CMSC21 Lab Exercise 9 – Structs and Pointers

Following the design recipe, create the following functions. Do not remove the stub and template after completing the function; just leave it commented out.

Design recipe steps:

1. Signature, purpose and stub
2. Define examples
3. Template and inventory (create constants)
4. Code the function body
    a. While making the body for the big problem, see if it can be split up into smaller subproblems.
    b. "Wish" for the additional functions you need.
    c. Design the functions in the wishlist. When the wishlist is empty, you're done!
5. Test and debug until correct

Testing:

- Create a complete set of test cases for each category of inputs
- Include all boundary cases
- Show that there is 100% code coverage

1. Create a function that checks if two Lines are parallel. (A Line is composed of two Points, a Point is made up of two ints x and y.) Two lines are parallel if their slopes are equal. Here's the formula for slope:

$$slope = \frac{y2 - y1}{x2 - x1}$$

2. Given two Dates, birthday and today, calculate a person's exact age. Return the exact age as a struct ExactAge (years, months, days).

3. Create a void function happyBirthday that accepts a Person and increments the Person's age. (Don't return a value) Test the function by checking the person's age after the function is called.