1. A study examining a possible relationship of football playing and concussions on hippocampus volume, in μL, in the brain. The study included three groups: controls who had never played football (*Control*), football players with no history of concussions (*FBNoConcuss*), and football players with a history of concussions (*FBConcuss*). The data is available in **FootballBrain**, and the side-by-side boxplots shown below.
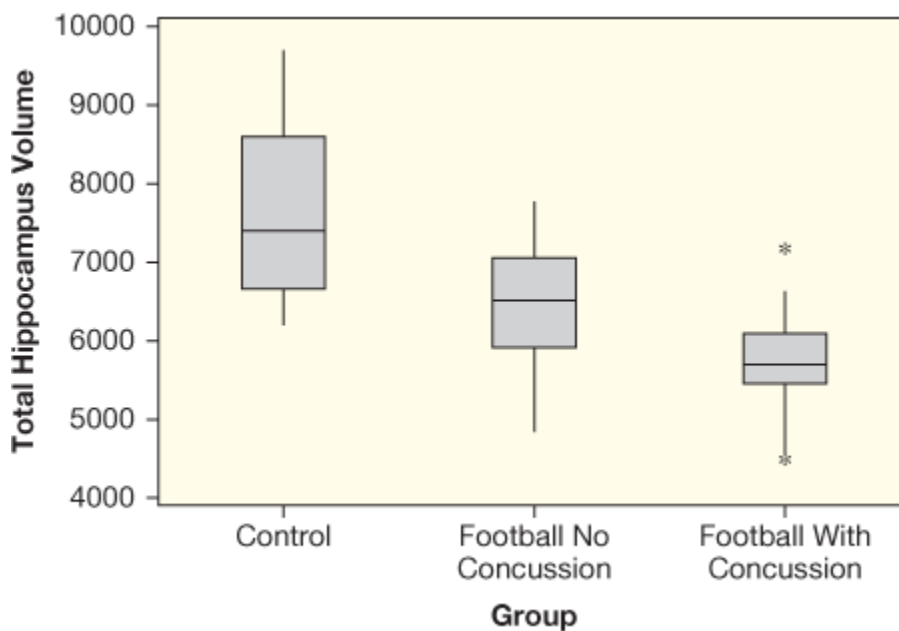
a) Use technology to find the summary statistics for each of the three groups. Which group has the largest mean hippocampus volume? Which group has the smallest?
b) Use technology to construct an ANOVA table. What is the F-statistic? What is the p-value?
c) What is the conclusion of the test?

2. Marketing Data Set contains the impact of three advertising medias (youtube, facebook and newspaper) on sales. Data are the advertising budget in thousands of dollars along with the sales. The advertising experiment has been repeated 200 times.

(a) Use the marketing data to predict sales based on **each** of the advertising budget invested in youtube, facebook and newspaper by fitting a simple linear regression model. Verify whether the condition for fitting a regression model is met.

(b) Use multiple regression model to predict sales based on the advertising budget invested in youtube, facebook and newspaper. What is your best model? Justify your answer.