

You shall submit a zipped, **and only zipped**, archive of your homework directory, hw1. The directory shall contain, at a minimum, the file `base_decomposer.cpp`. Your submission file must be named hw1.zip.

I will use my own makefile to make your `base_decomposer.cpp` file. Do not use other files for this assignment.

## Introduction

The most common representation of quantities in base-10 is the power series positional counting system. In this system, 123,456 represents the power series

$$1 \times 10^5 + 2 \times 10^4 + 3 \times 10^3 + 4 \times 10^2 + 5 \times 10^1 + 6 \times 10^0$$

**OR**

$$100000 + 20000 + 3000 + 400 + 50 + 6$$

The same value presented in negative magnitude -123,456, might be

$$-(100000 + 20000 + 3000 + 400 + 50 + 6)$$

## Description

Develop a small application to produce output in the second form—that is:

$$100000 + 20000 + 3000 + 400 + 50 + 6$$

**OR**

$$-(100000 + 20000 + 3000 + 400 + 50 + 6)$$

**WITHOUT PROMPTING**, read input from STDIN as a signed integer value. This can be accomplished with `std::cin` and a signed `int` variable. Extract each place of the integer and print the conversion to STDOUT. For this, you might use the modulus operator and integer division.

There is a python application file to test your code. You should ensure that your code satisfies the tester's requirements. It is the tool I will use to grade your submissions. I will only change the input and expected values.

To utilize the tester, you will need access to a python3 interpreter. The tester can be called as follows, assuming that `python3` is in your path and that your present working directory is `../hw1`

```
python3 test_decomposer 1
python3 test_decomposer 2
```

## Point Awards

- Style: 2 points
- Compilation: 1 point
- Test 1: 1 point
- Test 2: 1 point

You have been provided a makefile. You should definitely read the makefile and are encouraged to read the python tester.