You have been hired by the CIA to decipher messages from aliens that have been intercepted by the US Government to determine if the aliens plan on destroying our planet. You start your job by attempting to decipher the following two messages:

```
MY FEVUROTI THONG EBUAT IERTH OS FRINCH FROIS
KCIR DLEIFGNIRPS SI YM ETIROVAF GNIDROCER TSITRA
```

It is believed that the aliens are using two strategies to encrypt their messages. The two methods are "Vowel Mash" and "Word Reverse". The Vowel Mash strategy replaces vowels in a message with different vowels. Specifically, the following replacement scheme is used: A->E, E->I, I->O, O->U, U->A. The Word Reverse strategy reverses each word in a message. It is safe to assume that all letters in the message are upper case, and that aliens don't use any punctuation.

Your boss has written a program that utilizes these two encryption strategies to decrypt the two messages above. It is not possible to tell which method the aliens used for each message, your boss decided to try both to see which one works. After her program decrypts the two alien messages, she encrypts a response back to the aliens. The following response is encrypted twice (once with each method) to ensure the aliens can read it:

```
WE ARE PEACEFUL ALWAYS WEAR YOUR SUNGLASSES AT NIGHT
```

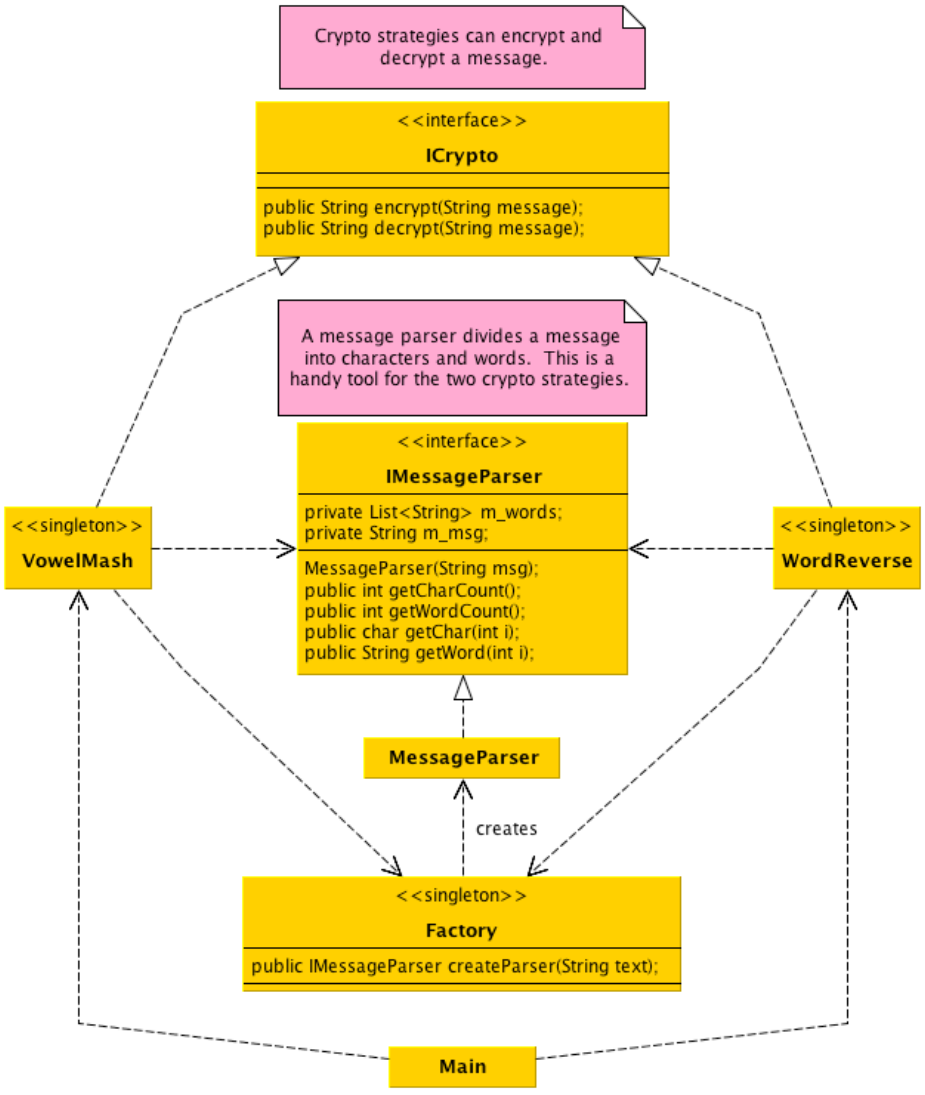
The main program written by your boss is listed below:

```
public static void main(String[] args)
{
    String msg1 = "MY FEVUROTI THONG EBUAT IERTH OS FRINCH FROIS";
    String msg2 = "KCIR DLEIFGNIRPS SI YM ETIROVAF GNIDROCER TSITRA";

    System.out.println("Decrypting message 1 using Vowel Mash:");
    ICrypto c = VowelMash.getInstance();
    System.out.println(c.decrypt(msg1));

    System.out.println("Decrypting message 1 using Word Reverse:");
    c = WordReverse.getInstance();
    System.out.println(c.decrypt(msg1));

    System.out.println("Decrypting message 2 using Vowel Mash:");
    c = VowelMash.getInstance();
    System.out.println(c.decrypt(msg2));

    System.out.println("Decrypting message 2 using Word Reverse:");
    c = WordReverse.getInstance();
    System.out.println(c.decrypt(msg2));

    String msg3 = "WE ARE PEACEFUL ALWAYS WEAR YOUR SUNGLASSES AT NIGHT";
    System.out.println(msg3);
    System.out.println("Encrypting message 3 using Vowel Mash:");
    c = VowelMash.getInstance();
    System.out.println(c.decrypt(msg3));

    System.out.println("Encrypting message 3 using Word Reverse:");
    c = WordReverse.getInstance();
    System.out.println(c.decrypt(msg3));
}
```

You will know if your program is working correctly if it produces the following output:

```
Decrypting message 1 using Vowel Mash:
MY FAVORITE THING ABOUT EARTH IS FRENCH FRIES
Decrypting message 1 using Word Reverse:
YM ITORUVEF GNOHT TAUBE HTREI SO HCNIRF SIORF
Decrypting message 2 using Vowel Mash:
KCER DLAEFGNERPS SE YM ATERIVUF GNEDRICAR TSETRU
Decrypting message 2 using Word Reverse:
RICK SPRINGFIELD IS MY FAVORITE RECORDING ARTIST
WE ARE PEACEFUL ALWAYS WEAR YOUR SUNGLASSES AT NIGHT
Encrypting message 3 using Vowel Mash:
WA URA PAUCAFOL ULWUYS WAUR YIOR SONGLUSSAS UT NEGHT
Encrypting message 3 using Word Reverse:
EW ERA LUFECAEP SYAWLA RAEW RUOY SESSALGNUS TA THGIN
```

The program your boss wrote is not complete. Your job is to finish it. To help, your boss has given you the following design that her program is using:



Your job as junior programmer is to finish the program by writing the rest of the classes and interfaces shown in the UML diagram above.