>age=16:27

>height<-c(61.1, 61.2, 61.8, 62.8, 63.5, 76.1, 77, 78.1, 78.2, 78.8, 79.7, 79.9)

age

[1] 16 17 18 19 20 21 22 23 24 25 26 27

> length(age)

[1] 12

> height

[1] 61.1 61.2 61.8 62.8 63.5 76.1 77.0 78.1 78.2 78.8 79.7 79.9

> length(height)

[1] 12

**>(1) ## age and height each have 12 elements.**

>

> # **(2) Creating the scatter plot. Plot shows positive correlation.**

**> scatter.smooth(x=age,y=height,main="height ~ age")**

>

>

**##(3)Fitting model –**

> dt\_x1=data.frame(age,height)

> View(dt\_x1)

> View(dt\_x1)

> dt\_x1

age height

1 16 61.1

2 17 61.2

3 18 61.8

4 19 62.8

5 20 63.5

6 21 76.1

7 22 77.0

8 23 78.1

9 24 78.2

10 25 78.8

11 26 79.7

12 27 79.9

**> res1<-lm(height~age,data=dt\_x1)**

**> res1**

Call:

lm(formula = height ~ age, data = dt\_x1)

**Coefficients:**

(Intercept) age

25.359 2.147

> **summary(res1)**

Call:

lm(formula = height ~ age, data = dt\_x1)

**Residuals**:

Min 1Q Median 3Q Max

-4.7964 -2.4894 -0.4432 1.8840 5.6568

**Coefficients**:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 25.3593 6.3051 4.022 0.00243 \*\*

age 2.1469 0.2896 7.414 2.28e-05 \*\*\*

---

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

Residual standard error: 3.463 on 10 degrees of freedom

Multiple R-squared: 0.8461, Adjusted R-squared: 0.8307

F-statistic: 54.97 on 1 and 10 DF, p-value: 2.277e-05

> **confint(res1)**

**2.5 % 97.5 %**

**(Intercept) 11.310622 39.408026**

**age 1.501688 2.792018**

##**Plotting graph (line of best fit) :**

> x<-age

> y<-height

**> plot(y,x,col = "blue",main = " Age & Height Regression ", abline(lm(x~y)),cex = 1.3,pch = 16,xlab = "age in years",ylab = "Height in cm")**

>

**(4)#Equation of best fit:Y=β0 +β1xi**

**#β0 = intercept = 25.3593**

**#β1= slope = 2.1469**

**#Equation of line of best fit = y= 25.3593 + 2.1469x**

>