```
> bang<-read.csv("D:\\R\\Bangladesh\\bangladesh1.csv")
> bang
                                    Country.Name Country.Code                                Serie
s.Name
1                                     Bangladesh          BGD Access to electricity (% of popul
ation)
2                                     Bangladesh          BGD                    GDP growth (ann
ual %)
3

4

5

6 Data from database: World Development Indicators

7                          Last Updated: 03/01/2023

        Series.Code X2012..YR2012. X2013..YR2013. X2014..YR2014. X2015..YR2015. X2016..YR2016. X2
017..YR2017.
1    EG.ELC.ACCS.ZS      66.155571      61.500000      62.400002       74.90374      75.919998
    88.00000
2 NY.GDP.MKTP.KD.ZG       6.521459       6.013606       6.061059        6.55264       7.113478
     6.59025
3                              NA             NA             NA             NA             NA
          NA
4                              NA             NA             NA             NA             NA
          NA
5                              NA             NA             NA             NA             NA
          NA
6                              NA             NA             NA             NA             NA
          NA
7                              NA             NA             NA             NA             NA
          NA
  X2018..YR2018. X2019..YR2019. X2020..YR2020.   X2021..YR2021.
1      91.800003      92.199997      96.199997                ..
2       7.319413       7.881915       3.448021 6.93867508910159
3             NA             NA             NA
4             NA             NA             NA
5             NA             NA             NA
6             NA             NA             NA
7             NA             NA             NA
> bang<-na.omit(bang)
> bang
  Country.Name Country.Code                              Series.Name       Series.Code X2012..YR20
12.
1   Bangladesh          BGD Access to electricity (% of population)    EG.ELC.ACCS.ZS      66.155
571
2   Bangladesh          BGD                    GDP growth (annual %) NY.GDP.MKTP.KD.ZG       6.521
459
  X2013..YR2013. X2014..YR2014. X2015..YR2015. X2016..YR2016. X2017..YR2017. X2018..YR2018. X2019
..YR2019.
1      61.500000      62.400002       74.90374      75.919998       88.00000      91.800003
92.199997
2       6.013606       6.061059        6.55264       7.113478        6.59025       7.319413
 7.881915
  X2020..YR2020.   X2021..YR2021.
1      96.199997                ..
2       3.448021 6.93867508910159
> colnames(bang)<-c("c1","c2","c3","c4","c5","c6","c7","c8","c9","c10","c11","c12","c13","c14")
> colnames(bang)
 [1] "c1"  "c2"  "c3"  "c4"  "c5"  "c6"  "c7"  "c8"  "c9"  "c10" "c11" "c12" "c13" "c14"
> bang
          c1  c2                                    c3                c4        c5        c6
     c7
1 Bangladesh BGD Access to electricity (% of population)    EG.ELC.ACCS.ZS 66.155571 61.500000 62
.400002
2 Bangladesh BGD                    GDP growth (annual %) NY.GDP.MKTP.KD.ZG  6.521459  6.013606  6
.061059
        c8        c9      c10       c11       c12       c13              c14
```

```
1 74.90374 75.919998 88.00000 91.800003 92.199997 96.199997               ..
2  6.55264  7.113478  6.59025  7.319413  7.881915  3.448021 6.93867508910159
> t(bang)
    1                                          2
c1  "Bangladesh"                               "Bangladesh"
c2  "BGD"                                      "BGD"
c3  "Access to electricity (% of population)" "GDP growth (annual %)"
c4  "EG.ELC.ACCS.ZS"                           "NY.GDP.MKTP.KD.ZG"
c5  "66.155571"                                " 6.521459"
c6  "61.500000"                                " 6.013606"
c7  "62.400002"                                " 6.061059"
c8  "74.90374"                                 " 6.55264"
c9  "75.919998"                                " 7.113478"
c10 "88.00000"                                 " 6.59025"
c11 "91.800003"                                " 7.319413"
c12 "92.199997"                                " 7.881915"
c13 "96.199997"                                " 3.448021"
c14 ".."                                       "6.93867508910159"
> bang_trns<-t(bang)
> bang_trns
    1                                          2
c1  "Bangladesh"                               "Bangladesh"
c2  "BGD"                                      "BGD"
c3  "Access to electricity (% of population)" "GDP growth (annual %)"
c4  "EG.ELC.ACCS.ZS"                           "NY.GDP.MKTP.KD.ZG"
c5  "66.155571"                                " 6.521459"
c6  "61.500000"                                " 6.013606"
c7  "62.400002"                                " 6.061059"
c8  "74.90374"                                 " 6.55264"
c9  "75.919998"                                " 7.113478"
c10 "88.00000"                                 " 6.59025"
c11 "91.800003"                                " 7.319413"
c12 "92.199997"                                " 7.881915"
c13 "96.199997"                                " 3.448021"
c14 ".."                                       "6.93867508910159"
> sapply(bang_trns,class)
                          Bangladesh                                       BGD
                         "character"                               "character"
Access to electricity (% of population)                      EG.ELC.ACCS.ZS
                         "character"                               "character"
                           66.155571                                 61.500000
                         "character"                               "character"
                           62.400002                                  74.90374
                         "character"                               "character"
                           75.919998                                  88.00000
                         "character"                               "character"
                           91.800003                                 92.199997
                         "character"                               "character"
                           96.199997                                         ..
                         "character"                               "character"
                          Bangladesh                                       BGD
                         "character"                               "character"
                GDP growth (annual %)                    NY.GDP.MKTP.KD.ZG
                         "character"                               "character"
                            6.521459                                  6.013606
                         "character"                               "character"
                            6.061059                                   6.55264
                         "character"                               "character"
                            7.113478                                   6.59025
                         "character"                               "character"
                            7.319413                                  7.881915
                         "character"                               "character"
                            3.448021                          6.93867508910159
                         "character"                               "character"
> i<-c(1,2)
> ba2<-bang_trns
> ba2
    1                                          2
c1  "Bangladesh"                               "Bangladesh"
c2  "BGD"                                      "BGD"
```

```
c3  "Access to electricity (% of population)" "GDP growth (annual %)"
c4  "EG.ELC.ACCS.ZS"                          "NY.GDP.MKTP.KD.ZG"
c5  "66.155571"                               " 6.521459"
c6  "61.500000"                               " 6.013606"
c7  "62.400002"                               " 6.061059"
c8  "74.90374"                                " 6.55264"
c9  "75.919998"                               " 7.113478"
c10 "88.00000"                                " 6.59025"
c11 "91.800003"                               " 7.319413"
c12 "92.199997"                               " 7.881915"
c13 "96.199997"                               " 3.448021"
c14 ".."                                      "6.93867508910159"
> ba2<-apply(ba2[ ,i],2,
+ function(x)as.numeric(as.character(x)))
Warning messages:
1: In FUN(newX[, i], ...) : NAs introduced by coercion
2: In FUN(newX[, i], ...) : NAs introduced by coercion
> ba2<-na.omit(ba2)
> ba2<-ba2[1:9, ]
> ba2<-as.data.frame(ba2)
> ba2$year<-(2012:2020)
> ba2
         1        2 year
1 66.15557 6.521459 2012
2 61.50000 6.013606 2013
3 62.40000 6.061059 2014
4 74.90374 6.552640 2015
5 75.92000 7.113478 2016
6 88.00000 6.590250 2017
7 91.80000 7.319413 2018
8 92.20000 7.881915 2019
9 96.20000 3.448021 2020
> ba2<-ba2[ ,c(3,1,2)]
> colnames(ba2)[colnames(ba2)=="1"]<-"Access_to_electricity"
> colnames(ba2)[colnames(ba2)=="2"]<-"GDP_growth"
> ba2
  year Access_to_electricity GDP_growth
1 2012              66.15557   6.521459
2 2013              61.50000   6.013606
3 2014              62.40000   6.061059
4 2015              74.90374   6.552640
5 2016              75.92000   7.113478
6 2017              88.00000   6.590250
7 2018              91.80000   7.319413
8 2019              92.20000   7.881915
9 2020              96.20000   3.448021
> ba22<-lm(Access_to_electricity~GDP_growth,ba2)
> ba22

Call:
lm(formula = Access_to_electricity ~ GDP_growth, data = ba2)

Coefficients:
(Intercept)   GDP_growth
    83.7285      -0.7735

> summary(ba22)

Call:
lm(formula = Access_to_electricity ~ GDP_growth, data = ba2)

Residuals:
    Min      1Q  Median      3Q     Max
-17.577 -12.529  -2.306  13.733  15.139

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  83.7285    26.6152   3.146   0.0162 *
GDP_growth   -0.7735     4.0961  -0.189   0.8556
---
```

```
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 14.54 on 7 degrees of freedom
Multiple R-squared:  0.005068,  Adjusted R-squared:  -0.1371
F-statistic: 0.03566 on 1 and 7 DF,  p-value: 0.8556

> plot( Access_to_electricity~GDP_growth,data=ba2,col="red")
> plot( Access_to_electricity~GDP_growth,data=ba2,type="l",col="green")
>
```