CIT 590 Assignment 12: Caesar Cipher

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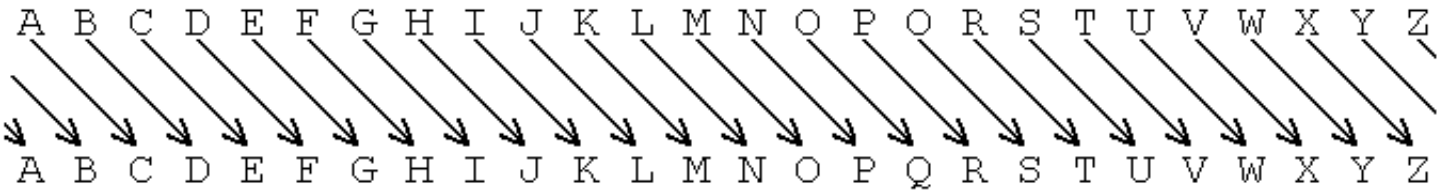
Purposes of this assignment

- To give you an easy assignment over the Thanksgiving holiday.
- So that you don't forget all your Java over the holiday  .

General idea

The Caesar cipher is one of the oldest encryption techniques, and certainly one of the easiest to break.

The idea of a Caesar cipher is this: you encode a message by shifting each letter some number of places. Thus, if the shift is 2, then A becomes C, B becomes D, and so on. It is end around, so Y becomes A and Z becomes B. Like this:



For an accurate Caesar cipher, we would discard all punctuation, and group the text into blocks of five letters. We won't do that here; we will retain all spacing and punctuation, and all capitalization. This will enable us to decipher messages to get exactly the original message.

Details

Name your project **`Caesar`**, and your package **`cipher`**. Create a class **`Caesar`** containing at least the following two methods:

`String encipher(int shift, String plainText)`
: Enciphers the **`message`**, using the **`shift`**. Allow the **`shift`** to be *any* integer value; use the mod operator to cut it down to a value between 0 and 25.

`String decipher(String cipheredText)`
: Given any message enciphered using a Caesar cipher, decipher it and return the deciphered message.

You may provide a **`main`** method if you feel like it, but it isn't required.

Code hints

In Java, a `char` is another type of integer value, so you can do arithmetic with it. However, the result will not be a `char`, but an `int`, so you have to cast it back to a `char`, like this: `(char)('a'+1)` gives `'b'`.

You should work directly with characters in your program, don't write them as numbers. You can rely on the fact that the lowercase letters all have consecutive numeric values, and so do the uppercase letters.

Testing

Write unit tests for the above methods, and for any other I/O free methods you write. Name your test class `CaesarTest`.

How to do it

Download and save the word list at http://www-01.sil.org/linguistics/wordlists/english/wordlist/wordsEn.txt.

A message will be correctly deciphered when it consists of *mostly* English words. It doesn't have to be entirely English words-that's too strict a test. The message may contain other things, such as the names of people or places.

Due date

Zip your Scala project and turn the zip file in to Canvas. Due by **11:59pm Tuesday, November 29.**