

In this lab, we will discuss how to code your own tester files that will enable you to correctly and precisely test your code.

1. Testing the Constructors

a. Default constructor

The default constructor is the constructor that the compile will execute when there's no parameter is given. In your assignment, the default constructor should initialize the BigNum as zero because nothing is specified.

BigNum testDefaultConstructor = new BigNum();

How do you test if this is actually happening? Check that in the BigNum.h file, the function printBigNum converts digits array into a string of characters. So use this string returned by the printBigNum function and compares that to the string "0" and check if it works. If it doesn't, then fix the code where it needs to be fixed.

Use strcmp function to check if two strings are equal. It is declared in the cstdlib.

strcmp(testDefaultConstructor.printBigNum(), "0")

This function returns 0 if two strings are equal.

strcmp ("abc","abc") returns 0

strcmp("ed","wefw") returns a non zero value

b. Integer Constructor:

This constructor takes in an integer and then stores that in the digits array. Testing of this constructor is the same as above apart from the fact that now when declaring and initializing the Bignum Variable, you call this particular constructor.

BigNum testIntConstructor = new BigNum(100);

Repeat the code you did for the default constructor and check if your constructor is foolproof.

Critical inputs:

a. check for a negative integer

b. check for zero

- c. **check for any random integer**
- d. **check for an integer that starts with a '+' (+123)**

c. **String Constructor:**

This Constructor takes in a string of numerical digits and stores it up in the BigNum's digits array. Test the constructor by repeating the above mentioned process.

BigNum testStringConstructor = new BigNum("12334");

Critical Inputs:

- a. **Check for a big positive number**
- b. **Check for a big negative number**
- c. **Check for zero**
- d. **Check for negative zero**
- e. **Check for a positive number with leading zeros**
- f. **Check for a negative number with leading zeros**

d. **Copy Constructor:**

This Constructor takes in another BigNum instance and copies up the digits array of that constructor into its own.