Programming in C. Converter for Metric Measures of Length

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To work on the exercise, you must fork the repository `https://github.com/olekscode/MetricConverterExercises` and clone it to your personal computer.

In this exercise, you will write functions to convert different measures of length in the metric system. There are 10 millimetres in centimetre, 100 centimetres in a metre, 1000 metres in a kilometre.

Task 1

Add three #define pragmas into *converter.h* and use them to store the constant values given above:

1. MILLIMETRES_IN_CENTIMETRE
2. CENTIMETRES_IN_METRE
3. METRES_IN_KILOMETRE

Commit and push your changes.

Task 2

Create a file *converter.c*, include file *converter.h* and perform the following steps for each function from the list below:

1. Uncomment this function in *converter.h*
2. Implement the function in *converter.c*
3. Commit your changes (do not push them!)

After all three functions are implemented, uncomment the line **#include** "tests/tests_task2.h" in *main.c* and three tests:

```
test_centimetres_to_millimetres();
test_metres_to_centimetres();
test_kilometres_to_metres();
```

Compile and run your code, make sure that tests pass. Then push your changes (do not push the executable, you can add it to *.gitignore*).

Here is the list of functions that you need to implement for this task:

- Implement function **double** centimetres_to_millimetres(**double** centimetres) using pragma MILLIMETRES_IN_CENTIMETRE.
- Implement function **double** centimetres_to_millimetres(**double** centimetres) using pragma CENTIMETRES_IN_METRE.
- Implement function **double** kilometres_to_metres(**double** kilometres) using pragma METRES_IN_KILOMETRE.

Task 3

Follow the same steps as for Task 2 for each of the functions (remember that you must commit every function separately, but push them together):

- Implement function **double** millimetres_to_centimetres(**double** millimetres) using pragma MILLIMETRES_IN_CENTIMETRE.
- Implement function **double** centimetres_to_metres(**double** centimetres) using pragma CENTIMETRES_IN_METRE.
- Implement function **double** metres_to_kilometres(**double** metres) using pragma METRES_IN_KILOMETRE.

Uncomment the line **#include** "tests/tests_task3.h" in *main.c* then uncomment and run the following tests:

```
test_millimetres_to_centimetres();
test_centimetres_to_metres();
test_metres_to_kilometres();
```

If all the tests pass (should be 6 tests by now), push your changes.

Task 4

Follow the same steps as for Task 2 for each of the functions (remember that you must commit every function separately, but push them together):

- Implement function **double** metres_to_millimetres(**double** metres) using functions metres_to_centimetres and centimetres_to_millimetres.

- Implement function **double** millimetres_to_metres(**double** millimetres) using functions millimetres_to_centimetres and centimetres_to_metres.
- Implement function **double** kilometres_to_millimetres(**double** kilometres) using functions kilometres_to_metres and metres_to_millimetres.
- Implement function **double** millimetres_to_kilometres(**double** millimetres) using functions millimetres_to_metres and metres_to_kilometres.
- Implement function **double** kilometres_to_centimetres(**double** kilometres) using functions kilometres_to_metres and metres_to_centimetres.
- Implement function **double** centimetres_to_kilometres(**double** centimetres) using functions centimetres_to_metres and metres_to_kilometres.

Uncomment the line **#include** "tests/tests_task4.h" in *main.c* then uncomment and run the following tests:

```
test_metres_to_millimetres();
test_millimetres_to_metres();
test_kilometres_to_millimetres();
test_millimetres_to_kilometres();
test_kilometres_to_centimetres();
test_centimetres_to_kilometres();
```

If all the tests pass (should be 12 tests by now), push your changes.