 -24.174
## - Frost     1      3.037 26.339 -22.048
## - HS.Grad   1      3.495 26.797 -21.187
## - Murder    1     34.739 58.041  17.456
##
## Step:  AIC=-28.16
## Life.Exp ~ Population + Murder + HS.Grad + Frost
##
##           Df Sum of Sq    RSS    AIC
## <none>                23.308 -28.161
## + Income      1      0.006 23.302 -26.174
## + Illiteracy  1      0.004 23.304 -26.170
## + Area        1      0.001 23.307 -26.163
## - Population  1      2.064 25.372 -25.920
## - Frost       1      3.122 26.430 -23.877
## - HS.Grad     1      5.112 28.420 -20.246
## - Murder      1     34.816 58.124  15.528
##
## Call:
## lm(formula = Life.Exp ~ Population + Murder + HS.Grad + Frost,
##     data = statedata)
##
## Coefficients:
## (Intercept)  Population      Murder    HS.Grad      Frost
##  7.103e+01   5.014e-05  -3.001e-01   4.658e-02  -5.943e-03

```