

## Data Management and Artificial Intelligence Lab Class 5

### Task 1 *Seaborn exercises I (20 minutes)*

In this task, you will deal with the file “runways.csv” which saves the information of runways in the world. Please divide the runways into several classes based on their widths, as shown in Table 2. Then, plot the distribution of the length with boxes for the runways in each class. In addition, the lighted runways and unlighted runways should be plotted separately.

Table 2: Widths of runways and the corresponding width classes.

Width_ft	Width_class
[0, 100)	“C1”
[100, 200)	“C2”
[200, 500)	“C3”
[500, 1000)	“C4”
[1000, 2000)	“C5”
[2000, <i>inf</i> )	“C6”
No width	“None”

The desired output figures is shown as follow:

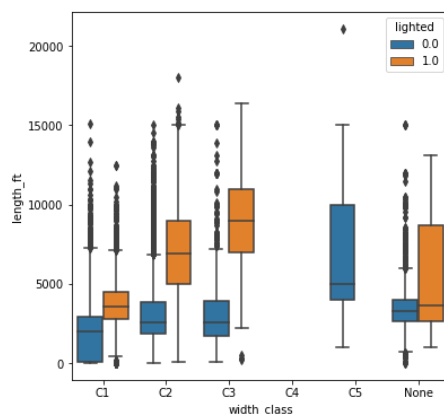


Figure 8: Task1

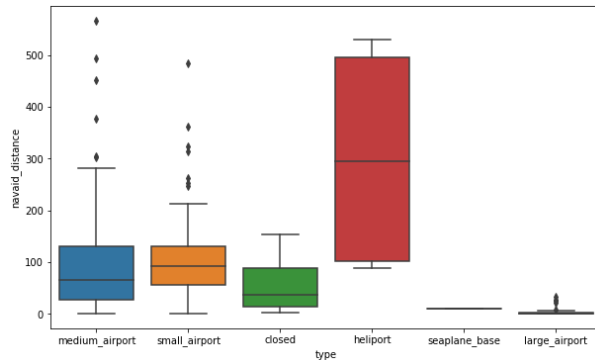
### Task 2 *Seaborn exercises II (30 minutes)*

In this task, you will deal with the file “airports.csv” and “navaids.csv”. For each airport in China, find the closest navaid and compute the corresponding distance.

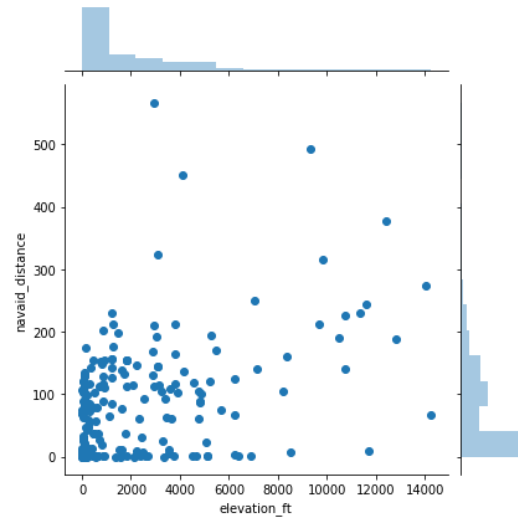
1. Plot the distribution of the distances between airports in China and their closest navaids with boxes in each type, i.e., each type of airports should be plotted separately.

2. Plot the joint distribution of the airport-navaid distances and elevation of the airports.

The desired outputs are shown as follows:



Task2-1



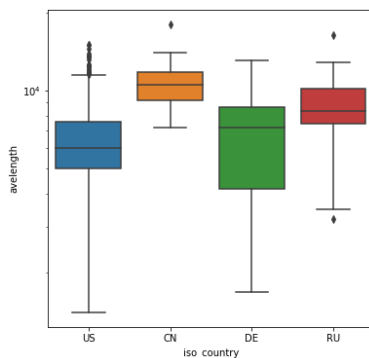
Task2-2

### Task 3 *Simple seaborn exercises III (45 minutes)*

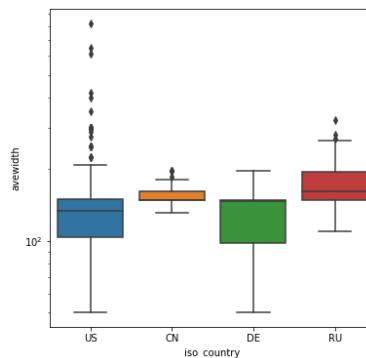
In this task, you will deal with the file “airports.csv” and “runways.csv”. Compute the average length and average width of runways for each medium or large airport in China (CN), America (US), Germany (DE) and Russia (RU). Discard the airports whose runways cannot be found. Based on these data, do the following visualization.

1. Plot the distribution of average length and average width of runways for the airports with boxes. The airports in each country should be plotted separately.
2. Plot the number of selected airports for each country using “countplot”.

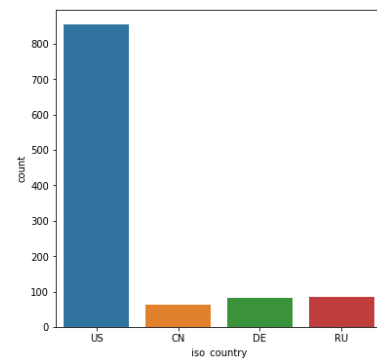
The desired outputs are shown as follows:



Task3-1a



Task3-1b



Task3-2