Exercises 1 — Javascript and D3.js

Important notice! Always save the solutions for the exercises. They will be submitted and evaluated (*Avaliação Contínua*). Confirm the exact date in *Inforestudante*.

Exercise A

1. Write a script in Javascript that prints “Hello World” 10 times in the console.
2. Create a function that receives two variables and prints the value of their sum and of their product.
3. Create another function that returns the highest value from two variables. Print the result.
4. Write a script that adds the elements of an array of integers and prints the result.
5. Create a function that receives as input an array of strings and as output returns an array alphabetically ordered.
    a. Update the previous function so it can print an array that contains only the unique strings of the input array.

Data

The data you are provided with contains approximately 11000 records of fuel prices between 2018 and 2019. The dataset can be accessed through the following link: precos_combustiveis_2018_2019.csv. In a new WebStorm project, the dataset should be placed in the data subdirectory.

Exercise B

1. Import the CSV file and explore these two methods:
    a. Print each line of the CSV file while loading the data using the following form:

```
d3.csv(url, function(linha){
      // your code here
});
```

   b. Print all data after the CSV file loading is finished, using the following form:

```
d3.csv(url).then(function(tabela){
      // your code here
});
```

2. Observe the result and answer to the following questions (write down the answers in a text document):
   a. Which are the principal differences between the results obtained by each method?
   b. Which would be the principal use of the first method?
   c. Which would be the principal use of the second method?
   d. Is the CSV header present in the results of both methods?

Exercise C

With base on Exercise B:

1. Convert each data field to its respective type (e.g., code (int), price (float), date (Date)). Print the result into the console inside the "then" function call:

```
d3.csv(url, function(linha){
  return {
      // data transformation to be completed
  };
  }).then(function (tabela) {
      console.log(tabela);
});
```

2. Execute the following instruction and compare the results:

```
d3.csv(url, d3.autoType).then(function (tabela) {
      console.log(tabela);
});
```

   a. Identify equal and/or different parts of both results.

   b. Which are the advantages and disadvantages of this method compared to the previous method?
3. Filter the columns from the resulting table, restricting only to the columns: data and price.
4. For each line in the data, add dynamically one new attribute called “description” with the following value: "In " + linha.data + ", the average price of the " + linha.designacao + " was " + linha.preco_medio_ponderado".
   a. With D3 and for every datum, create a “p” element whose text should be equal to the attribute “description”.