1. Write a program to read a string  and to test whether first and last character are same. The string is said to be be valid if the 1st and last character are the same. Else the string is said to be invalid.

Include a class UserMainCode with a static method checkCharacters which accepts a string as input .

The return type of this method is an int.  Output should be 1 if the first character and last character are same . If they are different then return -1 as output.

Create a class Main which would get the input as a string and call the static method checkCharacters present in the UserMainCode.

**Sample Input :**

the picture was great

**Sample Output :**   
Valid 

**Sample Input :**

this

**Sample Output :**

Invalid

1. Create two String reference variables. Then create two String literals with the same value - "cat" - and assign them to the reference variables. Try using the "==" operator to verify that they are pointing to the same String object. Now say new String("cat") and assign that to the first reference variable. Try verifying again with "==". Now try creating a reference variable of type StringBuilder or StringBuffer. Give this the value of "cat" – then call append() method on this object, modifying the value. Notice there is no append() method on a String object, since it is immutable.
2. Write a Java method to display the middle character of a string.

 a) If the length of the string is odd there will be two middle characters.

 b) If the length of the string is even there will be one middle character.

**Input a string**: 367

**Expected Output:**

The middle character in the string: 6

4.  Write a Java method to count all vowels in a string.

**Input the string**: Hcl Technologies

**Expected Output:**

Number of  Vowels in the string: 5

 5. Write a Java class called Calculator. Provide add, subtract, multiply, and other standard calculator-related methods. Instead of hardcoding the calculation in the method, delegate responsibility to the appropriate methods in the Math class.