

1. Create a method **ShortHanded** that receives a String and returns the String converted into shorthand. The simplified shorthand form of a string is defined as follows:
 - a. Replace these four words: "and" with "&", "to" with "2", "you" with "U", and "for" with "4".
 - b. Remove all vowels ('a', 'e', 'i', 'o', 'u', whether lowercase or uppercase), do not remove 'u' and 'I' if they did not occurred in a word.

```

public static String shortHanded(String str) {
    str = str.replaceAll("and", "&").replaceAll("to",
"2").replaceAll("you", "u").replaceAll("for", "4");
    str = str.replaceAll("[aeioAEIOU]", "");
    String[] s = str.split(" ");
    str = "";
    for(int i = 0; i<s.length; i++) {
        if(s[i].length()>1) {
            str += s[i].replaceAll("[uI]", "")+ " ";
        }else {
            str += s[i] + " ";
        }
    }
    return str;
}

```

2. Create a Java method called numberOfSentences: a method that accepts a string and return number of sentences on it. A sentence can be determined if it ends with one of those punctuation (. , ? !).

```

public static int numberOfSentences(String str) {
    String[] arr = str.split("[.,?!]");
    return arr.length;
}

```

3. Create a Java method called numberOfWords: a method that accepts a string and return number of words, a word consists of more than 3 characters.

```

public static int numberOfWords(String str) {
    String[] arr = str.split(" ");
    int count = 0;
    for(int i = 0; i<arr.length; i++) {
        if(arr[i].length() > 3) {
            count++;
        }
    }
    return count;
}

```

4. Design a java program that we can use to encrypt a sentence by using the following methods respectively:
 - a. Convert all letters to capital.
 - b. reverseString: reverse the sentence
 - c. toNumbers: a method that converts the following letters to numbers: "O" to zero (0), "S" to \$, "L" to 1
 - d. Finally, you should display the encrypted sentence. beginAndEnd: that add ** at the beginning and at the end of the sentence.

Hint: use stringBuilder.

```
import java.util.Scanner;

public class Lab10_q2 {

    public static void main(String[] args) {

        Scanner scan = new Scanner(System.in);
        System.out.print("Enter a sentence to encrypt: ");
        String str = scan.nextLine();

        str = toCapitalLetters(str);

        str = reverseString(str);

        str = toNumbers(str);

        str = beginAndEnd(str);

        System.out.println("Encrypted sentence: " + str);
    }

    public static String toCapitalLetters(String str) {

        return str.toUpperCase();
    }

    public static String reverseString(String sentence) {
        StringBuilder sb = new StringBuilder(sentence);
        return sb.reverse().toString();
    }

    public static String toNumbers(String str) {

        return str.replaceAll("O", "0").replaceAll("S", "\\$").replaceAll("L", "1");
    }

    public static String beginAndEnd(String str) {
        //return "**" + sentence + "**";
        StringBuilder sb = new StringBuilder(str);
        sb.append("**");
        sb.insert(0, "**");
        return sb.toString();
    }
}
```

Lab11-Q5

Consider you have the following Rectangle class:

Rectangle
- height: int - width: int
+ Rectangle(height : int, width: int) + getArea(): int + setWidth(width : int): void + setHeight(height : int): void + getWidth(): int + getHeight(): int

Write a java program to create an array of rectangle objects and read the information of the objects from the following file:

```
Rectangle_1 10 20  
Rectangle_2 13 25  
Rectangle_3 11 19  
Rectangle_4 10 20  
Rectangle_5 7 22
```

The first number represents the height and the second represent the width of the rectangle.

- Write the size of rectangles into a file called results.txt