

Question 1: Do all the factors listed in the birthweight table influence the birthweight?

The `lm_model1 ()` is formulated as follows based on question 1:

```
lm_model1<- birthweight_tbl %>% select(LowBirthWeight,length,motherage,smoker,
Gestation,Birthweight, headcircumference, smoker, motherage, mnocig, mppwt, fage, fedys,
fnocig, fheight, mage35) %>%
ml_linear_regression(LowBirthWeight~length+motherage+smoker+ Gestation+Birthweight+
headcircumference+ smoker+ motherage + mnocig + mppwt + fage + fedys + fnocig + fheight +
mage35)
summary (lm_model1)
```

Note that it is formulated based on the equation of the linear model.

After running the above codes, the following results are obtained:

Deviance Residuals:

Min	1Q	Median	3Q	Max
-0.42533	-0.10785	-0.01961	0.11140	0.42949

Coefficients:

(Intercept)	length	motherage	smoker	Gestation
3.522021303	-0.119732120	-0.010909114	0.101237784	-0.031251285
Birthweight	headcircumference	mnocig	mppwt	fage
-0.013699240	-0.031169860	-0.005629405	-0.002252918	-0.003029553
fedys	fnocig	fheight	mage35	
-0.008982498	0.004628336	0.019740191	0.428123876	

R-Squared: 0.6456

Root Mean Squared Error: 0.2083

Interpretation of Results

It can be seen that there are coefficients that are being displayed for the various fields. These values represent the percentage influence that these predictor variables have on the response variable, that is, their influence on the outcome. For example: length has a value of -0.119732120, which shows that as length increases, it decreases (negative value in front of the coefficient) the chance of having a low birth weight by 11.9%. The value of smoker is 0.101237784, which shows that, if the mother smokes, the chance of having a low birth weight increases by 10.1%.