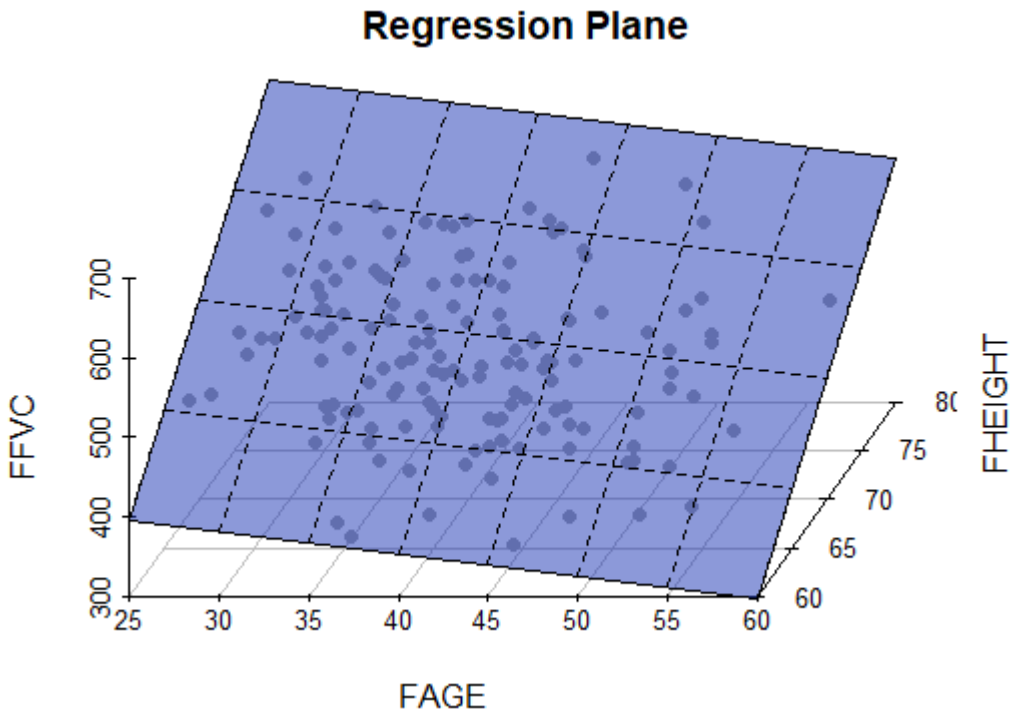
Assignment 3 Submitted by :Nithin Das

3.1

7.2 Fit the regression plane for the fathers using FFVC as the dependent variable and age and height as the independent variables.



3.2

From the depression data set described in Table 3.4, predict the reported level of depression as given by CESD, using INCOME, SEX, and AGE as independent variables. Analyze the residuals and decide whether or not it is reasonable to assume that they follow a normal distribution.

```
Call:
lm(formula = CESD ~ INCOME + SEX + AGE)
```

```
Residuals:
    Min      1Q  Median      3Q     Max
-0.8762 -0.5646 -0.3863  0.4040  2.6676

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.816071   0.226172   3.608 0.000363 ***
INCOME      -0.006795   0.003155  -2.154 0.032086 *
SEX          0.117834   0.097597   1.207 0.228283
AGE         -0.006741   0.002626  -2.567 0.010766 *
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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7979 on 290 degrees of freedom
Multiple R-squared:  0.03906,  Adjusted R-squared:  0.02912
F-statistic: 3.929 on 3 and 290 DF,  p-value: 0.008995
```
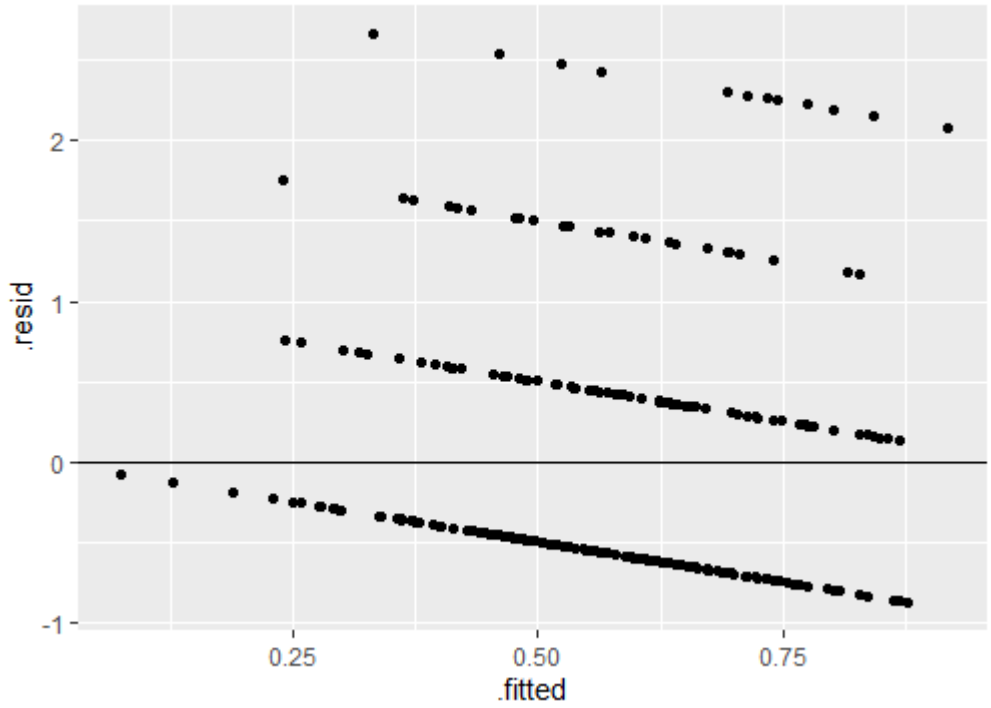

Regression equation:

CESD= -0.006 *INCOME +0.117*SEX -0.0067*AGE +0.816



Residual plot shows linearly decreasing pattern for residual. Therefore, we cannot assume that they follow normal distribution.