

CSC205AB

Java Review Saurian


Due Date: January 29, 2020

Files to Submit:

Saurian.java

Submit files on Canvas

Description:

This assignment involves writing a Java class that translates English to the cipher language Saurian from the Star Fox Adventures game on Nintendo Gamecube. Although, this language can be spoken as seen in this scene from the game  you will only need to translate the written portion of the language.

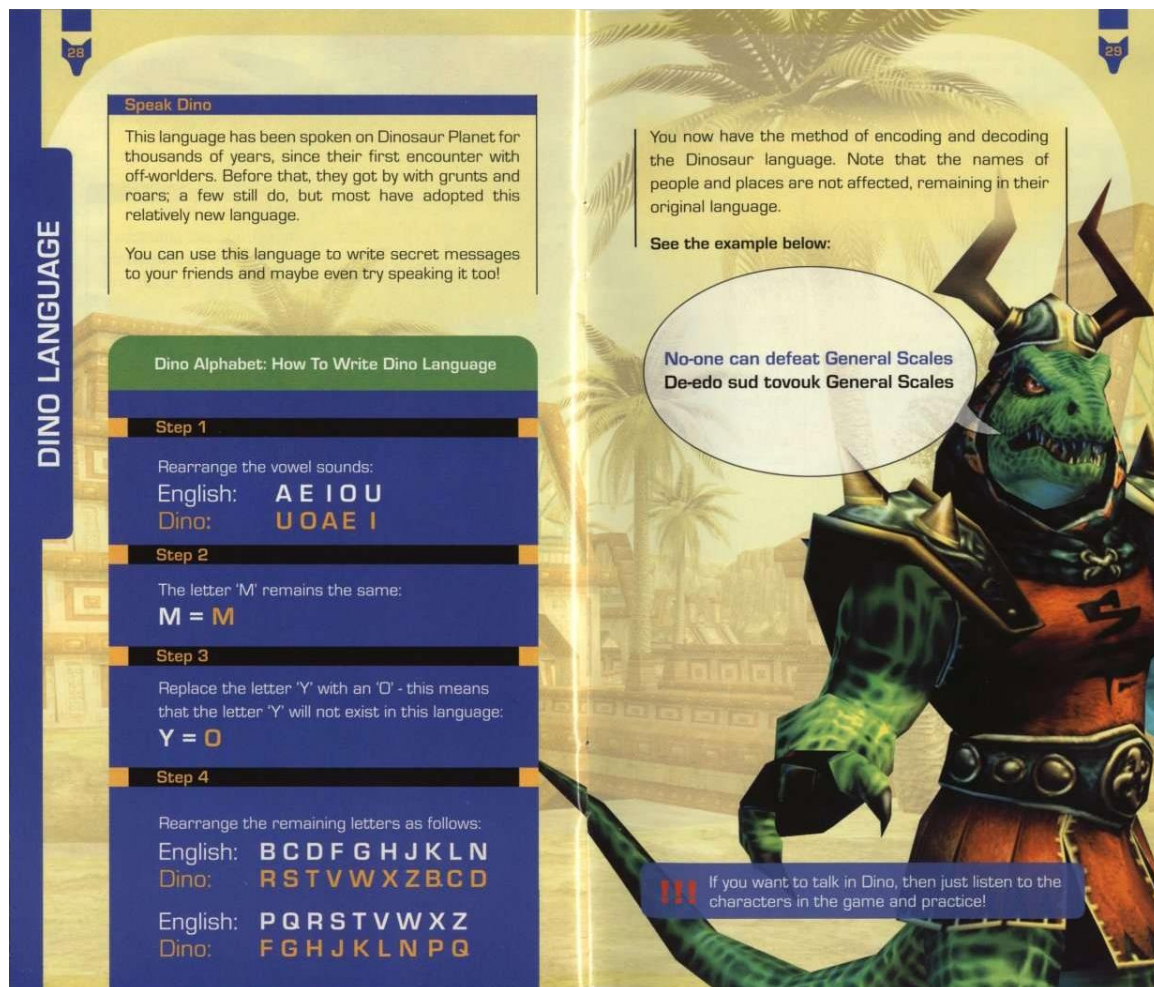
You will need two private Strings in your Saurian class. One String holds the word or phrase in its English form and the other holds the word or phrase in its Saurian form. You will need a public default constructor that sets default values to the English and Saurian Strings. You will need a public overloaded constructor that accepts two parameters. One parameter is a String that is the phrase and the other parameter is a boolean to be used to determine if the first parameter was a phrase in English or Saurian. You will need a public getter method for each of the English and Saurian Strings. You will need a public setter method for each of the English and Saurian Strings as well. Note that if the setEnglish() method updates the English String it should also translate and update the Saurian String. This is also true for the setSaurian() method. You will need a method, translateSaurToEng(String saurianToEnglish) that has no return type i.e. it is void. It should update the data in the class accordingly. Similarly, you will need a method, translateEngToSaur(String englishToSaur) that has no return type i.e. it is void. These translation methods will rely on the char arrays that have been provided in the Saurian.java class. Lastly, make sure to implement a toString() method that will put the English and Saurian translations into one string to return to the callee.



Crack the code:

Below is an image of the pages in the Star Fox Adventures instruction manual explaining how to translate between English to Saurian and vice versa. You may also use <https://saurian.krystalarchive.com/> to test your translations with the correct translations. For this assignment you can turn off the "Proper Noun Detection" button on the website as the SaurianDriver.java does not use proper noun detection.

Saurian is a variation of a Caesar cipher, https://en.wikipedia.org/wiki/Caesar_cipher, in which most of the alphabet is shifted. The vowels are swapped, m remains unchanged and y becomes o going from English to Saurian. Since e also becomes o, it can be tricky to determine which letter o translates to going from Saurian to English. The Krystal Archive link above represents the o in the y->o translation as the number 0. You can do that as well here, but the SaurianDriver.java tests using y to o going from English to Saurian.



Given code:

Saurian.java:

```
// Programmer:
// Date:
// The Saurian class has the ability to translate English to Saurian
// and Saurian to English

public class Saurian
{
    // data

    // constants used for translating
    // note M = M and m = m so M and m are not needed
    public static final char[] ENGLISHARR =
    {'A','B','C','D','E','F','G','H','I','J','K','L','N','O','P','Q','R','S','T','U','V','W','X','Y','Z','a','b','c','d','e','f','g','h','i','j','k','l','n','o','p','q','r','s','t','u','v','w','x','y','z'};
    public static final char[] SAURIANARR =
    {'U','R','S','T','O','V','W','X','A','Z','B','C','D','E','F','G','H','J','K','T','L','N','P','O','Q','u','r','s','t','o','v','w','x','a','z','b','c','d','e','f','g','h','j','k','l','n','p','o','q'};
    public static final int ARRLength = ENGLISHARR.length; // should be the same length for
    ENGLISHARR and SAURIANARR

}
```

SaurianDriver.java:

```
// This is the driver for the Saurian class
// Use this website to compare with your translator:
// https://saurian.krystalarchive.com/
// Game that Saurian originated from:
// https://en.wikipedia.org/wiki/Star\_Fox\_Adventures
// http://starfox.wikia.com/wiki/Dino

public class SaurianDriver
{
    public static void main(String[] args)
    {
        // create the Saurian object using the default constructor
        Saurian saur = new Saurian();

        // TEST #1
        // Test the English word "College"
        // It should translate to "Seccowo"
        saur.setEnglish("College");
        System.out.println(saur.getSaurian());

        if (saur.getSaurian().equals("Seccowo"))
            System.out.println("TEST #1 Passed!");
    }
}
```

```

else
    System.out.println("TEST #1 Failed!");

System.out.println();

// TEST #2
// Test the English phrase: "Hello World!"
// It should translate to "Xocce Nehct!"
saur.setEnglish("Hello World!");
System.out.println(saur.getSaurian());

if (saur.getSaurian().equals("Xocce Nehct!"))
    System.out.println("TEST #2 Passed!");
else
    System.out.println("TEST #2 Failed!");

System.out.println();

// TEST #3
// Test the Saurian word "Faqu"
// It should translate to "Pizza"
saur.setSaurian("Faqu");
System.out.println(saur.getEnglish());

if (saur.getEnglish().equals("Pizza"))
    System.out.println("TEST #3 Passed!");
else
    System.out.println("TEST #3 Failed!");

System.out.println();

// TEST #4
// Test the Saurian phrase: "Kubadw faskihoj aj vid."
// It should translate to "Taking pictures is fun."
saur.setSaurian("Kubadw faskihoj aj vid.");
System.out.println(saur.getEnglish());

if (saur.getEnglish().equals("Taking pictures is fun."))
    System.out.println("TEST #4 Passed!");
else
    System.out.println("TEST #4 Failed!");

System.out.println();

// TEST #5
// Translate "De edo sud tovouk GENERAL SCALES!"
// It should translate to "No one can defeat GENERAL SCALES!"
saur.setSaurian("De edo sud tovouk");

```

```

System.out.println(saur.getEnglish() + " GENERAL SCALES!");

if (saur.getEnglish().equals("No one can defeat"))
    System.out.println("TEST #5 Passed!");
else
    System.out.println("TEST #5 Failed!");

System.out.println();

// TEST #6
// Translate "Soccer is a way of life!"
// It should translate to "Jessoh aj u nuo ev cavo!"
saur.setEnglish("Soccer is a way of life!");
System.out.println(saur.getSaurian());

if (saur.getSaurian().equals("Jessoh aj u nuo ev cavo!"))
    System.out.println("TEST #6 Passed!");
else
    System.out.println("TEST #6 Failed!");

System.out.println();

// TEST #7
// Test the English word "College"
// It should translate to "Seccowo"
// create the Saurian object and initialize the data
Saurian saur2 = new Saurian("College", true);           // true means 1st parameter is in English
System.out.println(saur2.getSaurian());

if (saur2.getEnglish().equals("College") && saur2.getSaurian().equals("Seccowo"))
    System.out.println("TEST #7 Passed!");
else
    System.out.println("TEST #7 Failed!");

System.out.println();

// TEST #8
// Test the Saurian word "Faqu"
// It should translate to "Pizza"
// create the Saurian object and initialize the data
Saurian saur3 = new Saurian("Faqu", false);             // false means 1st parameter is in Saurian
System.out.println(saur3.getEnglish());

if (saur3.getEnglish().equals("Pizza") && saur3.getSaurian().equals("Faqu"))
    System.out.println("TEST #8 Passed!");
else
    System.out.println("TEST #8 Failed!");

System.out.println();

// TEST #9
// Test the English word "Hello World!"

```

```

        // It should translate to "Xocce Nehct!"
        // create the Saurian object and initialize the data
        Saurian saur4 = new Saurian("Hello World!", true); // true means 1st parameter is in English
        System.out.println(saur4.getSaurian());

        if (saur4.getEnglish().equals("Hello World!") && saur4.getSaurian().equals("Xocce Nehct!"))
            System.out.println("TEST #9 Passed!");
        else
            System.out.println("TEST #9 Failed!");

        System.out.println();

        // TEST #10
        // Test the Saurian word "Kubadw faskihoj aj vid."
        // It should translate to "Taking pictures is fun."
        // create the Saurian object and initialize the data
        Saurian saur5 = new Saurian("Kubadw faskihoj aj vid.", false); // false means 1st
parameter is in Saurian
        System.out.println(saur5.getEnglish());

        if (saur5.getEnglish().equals("Taking pictures is fun.") && saur5.getSaurian().equals("Kubadw
faskihoj aj vid."))
            System.out.println("TEST #10 Passed!");
        else
            System.out.println("TEST #10 Failed!");

        System.out.println();

        // TEST #11
        // Test the toString()
        System.out.println(saur.toString());
        System.out.println();
        System.out.println(saur2.toString());
        System.out.println();
        System.out.println(saur3.toString());
        System.out.println();
        System.out.println(saur4.toString());
        System.out.println();
        System.out.println(saur5.toString());
    }
}

```

Sample Output:

If all the test cases pass when SaurianDriver.java is run, then the output should resemble that seen in the image below.

```
C:\WINDOWS\system32\cmd.exe
Seccowo
TEST #1 Passed!
Xocce Nehct!
TEST #2 Passed!
Pizza
TEST #3 Passed!
Taking pictures is fun.
TEST #4 Passed!
No one can defeat GENERAL SCALES!
TEST #5 Passed!
Jessoh aj u nuo ev cavo!
TEST #6 Passed!
Seccowo
TEST #7 Passed!
Pizza
TEST #8 Passed!
Xocce Nehct!
TEST #9 Passed!
Taking pictures is fun.
TEST #10 Passed!
English translation:
Soccer is a way of life!
Saurian translation:
Jessoh aj u nuo ev cavo!
English translation:
College
Saurian translation:
Seccowo
English translation:
Pizza
Saurian translation:
Faqqu
English translation:
Hello World!
Saurian translation:
Xocce Nehct!
English translation:
Taking pictures is fun.
Saurian translation:
Kubadw faskihoj aj vid.
Press any key to continue . . .
```

Grading:

Submit your Saurian.java file to Canvas.

Documentation, Spacing and Comments = 3 points

Data = 2 points

Constructors = 2

Getter and Setter methods = 4

translateEngToSaur and translateSaurToEng methods = 4

toString method = 1

Test cases pass = 6

22 points total for Java Review Saurian