Univariable analysis for products sold exclusively on Sephora website

````{r}

# Encoding exclusive offer marketing as factor

 sephora$exclusive = as.factor(sephora$exclusive)



# Encoding exclusive offer as factor

sephora$exclusive = as.factor(sephora$exclusive)



# Univariable model

model.exclusive <- glm(online_only ~ exclusive, family = binomial, data = sephora)



# Statistic summary

sum_model.exclusive <- summary(model.exclusive)



sum_model.exclusive

````

```
Call:
glm(formula = online_only ~ exclusive, family = binomial, data = sephora)

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) -1.08278    0.02826 -38.313  < 2e-16 ***
exclusive1  -0.41407    0.06026  -6.871 6.37e-12 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 9791.0  on 8986  degrees of freedom
Residual deviance: 9741.5  on 8985  degrees of freedom
AIC: 9745.5

Number of Fisher Scoring iterations: 4
```

Wald test for products sold exclusively on Sephora's website

```{r}
# Wald test

wald_exclusive <- round(sum_model.exclusive$coefficients[2]/

sum_model.exclusive$coefficients[2,2],3)


pvalue_exclusive <- round(2*(pnorm(wald_exclusive)),4)

```

$$H_0 : \beta_1 = 0$$
$$W = \frac{\hat{\beta_1}}{\hat{SE}(\hat{\beta_1})} = -6.871$$
$$P\_value = 0$$

According to the Wald test, the independent variable "exclusive" is statistically significant because its p-values is less than the significant level $\alpha=0.25$