Python Companion to ISLR

Naresh Gurbuxani

May 6, 2019

Contents

1 Introduction

Figure 1 shows graphs of Wage versus three variables.

Figure 2 shows boxplots of previous days' percentage changes in S&P 500 grouped according to today's change Up or Down.

2 Statistical Learning

Figure 3 shows scatter plots of `Sales` versus `TV`, `Radio`, and `Newspaper` advertising. In each panel, the figure also include an OLS regression line.

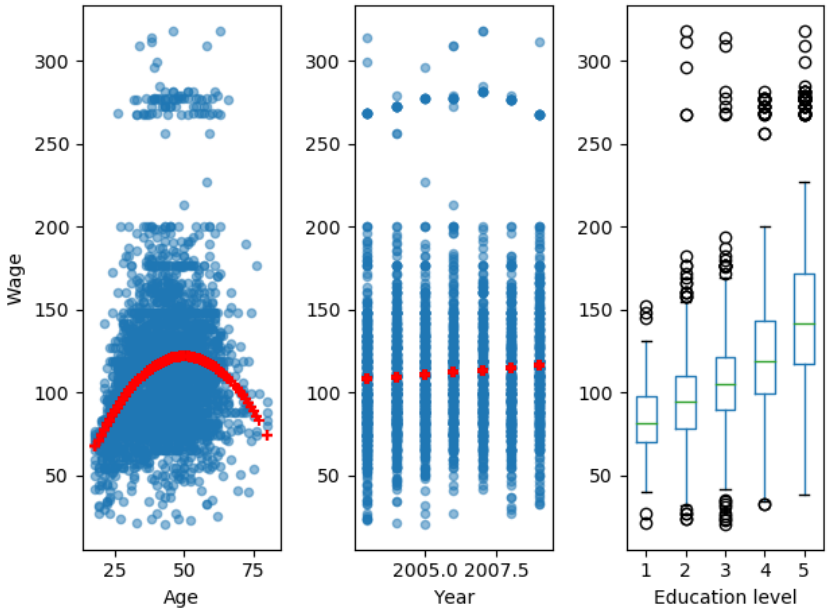

Figure 1: `Wage` data, which contains income survey information for males from the central Atlantic region of the United States. Left: `wage` as a function of `age`. On average, `wage` increases with `age` until about 60 years of age, at which point it begins to decline. Center: `wage` as a function of `year`. There is a slow but steady increase of approximately $10,000 in the average `wage` between 2003 and 2009. Right: Boxplots displaying `wage` as a function of `education`, with 1 indicating the lowest level (no highschool diploma) and 5 the highest level (an advanced graduate degree). On average, `wage` increases with the level of `education`.

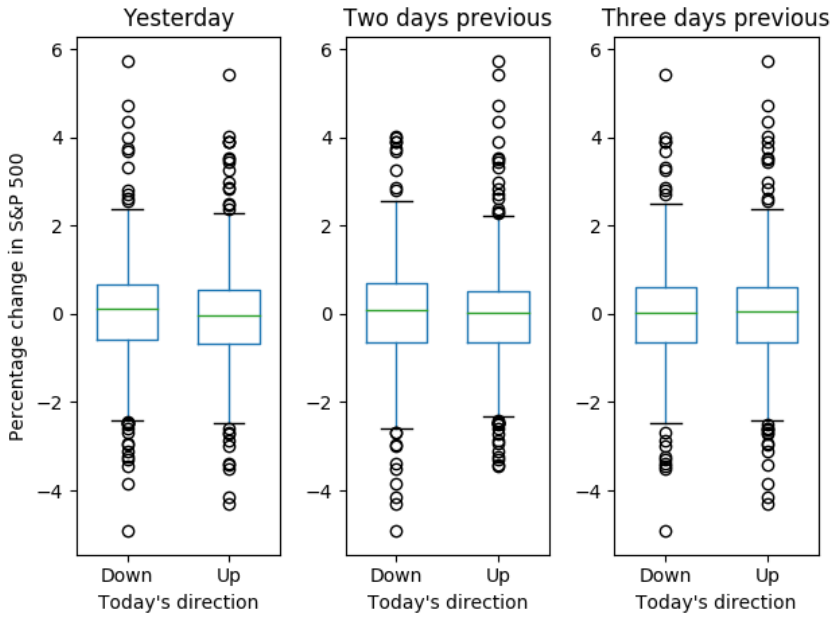

Figure 2: Left: Boxplots of the previous day's percentage change in the S&P 500 index for the days for which the market increased or decreased, obtained from the `Smarket` data. Center and Right: Same as left panel, but the percentage changes for two and three days previous are shown.

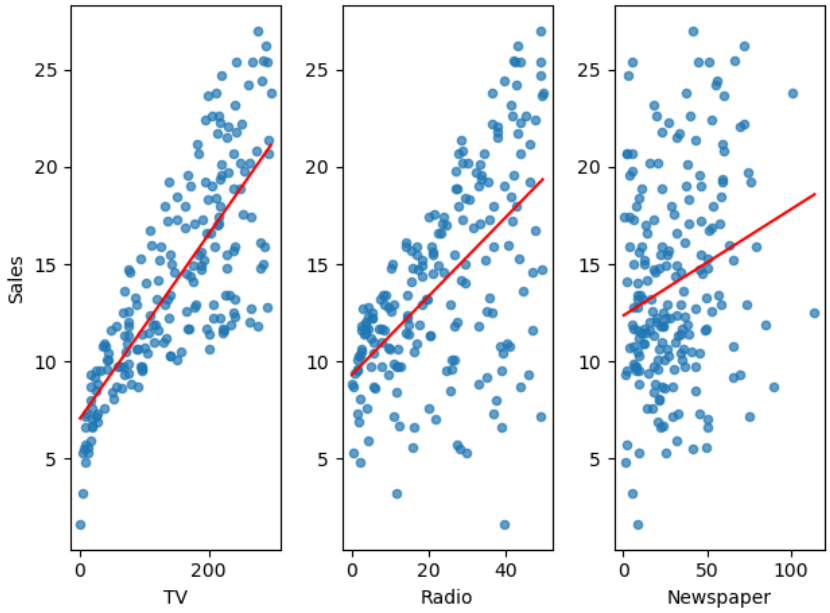

Figure 3: The `Advertising` data set.