Background

The purpose of this program is to gain experience setting up a C program, reading data from the keyboard, and writing data to the screen and to a file (in other words… I/O).

Problem Statement

You are hired by an engineering firm to write a conversion program. You are to write a program that prompts the user for an area in stremmas, a distance in light years, an amount of energy in calories, and a flowrate in gallons/hour. It will need to convert the stremmas to oxgangs, lightyears to parsecs, calories to tetraelectronvolts, and Gallons/hour to cubic meters/day. Conversions are listed below:

1 stremma = (1/60) oxgang	1 light year = 0.30659458 Parsecs
1 calorie [15 °C] = 26125697.8238 tetraelectronvolts	1 US gallon/hour = 0.0908498828 cubic meters/day

Hint: This assignment is a good opportunity to practice using #define. For example, to convert gallons/hour to cubic meters/day you might use something like:

```
#define CMPD_PER_GPH 0.090849883
```

Instructions

Represent

- Create a flowchart, algorithm, or pseudo code for solving the problem.

Plan

- Create a file named **EWA_05.cpp**
- Outline the steps your program will take by adding comment statements to your file based on the flowchart, algorithm, or pseudo code.

Implement

- In a file called **EWA_05.cpp**, perform the following tasks:
  - Prompt the user for the following quantities:
    - An area in stremmas
    - A distance in light years
    - An amount of energy in calories
    - A flowrate in gallons/hour
  - Convert the:
    - Stremmas to oxgangs
    - Light years to parsecs
    - Calories to teraelectronvolts
    - Gallons/hour to cubic meters/day
  - Display the results of the conversions in the Linux window.
  - Write to the screen that the program has completed.
  - Write the same information to the file **EWA_05.txt**.
    - Hint: You might want to experiment with output formatting, (e.g., `"%10.2f"`) and you might also want to use the `%e` formatting for the calorie to tetraelectronvolts conversion.

Evaluate

- Perform a hand calculation for **EWA_05.cpp** to verify and check your results.

Document

- Combine all documents created for the assignment into a single PDF and submit.

Include the standard comment and `fprintf()` statements indicating name, seat number, etc.