Assignment

```r
# Step 1: Create the student_data dataframe
student_data <- data.frame(
  StudyHours = c(2.5, 1.5, 3, 2, 4, 5, 1, 3.5, 2.5, 4),
  PrepCourse = c(0, 0, 1, 0, 1, 1, 0, 1, 0, 1),
  PassedExam = c(0, 0, 1, 0, 1, 1, 0, 1, 0, 1)
)

# Step 2: Fit a logistic regression model
model <- glm(PassedExam ~ StudyHours + PrepCourse, data = student_data, family = binomial)

# Step 3: Summarize the model to view the results
summary(model)
```

```
##
## Call:
## glm(formula = PassedExam ~ StudyHours + PrepCourse, family = binomial,
##     data = student_data)
##
## Coefficients:
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept) -2.457e+01  1.390e+05       0        1
## StudyHours   2.337e-11  6.634e+04       0        1
## PrepCourse   4.913e+01  1.564e+05       0        1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1.3863e+01  on 9  degrees of freedom
## Residual deviance: 4.2867e-10  on 7  degrees of freedom
## AIC: 6
##
## Number of Fisher Scoring iterations: 23
```

```r
# Step 4: Make predictions (optional step)
# Predict probabilities of passing the exam for the students in the dataset
predicted_probabilities <- predict(model, type = "response")

# Predict binary outcomes based on a threshold of 0.5
predicted_outcomes <- ifelse(predicted_probabilities > 0.5, 1, 0)

# Print the predicted probabilities and outcomes
print(predicted_probabilities)
```

```
##            1            2            3            4            5            6
## 2.143345e-11 2.143345e-11 1.000000e+00 2.143345e-11 1.000000e+00 1.000000e+00
##            7            8            9           10
## 2.143345e-11 1.000000e+00 2.143345e-11 1.000000e+00
```

```r
print(predicted_outcomes)
```

```
##  1  2  3  4  5  6  7  8  9 10
##  0  0  1  0  1  1  0  1  0  1
```