Exercises

Chapter 4 - Descriptive statistics

Winter 2024

The objective of these exercises is to perform descriptive and inferential statistics on a set of data.

Or the brain_size_Mod.xlsx database describing the characteristics of brains according to a scientific study (Willerman,1991). This database includes the following features.

1. Gender: Male or female
2. FSIQ: Full IQ score based on the four Wechsler subtests (1981)

3. VIQ: Verbal IQ score based on the four Wechsler subtests 4. PIQ: Performance IQ score based on the 4 Wechsler subtests 5. Weight: body weight in pounds 6. Height: height in inches

7. MRI_Count: total number of pixels of the 18 MRI scans 8. The Activity variable, which describes the activity, has been added for the course simulations

Exercise 1: Univariate data analysis

1. Download the database and view its contents.
2. Identify the type of each variable.
3. For the VIQ variable, evaluate the descriptive statistics and graphically visualize these statistics where appropriate. Interpret and comment on the results.

4. For the Activity variable, evaluate the descriptive statistics and graphically visualize these statistics if applicable. Interpret and comment on the results.

Exercise 2: Bivariate data analysis

1. Graphically evaluate the relationships between all the variables when-
   titatives
2. Evaluate and visualize correlations between all variables
   quantitative. Interpret and comment on the results.
3. Do you think the PIQ and FSIQ variables are linearly related?
   Do numerical analysis and graphical analysis. Determine the linear model and interpret and comment on the results.
4. compare the correlation coefficient and the coefficient of determination 5. Do you think the variables Activity and FSIQ are related? Do numerical analysis and graphical analysis. Interpret and comment on the results.
6. Do you think the Activity and Gender variables are related? Do a numerical analysis. Draw the contingency table. Interpret and comment on the results.