

In_Class_Assingnment2

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Question1:

The input in this function is the number of variables p and number of observations and the linear model be used

Step2: gennerate data

```
x1<-rnorm(50,5,1)
b0<-5
b1<-2
error<-rnorm(50,0,1)
y<-b0+b1*x1+error
```

Step3:

```
fit1<-lm(y~x1)
av<-anova(fit1)
av$"Sum Sq"[2]
```

```
## [1] 61.94916
```

Step4: the pesducode

$AIC = n \ln(SSE_p/n) + 2(p+1)$

```
myAIC<-function(n,p,fit_k){
  #n represent the number of observation, p represent the number of variable(p+1). fi
t_k represent the linear model.which need to be lm(y~x1)

  first<-(n*log((anova(fit_k)$"Sum Sq"[2])/n))
  return(first-2*(p))

}
```

Step5 Calculate the $y \sim x_1$

```
#for this case n=50,p=1
#because n>30 so we only use AIC=nln(SSEp/n)+2(p+1)

names(fit1)
```

```
## [1] "coefficients" "residuals" "effects" "rank"
## [5] "fitted.values" "assign" "qr" "df.residual"
## [9] "xlevels" "call" "terms" "model"
```

```
myAIC(length(fit1$fitted.values),length(fit1$coefficients),fit1)
```

```
## [1] 6.714549
```