CSE240 Spring 2017 Project 2

Due time: Fri., Feb 10th, 5:00pm

2-1 Motivation:

This is a simple project to print the dot product of two integer array of size N, where N is provided by user as input and can be very large. The input format is like this:

```
4
1 2 3 4
4 5 6 7
```

where the first number is N, then followed by one line of input with N numbers, which is the first array; it will then read in another line of input with N numbers, which is the second array;
The dot product of two arrays A and B is defined as:

$$A \cdot B = \sum_{i=1}^{N} A[i] \times B[i]$$

For the above example, the dot product is $1 \times 4 + 2 \times 5 + 3 \times 6 + 4 \times 7 = 60$.

2-2 Requirements

- **You code should be able to run multiple times, until the user input N which is negative.**
- **You must dynamically allocate two arrays for each run, based on the input of N, and delete the arrays properly after getting the dot product.**
- **You must create two functions: 1) ReadInput will create an array of size N and read in all elements of the array; 2) DotProduct to find the dot product of two arrays. All these functions should be declared in a header file, and implemented in a source file.**
- **You need to turn in four files in a tar.gz file: makefile, main.C, xArray.C, xArray.h.**

2-2 Notes

- **xArray.h holds the prototype of the two functions, like:**

```
int* ReadInput(int N);
int DotProduct(int* a, int* b, int length);
```

- **You will gain 6 points if your code is fully functional as described, and with no memory violation and/or memory leaks. Your code should be readable, so please put comments in the code, also put your name at the begining of your file (using //), and indent your code.**