

Printout for Assignment 6 Q 4

```
> # Last Question (SAT) Data have been fixed: No more 100 bottles of beer.
> rm(list=ls())
> dat =
read.table("https://www.utstat.toronto.edu/brunner/data/legal/opensAT.data.txt")
> attach(dat)
>
> # a.
> modelA = lm(GPA ~ MATH); summary(modelA)
```

Call:

```
lm(formula = GPA ~ MATH)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.26114	-0.35543	0.01944	0.36817	1.15075

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.5264336	0.3981176	3.834	0.000169 ***
MATH	0.0016990	0.0006098	2.786	0.005850 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5707 on 198 degrees of freedom

Multiple R-squared: 0.03773, Adjusted R-squared: 0.03287

F-statistic: 7.764 on 1 and 198 DF, p-value: 0.00585

```
> # Prediction
> math550 = data.frame(MATH=550)
> predict(modelA,newdata=math550)
      1
2.460896
```

```
> summary(modelA)$r.squared # $ Ending syntax colouring
[1] 0.03773038
```

>

> #b

```
> modelB = lm(GPA ~ MATH+VERBAL); summary(modelB)
```

Call:

```
lm(formula = GPA ~ MATH + VERBAL)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.24875	-0.35113	0.04659	0.38745	1.03527

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.6062975	0.4414062	1.374	0.171
MATH	0.0009999	0.0006093	1.641	0.102
VERBAL	0.0023072	0.0005522	4.178	4.42e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5484 on 197 degrees of freedom

Multiple R-squared: 0.1161, Adjusted R-squared: 0.1071

F-statistic: 12.93 on 2 and 197 DF, p-value: 5.284e-06

```
> verbal650math550 = data.frame(VERBAL=650,MATH=550)
> predict(modelB,newdata=verbal650math550)
2.655879
```