Problem

Border Security System

In an imaginary world, every country wants to deploy a border security system (BSS). Main controller of BSS will be deployed in capital city of the country. A sensing cable will go straight to nearest border. The sensing cable will then installed along border surrounding country and come back to capital.

You will be provided two files: one that contains borders of countries as a polygon in geojson format (countries.geojson) and one that contains the coordinates of the capital cities of countries (capitals.geojson).

You are asked to:

1. Calculate length of border of countries.
2. Calculate length of sensing cable. in json format.

Application

- Application shoule be named "bss" case sensitive.
- Application should be written in C++.
- Application may use any version of C++ (98,11,14,17) as long as instructions for compilation and/or project management files (cmake/make/VS Project) are provided.
- Application should be a console application.
- Application should be given command line arguments
- Application may use third party libraries.
- Application should output length of borders of all possible (countries) if command line arguments are not provided.
- Application should read border and capital files from same directory application runs.
- Application should output to standard console output (i.e. std::cout)
- Application should provide meaningful error messages ot standard error output (i.e. std::cerr)

Interfaces

Command line arguments

command line option	description	argument
-c	country of interest. Default: All	ISO Alpha 3 Code
-t	type of calculation. Default: border	"border" or "cable"

Examples

1. Calculate border of Azerbaijan

```
bss -c AZE -t border
```

2. Calculate sensing cable length of Bulgaria

```
bss -c BGR -t cable
```

3. Calculate border length of all countries

```
bss
```

Output

Output of calculation should be in json format. Pretty printing is not important. It should be in legal json format.

Note: Calculations in examples are not correct.

Examples

1. Calculate border of Azerbaijan

```
[
    {
        "name": "Azerbaijan",
        "iso_a3": "AZE",
        "border": 2013.0
    }
]
```

Field	Description
name	name of country (as in countries.geojson)
iso_a3	iso alpha 3 code (as in countries.geojson)
border	calculated length of border in kilometers

2. Calculate sensing cable length of Bulgaria

```
[
    {
        "name": "Azerbaijan",
        "iso_a3": "AZE",
        "cable": 2050.6
    }
]
```

Field	Description
name	name of country (as in countries.geojson)
iso_a3	iso alpha 3 code (as in countries.geojson)
cable	calculated length of sensing cable in kilometers

3. Calculate border length of all countries

```
[
    {
        "name": "Aruba",
        "iso_a3": "ABW",
        "cable": 500.2
    },
    {
        "name": "Afghanistan",
        "iso_a3": "AFG",
        "cable": 5529.0
    },{
        "name": "Angola",
        "iso_a3": "AGO",
        "cable": 5198.0
    },
    ...
]
```

Turn-in Instructions

Please commit your application code to GitHub and share the link.