Homework 6

Files to submit: **perimeter.c**
Time it took Matthew to Complete**: 20 mins**

- All programs must compile without warnings when using the -Wall and -Werror options
- Submit only the files requested
  - Do **NOT** submit folders or compressed files such as .zip, .rar, .tar, .targz, etc
- Your program must match the output exactly to receive credit.
  - Make sure that all prompts and output match mine exactly.
  - Easiest way to do this is to copy and paste them
- All input will be valid unless stated otherwise
- Print all real numbers to two decimal places unless otherwise stated
- The examples provided in the prompts do not represent all possible input you can receive.
- All inputs in the examples in the prompt are underlined
  - You don't have to make anything underlined it is just there to help you differentiate between what you are supposed to print and what is being given to your program
- If you have questions please post them on Piazza

1. Write a program called **perimeter.c** that calculates the perimeter of a polygon.
    1. The points of the polygon will be stored in a file and this file will be passed on the command line arguments
    2. The file itself will be a **binary file containing integers**
        1. The first integer in the file is the number of points contained in the file
        2. The remaining integers are the points, with the first integer being the x coordinate and the second integer being the y coordinate.
        3. There is an edge between each adjacent point and between the first point and the last point
        4. Each file contains at least 3 points
    3. The perimeter of a polygon is the sum of the lengths of all of its edges
    4. Use a double to store your perimeter and report the perimeter to the nearest 2 decimal points.
    5. As an aside the example tests do not form actual polygons but assume that they do.

    Example. Assume that there is a file called example.txt. It will store the following information but in binary form. This example is just to give you a visualization of the data.

```
3
287 422
283 -981
781 647
./perimeter example.txt
The perimeter is 3648.30
```