

# Tasks

## Background

For this assignment we will practice using APIs, downloading data from the internet, and visualizing such a data.

The API we will use in this assignment is about countries:

<https://restcountries.com/#api-endpoints-v3>

Few things to keep in mind when working on this assignment:

- Remember the importance of reading the API's documentation.
- We will use version 3.1 of the API.

## Part 1: Data Analysis only

The purpose of this section is to analyze data, no need to create visualization.

1. Create a class called `Currency` which has the following properties:

- `name` of type `String`
- `code` of type `String`

2. Create an `enum` class called `Region` which has the following properties:

- `Africa`
- `Americas`
- `Asia`
- `Europe`
- `Oceania`
- `Antartica`

3. Create an `enum` class called `Direction` which contains the following values:

- `Left`
- `Right`

4. Create a class called `Language` which contains the following properties:

- `name`
- `code`

5. Create a class called `Country` which contains the following properties:

- `official_name` of type `String`
- `common_name` of type `String`
- `capital` of type `String`
- `region` of type `Region`
- `area` of type `Float`
- `population` of type `Float`
- `languages` of type `List<Language>`
- `currencies` of type `List<Currency>`
- `driving_direction` of type `Direction`
- `land_locked` of type `Boolean`
- `un_member` of type `Boolean`

Notes:

- `Currency` is the type you downloaded in Step #1.
- `Direction`, `Language`, and `Region` are the classes you created in steps 2, 3, and 4.

6. Create a function called `countries` which has no arguments and returns a `List<Country>` with all the countries in the world.

7. Create a function called `countries_per_region` which has one argument of type `Region` and returns a `List<Country>` with all the countries in the provided region.

8. Create a function called `country_for_name` which has one argument called `name` of type `String` and returns a `Country` object with all the information of the provided country name.
9. Create a function called `countries_for_language` which has one argument called `language_name` of type `String` and returns all the countries that speak the provided language.

## Part 2: Data Visualization

The purpose of this section is to use the code and functions previously created to create the following visualizations.

1. Create a histogram showing the number of countries per region.
2. Create a histogram showing the 15 countries with the largest population.
3. Create a histogram showing the number of countries that drive in the right and left direction.
4. Create a histogram showing the number of countries that belong to the UN.
5. Create a histogram showing the number of countries that have English, Spanish, Italian, French, German, and Swedish as their primary language.
6. Create a histogram showing the top 20 most used currencies.