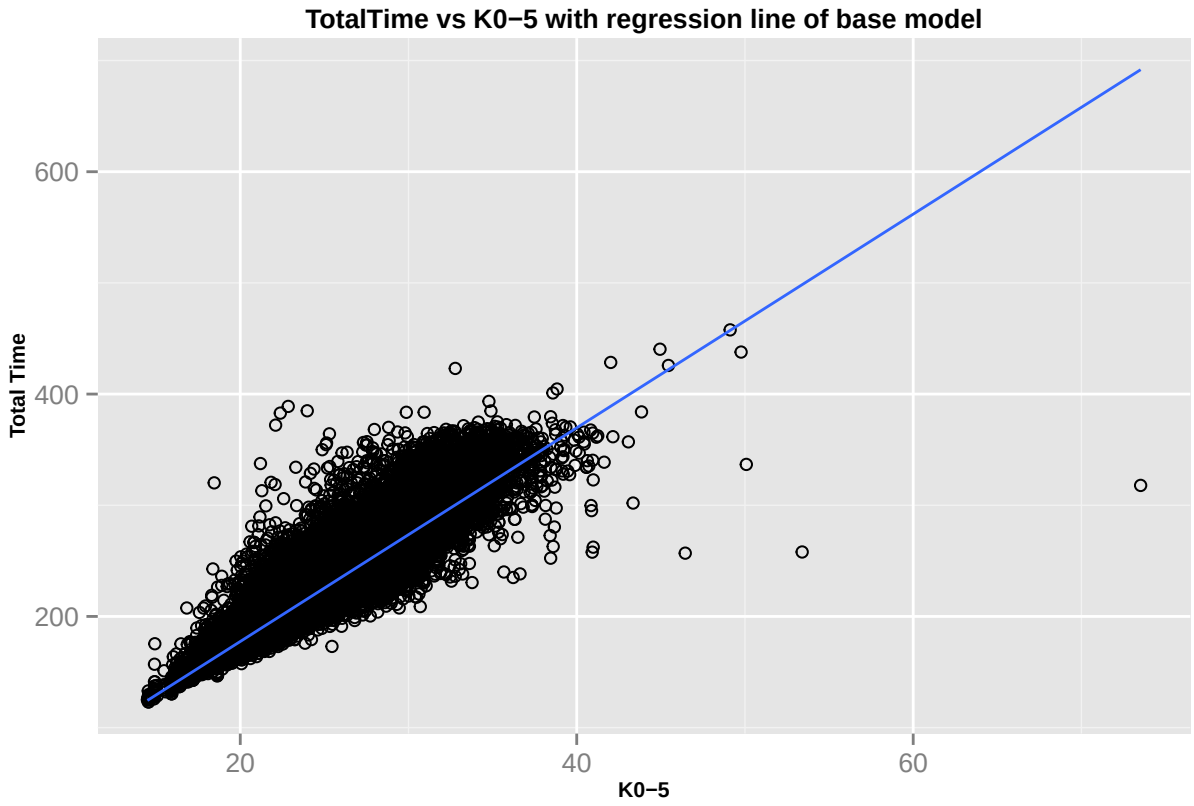
Plot

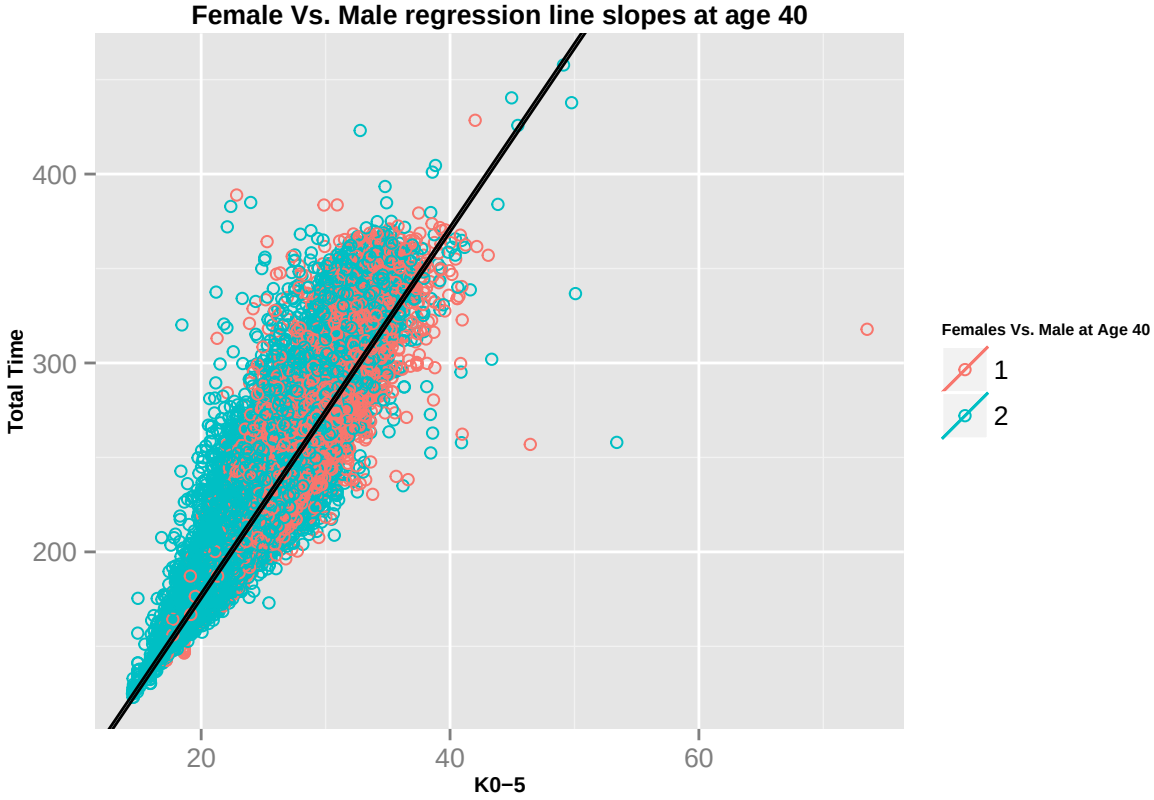
Using base regression model **lm(totaltime ~ Age+Gender1F2M+K0.5)**, the equation of the fitted regression line is

```
## [1] "TotalTime = -24.64 + 0.074*AGE + 2.847*Gender1F2M + 9.703*K0-5 "
```

The plot of total time vs. first split time with regression line of the base model is as below



Next, we plot the regression line of females vs. males at age 40 using base regression model. In this plot, the slope is the coefficient for K0.5.



Next we wanted to explore the regression model for total times that are either less than or equal to first quartile or greater than or equal to third quartile.

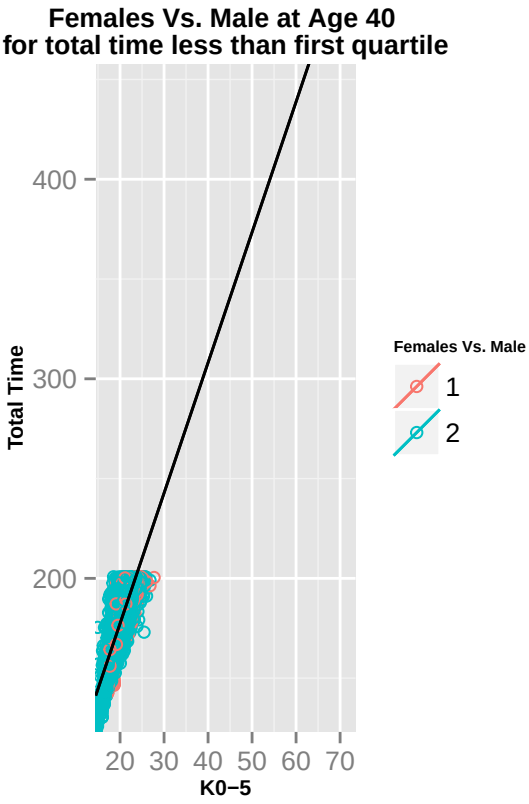
Using the regression model for total time less than or equal to first quartile, **lm(totaltime.lessthan.firstQ ~ Age+Gender1F2M+K0.5)**, the equation of the fitted regression line is

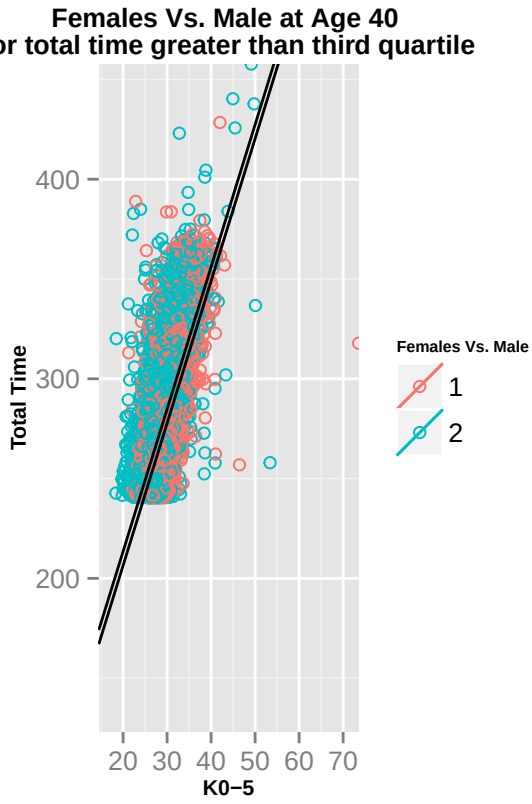
```
## [1] "TotalTime less than 1stQ = 43.864 + 0.079*AGE - 0.257*Gender1F2M + 6.537*K0-5 "
```

Using the regression model for total time greater than or equal to third quartile, **lm(totaltime.greaterthan.thirdQ ~ Age+Gender1F2M+K0.5)**, the equation of the fitted regression line is

```
## [1] "TotalTime greater than 3rdQ = 59.827 - 0.078*AGE + 7.073*Gender1F2M + 7.13*K0-5 "
```

Next we plot the regression lines for total times that are less than first quartile or greater than third quartile for females and males at age 40. We observe the difference in intercept for the females and males when the total time is greater or equal to third quartile.


Females Vs. Male at Age 40
for total time less than first quartile
Total Time
400
300
200
20 30 40 50 60 70
K0−5
Females Vs. Male
1
2


Females Vs. Male at Age 40
for total time greater than third quartile
Total Time
400
300
200
20 30 40 50 60 70
K0−5
Females Vs. Male
1
2