E301B C Programming

Coding 1

This assessment evaluates the following competencies:

- *CP001 – declare, initialise and use a variable in a program*
- *CP002 – write constant values with the relevant literal forms for integer, floating-point and character*
- *CP006 – use `if-else` and `switch` conditional statements, and "translate" from one to the other*
- *CP007 – use `while`, `do-while` and `for` iterative statements, and "translate" from one to the other*
- *CP101 – write, compile and execute a single source file C program with the command line*
- *CP104 – understand and use the `#include` and `#define` (for constants) preprocessor directives*
- *CP307 – write a code without any warnings when compiling with `-Wall`*

For this assessment, you have to write a personal program satisfying the minimal requirements described hereafter and then defend it orally by answering a set of questions. You can leave all your code inside a single `main` function, you are not asked to define functions or procedures, but you may do so.

The program you have to write is one that prints the following text on the standard input:

```
        *
      *****
    *********
*************
Hello, World!
*************
    *********
      *****
    by * CBF
```

Pay attention to the following elements:

- Write a code as clean as possible, avoiding code duplication.
- Use correctly variables and loops to print out the required stars pattern.
- Make it easy to change the three-letter identifier shown on the last line.

Prepare yourself for the following manipulations/questions:

- Show how your program is compiled and launched from the command line with GCC.
- Explain the role of the different variables you used.
- Explain the structure of your program and how you solved the problem of this assessment.