University of Manitoba
Department of Statistics

STAT 4600: Computational Statistics

Assignment 4 – Part II

Due: Tuesday, February 27

Question 3:

Refer to Question 1.

(A) Devise a permutation test for testing

$$H_0 : \beta_1 = 0 \qquad \text{against} \qquad H_1 : \beta_1 \neq 0 \tag{3}$$

in model (1) for the Old Faithful data.

Specifically, explain your logic and explain how the test should be conducted, including which test statistic your test is based on.

Hint: When $\beta_1 = 0$, the Y's are identically distributed.

(B) Carry out the test of (3) from the Old Faithful data.

In particular, obtain the permutation distribution of your test statistic (or a good approximation of it) and the achieved significance level and specify what an appropriate conclusion might be here.