**Files to submit**: newAlphabet.cpp
**Time it took Matthew to complete**: 5 mins



- All programs must compile without warnings when using the -Wall and -Werror options
- Submit only the files requested
  - Do **NOT** sub[illegible]ssed files such as .zip, .rar, .tar, .targz, etc
- If submitting in a[illegible]pe please make sure to mark your partner.
  - Only one of y[illegible]e
- Your program mu[illegible]exactly to receive credit.
  - Make sure th[illegible]tput match mine exactly.
  - Easiest way t[illegible]nd paste them
- All input will be [illegible]herwise
- Print all real num[illegible]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



You have decided to create an alternative representation for letters of the alphabet. In your scheme the first 26 bits of an unsigned integer representing a character of the alphabet and the 27th bit representing either lowercase or uppercase. The least significant bit (bit 0) is a, the next bit (bit 1) represents b, and so on with the last bit (bit 25) representing z. If the capital bit (bit 26) is 1 it means the letter is uppercase and if it is 0 it means the letter is lowercase. You are to write a program that accepts "letters" in your new representation and then prints out their meaning.

Inputs

- Input will be given on the command line
- Each "letter" will be represented as an unsigned int
- Some examples

| Letter | Numerical Representation | Binary Representation |
|---|---|---|
| a | 1 | 000 0000 0000 0000 0000 0000 0001 |
| A | 67108865 | 100 0000 0000 0000 0000 0000 0001 |
| b | 2 | 000 0000 0000 0000 0000 0000 0010 |
| B | 67108866 | 100 0000 0000 0000 0000 0000 0010 |
| c | 4 | 000 0000 0000 0000 0000 0000 0100 |
| C | 67108868 | 100 0000 0000 0000 0000 0000 0100 |
| d | 8 | 000 0000 0000 0000 0000 0000 1000 |

| | | |
|---|---|---|
| D | 67108872 | 100 0000 0000 0000 0000 0000 1000 |
| e | 16 | 000 0000 0000 0000 0000 0001 0000 |
| E | 67108880 | 100 0000 0000 0000 0000 0001 0000 |



Restrictions

1. You must use bit[illegible]e this problem
2. You cannot just h[illegible]ements comparing against the numeric value of each letter. For examp[illegible]to the below would not be allowed

```
if(letter == 1)
  cout << 'a';
else if (letter) == 2
  cout << 'b'
else if (letter) == 4
  cout << 'c'
…
```

3. If you do the above you will receive 0 credit for this problem

**Examples**

```
1. ./newAlphabet.out 4 1 524288
   You entered the word:  cat
2. ./newAlphabet.out 100663296 16 67108866 131072 1
   You entered the word:  ZeBra
```