Exercises on the car radios dataset

Paulo S. A. Sousa

2023-02-26

The car radio maker

A fundamental step of making a car radio is screwing the parts together. Sometimes, the screws are defectively screwed, which makes the car radio defective.

This problem has caused reputational, financial and operational damage to the company. In an effort to fix the problem, the managers are trying to find out what factors contribute to the percentage of defective radios. To the effect, a dataset was collected, which corresponds to the Excel file `data_carradios.xlsx`. Given the monstrous amount of available data, this dataset corresponds to only part of it.

In what follows, a description of the dataset variables is offered.

Variables:

1. Percentage of defective radios (`perc_defec`).
2. Birth date (`bdate`).
3. Team id (`team`).
4. Supplementary training (`training`).
5. Date of production (`datep`).
6. Prize for number of radios assembled (`prizeq`).
7. Prize for number of defective radios (`prized`).

Both prizes are monetary and aim to incentivize the workers into the interest of the company. Thus, it is believed that the workers are incentivized to produce more radios and fewer defective, respectively.

This exercise is inspired by a real-life case.

Questions

1. Use `seaborn.pairplot` method to find the correlated and the uncorrelated pairs of variables.
2. What are the effects on the outcome variable that you infer from the pairplot?
3. Which variables you should ponder to remove?
4. Approach the previous three questions ignoring the `seaborn.pairplot` method.