Advanced C Project

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Context

The project aims at computing the shortest path between two cities, using the A* algorithm described in class. The map data (cities, direct connections, coordinates and distances) can be found in a text file (default name FRANCE.MAP).

The program is given the names of the departure and arrival cities (on the command line), then computes and displays the (complete) shortest path between the chosen two cities, together with the partial distances for each intermediate city and, of course, the total distance for the trip.

For instance:

```
$ ./aStar Rennes Lyon
Rennes : (0 km)
Nantes : (107 km)
Limoges : (436 km)
Lyon : (825 km)
```

Error handling

- If the city names are not provided on the command line, the program must ask for them.
- in case of incorrect input (unknown city name), the program should return 1
- in case the data file (FRANCE.MAP by default, or other) is not found, the program should return 2
- on failure due to lack of connectivity in the graph, the program should return 3
- on success, the program must return 0 as usual

Deliverables

Students must send an archive (named after the names of the members of the team) by email to laroque@u-cergy.fr (or on discord). The contents of the archive is

1. the complete commented source code (.h and .c files) and data file (map)
2. a makefile to automate the build
3. a README file to help the user understand how to build and run the program
4. if possible, a special entry in the makefile to build the doxygen documentation from special comments found in the source files (*àla* javadoc), see https://doxygen.nl/
5. **nothing else!** (no Cmakefile, no MACOSX, no nothing!)

Pay attention to the following potential issues:

- the source code must be portable: no reference to OS-specific headers or libraries must be made (classical example is *conio.h*, windows-only header file). Students are urged to test their program against windows *and* linux *and* macOS if possible!
- the character encoding *must be* UTF-8. Windows is often configured with ASCII by default, preventing the compiler to succed if any non-ASCII character is found in one of the text files

The excel sheet provided with this document should help you understand precisely what is expected from you in this project.