ALGORITHM

Four algorithm has to be explored :

1.Exhaustive Search

2.Forward Selection

3.Backward Selection

4.Stepwise Regression

Exhaustive Search

->Evaluates the possible combination of variables and chooses the best model.

### Regression (Subset selection)

### Needed package and datasets

library(ISLR)

attach(Carseats)

Carseats=na.omit(Carseats) # Get rid of NAs

install.packages("leaps")

library(leaps)

##### Searching all subset models up to size 8 by default

regfit.full=regsubsets(Sales~.,data=Carseats)

summary(regfit.full)

##### Searching all subset models up to size number of variables

regfit.full=regsubsets (Sales~.,data=Carseats ,nvmax=11)

reg.summary =summary (regfit.full)

names(reg.summary)

reg.summary$rss

reg.summary$adjr2

## Plotting and choosing the subset

par(mfrow=c(2,2))

plot(reg.summary$rss ,xlab="Number of Variables ",ylab="RSS", type="l")

plot(reg.summary$adjr2 ,xlab="Number of Variables ", ylab="Adjusted RSq",type="l")

coef(regfit.full ,6)

#### Forward selection

regfit.fwd=regsubsets(Sales~.,data=Carseats ,nvmax=11, method="forward")

F=summary(regfit.fwd)

names(F)

F

F$rss

F$adjr2

coef(regfit.fwd,6)

=>**Backward selection**

regfit.bwd=regsubsets(Sales~.,data=Carseats ,nvmax=11, method="backward")

B=summary(regfit.bwd)

names(B)

B

B$rss

B$adjr2

coef(regfit.bwd,6)