Duration of Geyser Eruption Prediction on Shiny - Documentation

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Introduction

The Shiny Application is a simple prediction algorithm which predicts the duration of an eruption of the Old Faithful Geyser in Yellowstone National Park. The prediction function was developed by running a regression model on 272 observations from the Faithful data set included in R data packages.

The Eruption duration is a function of Waiting time in minutes and can be modeled by: Eruption Duration = -1.874 + 0.0756 * Waiting Time

Application Functionality

The application takes a input 'Waiting Time' which can be selected from a dropdown which provides option of selecting values from 40 to 180 which can be selected in 5 units increments using the toggle button. Other Waiting Time values can be inputted manually.

After inputting the Waiting Time and clicking the Submit button, the algorithm automatically calculates and displays a prediction value for Eruption duration as well as the value for Waiting time that was inputted by the user.

Appendix

The R code below proived details of the regression model fit that was used to develop the prediction function.

```
data(faithful)
lml <- lm(eruptions ~ waiting, data = faithful)
summary(lml)
```

```
##
## Call:
## lm(formula = eruptions ~ waiting, data = faithful)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.29917 -0.37689  0.03508  0.34909  1.19329
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -1.874016   0.160143  -11.70   <2e-16 ***
## waiting      0.075628   0.002219   34.09   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4965 on 270 degrees of freedom
## Multiple R-squared:  0.8115, Adjusted R-squared:  0.8108
## F-statistic:  1162 on 1 and 270 DF,  p-value: < 2.2e-16
```