11/19/2020

Lab Assignment 02

String Lab

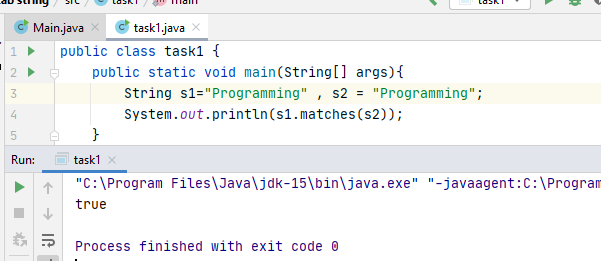
**Muhammad Saqib**

**Sp20-Bse-069**

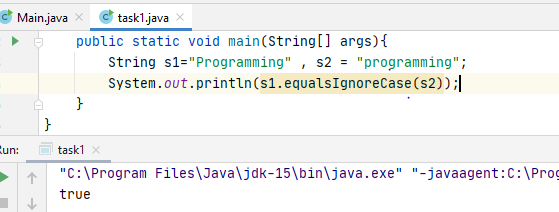
Programming Fundamentals

# LAB TASKS

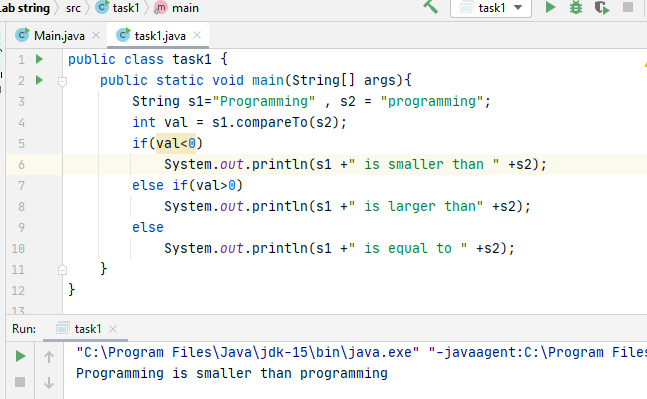
1. Create two strings, s1 and s2. Do the following.
2. Check if both are same



1. Check if both are same, ignoring case



1. Display the smaller string



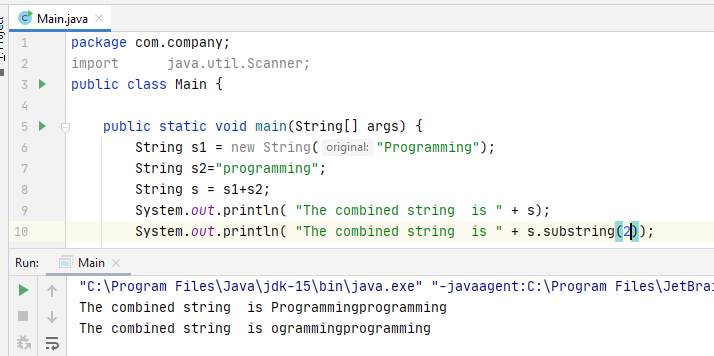
1. Display the total number of characters in each string. Determine the combined length of both strings.

package com.company;  
import java.util.Scanner;  
public class Main {  
 public static void main(String[] args) {  
 String s1 = new String("Programming");  
 String s2="programming";  
 String s = s1+s2;  
 char ch;  
 System.*out*.println(s1 + " length is " +s1.length() + " and characters are: " );  
 for (int i=0 ; i<s1.length() ; i++){  
 ch = s1.charAt(i);  
 System.*out*.println(ch);}  
  
 System.*out*.println(s2 + " length is " +s2.length() + " and characters are: " );  
 for (int i=0 ; i<s2.length() ; i++){  
 ch = s1.charAt(i);  
 System.*out*.println(ch);}  
 System.*out*.println( "The combined length is " + s.length());  
 }  
}

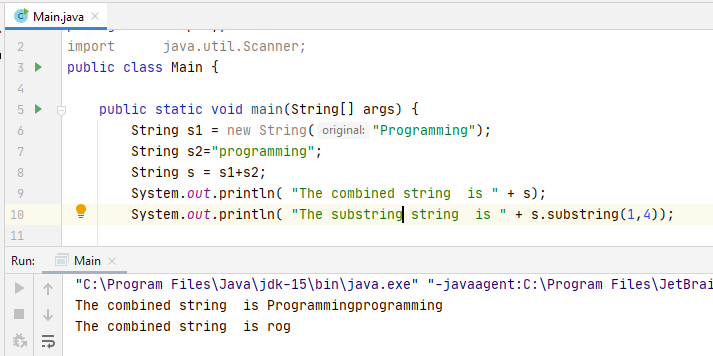
1. Create another string, s3, by combining s1 and s2.

package com.company;  
import java.util.Scanner;  
public class Main {  
  
 public static void main(String[] args) {  
 String s1 = new String("Programming");  
 String s2="programming";  
 String s = s1+s2;  
  
 System.*out*.println( "The combined string is " + s);  
  
  
 }  
}

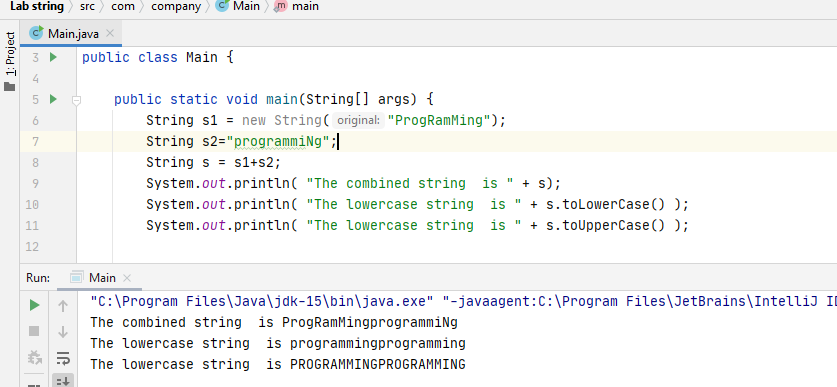
1. Create a substring of s3 starting from index 2.



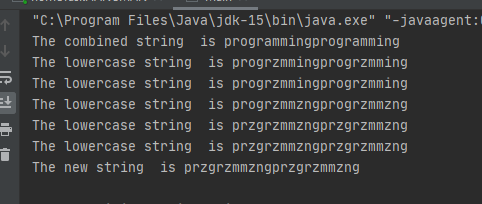
1. Create a substring of s3 from index 1 to index 4.



1. Convert s1 to lower case and then upper case.



1. Replace all vowels in s3 with ‘z’.
2. package com.company;  
   import java.util.Scanner;  
   public class Main {  
    public static void main(String[] args) {  
    String s1 = new String("programming");  
    String s2="programming";  
    String s = s1+s2 , S;  
    System.*out*.println( "The combined string is " + s);  
    System.*out*.println( "The lowercase string is " + (s=s.replace('a' , 'z')));  
    System.*out*.println( "The lowercase string is " + (s=s.replace('e' , 'z')));  
    System.*out*.println( "The lowercase string is " + (s=s.replace('i' , 'z')));  
    System.*out*.println( "The lowercase string is " + (s=s.replace('o' , 'z')));  
    System.*out*.println( "The lowercase string is " + (s=s.replace('u' , 'z')));  
    System.*out*.println( "The new string is " + s);  
    }  
   }

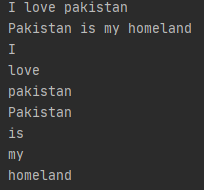


1. Create a string object, str\_obj, with the following string value:

“Pakistan is my homeland. I love my country.”

* 1. Tokenize (make tokens) of str\_obj delimited by the full stop into token1 and token2. Display both tokens.
  2. Tokenize token1 delimited by space. Display tokens.
  3. Tokenize token2 delimited by space. Display tokens.

1. package com.company;  
   import java.util.StringTokenizer;  
   public class Main {  
    public static void main(String[] args) {  
    String obj\_str = "I love pakistan.Pakistan is my homeland";  
    String[] token = obj\_str.split("[.]");  
    System.*out*.println(token[0]);  
    System.*out*.println(token[1]);  
    String token1 =token[0];  
    String token2 =token[1];  
    String[] token3 = token1.split("[ ]");  
    System.*out*.println(token3[0]);  
    System.*out*.println(token3[1]);  
    System.*out*.println(token3[2]);  
    String[] token4 = token2.split("[ ]");  
    System.*out*.println(token4[0]);  
    System.*out*.println(token4[1]);  
    System.*out*.println(token4[2]);  
    System.*out*.println(token4[3]);  
    }  
   }



1. Take a character array and an integer, as follows:

char c\_arr[ ] = {‘P’, ‘a’, ‘k’, ‘i’, ‘s’, ‘t’, ‘a’, ‘n’};

int num = 456;

Convert c\_arr into a string, s1. Convert num into a string, s2.

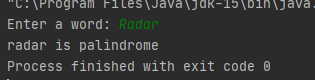
package com.company;  
public class task4 {  
 public static void main(String[] args)  
 {  
 char c\_arr[] = {'P','a','k','i','s','t','a','n'};  
 int num = 456;  
 String s1= String.*copyValueOf*(c\_arr);  
 String s2= Integer.*toString*(num);  
 }  
}

1. Take a string, s = “4567”. Convert it into a numeric value.

package com.company;  
public class task5 {  
 public static void main(String[] args) {  
 String s ="4678";  
 int n = Integer.*parseInt*(s);  
 System.*out*.println(n);  
 }  
}

1. Input a string value from user. Check and display if it is a palindrome. Keep inputting strings from user as long as he wants.

package com.company;  
import java.util.Scanner;  
import java.lang.String;  
public class task6 {  
 public static void main(String[] args){  
 Scanner userInput = new Scanner(System.*in*);  
 System.*out*.print("Enter a word: ");  
 String str = userInput.next();  
 StringBuilder s = new StringBuilder();  
 for(int i=str.length()-1 ; i>=0;i--)  
 s.append(str.charAt(i));  
 if(s.toString().equals(str))  
 System.*out*.print(str + " is palindrome");  
 else  
 System.*out*.print(str + " isn't palindrome");  
 }  
}



1. Keep inputting numbers from user. Check and display if they are palindrome or not.

package com.company;  
import java.util.Scanner;  
import java.lang.String;  
public class task6 {  
 public static void main(String[] args){  
 Scanner userInput = new Scanner(System.*in*);  
 System.*out*.print("Enter a word: ");  
 String str = userInput.next();  
 str = str.toLowerCase();  
 StringBuilder s = new StringBuilder();  
 for(int i=str.length()-1 ; i>=0;i--)  
 s.append(str.charAt(i));  
 if(s.toString().equals(str))  
 System.*out*.print(str + " is palindrome");  
 else  
 System.*out*.print(str + " isn't palindrome");  
 }  
}

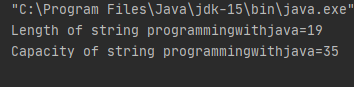
1. Dry run Listing 9.2 from book on pages.
2. Study following string classes and test their methods by using them in small codes.

* StringBuilder class

**Used in above task and also in hangman**

* StringBuffer class

package com.company;  
import java.io.\*;  
class Main {  
 public static void main(String[] args)  
 {  
 StringBuffer s = new StringBuffer("programmingwithjava");  
 int p = s.length();  
 int q = s.capacity();  
 System.*out*.println("Length of string programmingwithjava=" + p);  
 System.*out*.println("Capacity of string programmingwithjava=" + q);  
 }  
}

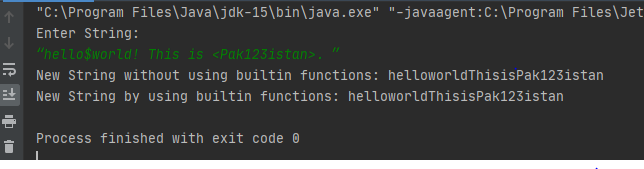


1. Following is a string:

“hello$world! This is <Pak123istan>. ”

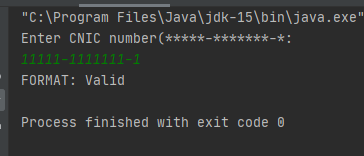
Remove all characters that are neither alphabets nor numbers (non-alphanumeric characters). Display the new string. (Hint: see Listing 9.4)

package com.company;  
import java.util.Scanner;  
public class task11 {  
 public static void main(String[] args){  
 Scanner userInput = new Scanner(System.*in*);  
 StringBuilder newStr= new StringBuilder();  
 String str ;  
 System.*out*.println("Enter String: ");  
 str = userInput.nextLine();  
 for (int i = 0; i < str.length(); i++) {  
 if (str.charAt(i) >= 'a' && str.charAt(i) <= 'z') {  
 newStr.append(str.charAt(i));  
 // we can use '+' concatenation operator  
 } else if (str.charAt(i) >= 'A' && str.charAt(i) <= 'Z') {  
 newStr.append(str.charAt(i));  
 } else if (str.charAt(i) >= '0' && str.charAt(i) <= '9') {  
 newStr.append(str.charAt(i));  
 } else  
 System.*out*.print("");  
 }  
 System.*out*.println("New String without using builtin functions: " +newStr);  
 str = str.replaceAll("[^a**-**zA**-**Z0**-**9]", "");  
 System.*out*.println("New String by using builtin functions: " +str);  
 }  
}



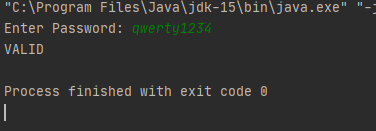
1. Understand and implement Listing 9.5.
2. Input CNIC from user in the following format: NNNNN-NNNNNNN-N. Check if the user has entered CNIC in correct format or not.

package com.company;  
import java.util.Scanner;  
public class task13 {  
 public static void main(String[] args){  
 try (Scanner userInput = new Scanner(System.*in*))  
 {  
 System.*out*.println("Enter CNIC number(\*\*\*\*\*-\*\*\*\*\*\*\*-\*: ");  
 String str = userInput.nextLine();  
 String format="Invalid";  
 if(str.length()==15)  
 {  
 if (str.charAt(5)=='-' && str.charAt(13)=='-')  
 {  
 for (int i =1 ;i< str.length();i++)  
 if(str.charAt(i)=='-') continue;  
 else if (str.charAt(i) >= '0' && str.charAt(i) <= '9') format = "Valid";  
 else {  
 format = "InValid"; break;}  
 }  
 else  
 {  
 format = "InValid";  
 }  
 }  
 else  
 format = "InValid";  
  
 System.*out*.println("FORMAT: " + format);  
 }  
  
 }  
}



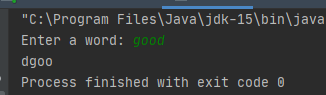
1. Write a program that checks whether a string is a valid password. Suppose the password rules are as follows:
   1. A password must have at least eight characters.
   2. A password consists of only letters and digits.
   3. A password must contain at least two digits.

package com.company;  
import java.util.Scanner;  
public class task15 {  
 public static void main(String[] args){  
 Scanner userInput = new Scanner(System.*in*);  
 System.*out*.print("Enter Password: ");  
 String str = userInput.next();  
 int digit=0,letter=0;  
 if(str.length()>=8)  
 {  
 for(int i=0 ; i<str.length() ; i++)  
 {  
 if (str.charAt(i) >= '0' && str.charAt(i) <= '9')  
 {  
 digit++;  
 }  
 else if ( (str.charAt(i) >= 'a' && str.charAt(i) <= 'z') || (str.charAt(i) >= 'A' && str.charAt(i) <= 'Z') )  
 {  
 letter++;  
 }  
  
 }  
 }  
 if(digit>=2 && letter!=0)  
 {  
 System.*out*.println("VALID");  
 }  
 else  
 System.*out*.println("INVALID");  
 }  
}

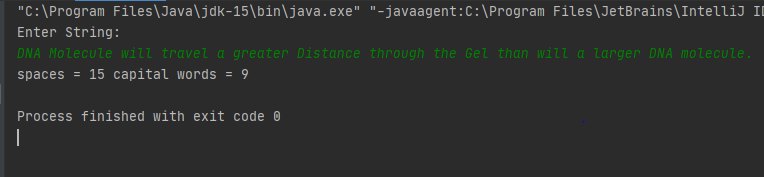


1. Input a string from user. Sort the characters within the string. Display the new string. For example, the user enters s1 = “good”. The new sorted string should have sorted characters: s2 = “dgoo”.

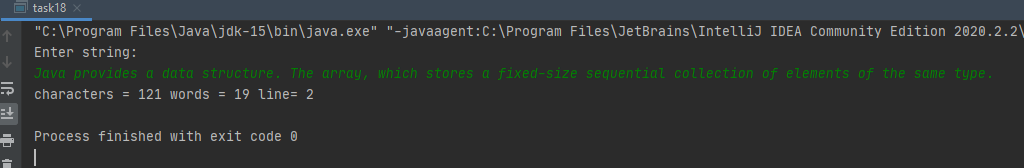
package com.company;  
import java.util.Scanner;  
public class task14 {  
 public static void main (String[] args){  
 Scanner sc = new Scanner(System.*in*);  
 String str ;  
 System.*out*.println("Enter a word: ");  
 str = sc.next();  
 int len = str.length();  
  
 for (int i = 0; i<=len-1;i++){  
 for (int j= i; j<=len-1;j++){  
 //Swaping strings characters.  
 if (str.charAt(i) > str.charAt(j)){  
 char temp1 = str.charAt(i);  
 char temp2 = str.charAt(j);  
 str = str.substring(0,i)+temp2+str.substring(i + 1);  
 str = str.substring(0,j)+temp1+ str.substring(j + 1);  
 }  
 }  
 }  
 System.*out*.println(str);  
 }  
}



1. Input a string from user. Count and display
   1. number of uppercase letters in the string
   2. number of white spaces in the string
2. package com.company;  
   import java.util.Scanner;  
   public class task17 {  
    public static void main(String[] args) {  
    Scanner userInput = new Scanner(System.*in*);  
    int cap=0;  
    int space=0;  
    String str ;  
    System.*out*.println("Enter String: ");  
    str = userInput.nextLine();  
    for (int i = 0; i < str.length(); i++)  
    {  
    if(str.charAt(i)==' ')  
    {  
    space++;  
    }  
    else if(str.charAt(i)>='A' && str.charAt(i)<='Z')  
    {  
    cap++;  
    }  
    else  
    System.*out*.print("");  
    }  
    System.*out*.println("spaces = "+space+" capital words = "+cap);  
    }  
   }



1. From a small paragraph of text, find number of lines, number of words, and number of characters in the paragraph.
2. package com.company;  
   import java.util.Scanner;  
   public class task18{  
    public static void main(String[] args) {  
    int word = 0 ,line=0;  
    Scanner userInput = new Scanner(System.*in*);  
    System.*out*.println("Enter string: ");  
    String str = userInput.nextLine();  
    int characters = str.length();  
    if(str.isEmpty())  
    {  
    System.*out*.println("Empty string");  
    System.*exit*(1);  
    }  
    else  
    {  
    for (int i = 0; i < str.length(); i++)  
    {  
    if (str.charAt(i)=='.')  
    line++;  
    if(i<str.length()-1)  
    {  
    if (str.charAt(i) == ' ' || str.charAt(i) == '.' ) if (str.charAt(i + 1) != ' ')  
    word++;  
    }  
    }  
    }  
    System.*out*.println("string: " +str);  
    if (str.charAt(0)!=' ') word++;  
    System.*out*.println("characters = " + characters + " words = " + word + " line= "+line);  
    }  
   }



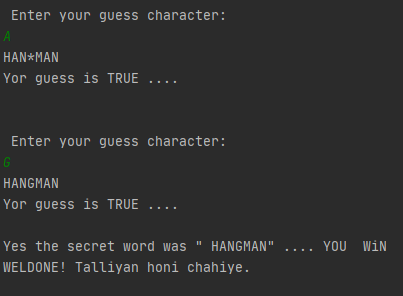
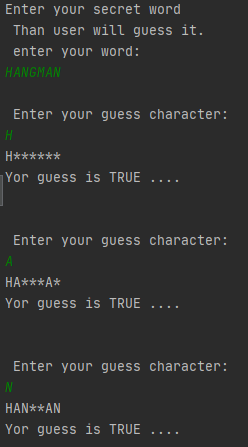
# HOME TASK

**Make a hangman game.**

package com.company;  
import java.util.Scanner;  
public class homeTaskHANGMAN {  
 public static void main(String[] args){  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("Enter your secret word \n Than user will guess it." +  
 "\n enter your word: ");  
 String Word=sc.next();  
 String word = Word.toUpperCase();  
 String Status="";  
 String s="\*";  
 String str = s.repeat(word.length());  
 char[] arr= str.toCharArray();  
 int wrongTurn=0;  
 boolean status;  
  
 do {  
 System.*out*.println("\n Enter your guess character: ");  
 char guess = sc.next().charAt(0);  
 char g = Character.*toUpperCase*(guess);  
 status=false;  
 for(int i=0 ;i<word.length(); i++)  
 if(g==word.charAt(i))  
 {  
 arr[i] = g;  
 status=true;  
 }  
 for(int i=0;i< word.length();i++)  
 System.*out*.print( arr[i]);  
 if (status){  
 System.*out*.println("\nYor guess is TRUE ....\n");}  
 else{  
 wrongTurn++;  
 System.*out*.println("\nYor guess is FALSE ....\n" +  
 "and Number of wrong guesses " + wrongTurn);  
 if (wrongTurn == 1) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println();  
 System.*out*.println();  
 System.*out*.println();  
 System.*out*.println();  
 System.*out*.println("\_\_\_|\_\_\_");  
 System.*out*.println();}  
 if (wrongTurn == 2) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println("\_\_\_|\_\_\_");}  
 if (wrongTurn == 3) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println(" \_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" | ");  
 System.*out*.println("\_\_\_|\_\_\_");  
 }  
 if (wrongTurn == 4) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println(" \_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println(" | \_|\_");  
 System.*out*.println(" | / \\");  
 System.*out*.println(" | | |");  
 System.*out*.println(" | \\\_ \_/");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println(" |");  
 System.*out*.println("\_\_\_|\_\_\_"); }  
 if (wrongTurn == 5) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println(" \_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println(" | \_|\_");  
 System.*out*.println(" | / \\");  
 System.*out*.println(" | | |");  
 System.*out*.println(" | \\\_ \_/");  
 System.*out*.println(" | |");  
 System.*out*.println(" | |");  
 System.*out*.println(" |");  
 System.*out*.println("\_\_\_|\_\_\_");  
 }  
 if (wrongTurn == 6) {  
 System.*out*.println("Wrong guess, try again");  
 System.*out*.println(" \_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println(" | \_|\_");  
 System.*out*.println(" | / \\");  
 System.*out*.println(" | | |");  
 System.*out*.println(" | \\\_ \_/");  
 System.*out*.println(" | |");  
 System.*out*.println(" | |");  
 System.*out*.println(" | / \\ ");  
 System.*out*.println("\_\_\_|\_\_\_ / \\");  
 }  
 if (wrongTurn == 7) {  
 System.*out*.println("GAME OVER!");  
 System.*out*.println(" \_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println(" | \_|\_");  
 System.*out*.println(" | / \\");  
 System.*out*.println(" | | |");  
 System.*out*.println(" | \\\_ \_/");  
 System.*out*.println(" | \_|\_");  
 System.*out*.println(" | / | \\");  
 System.*out*.println(" | / \\ ");  
 System.*out*.println("\_\_\_|\_\_\_ / \\");  
  
 System.*out*.println("GAME OVER! The word was " + word);  
 System.*exit*(1);  
 }  
 }  
  
 for(int i=0 ;i<word.length(); i++)  
 if (arr[i] == '\*') {  
 Status = "not guessed";  
 break;  
 } else {  
 Status = "guessed";  
 }  
 } while (Status.equals("not guessed"));  
 System.*out*.println("Yes the secret word was \" " + word + "\" .... YOU WiN");  
 System.*out*.println("WELDONE! Talliyan honi chahiye.");  
 }  
}

**OUTPUT:-**

* **TRUE word:-**



* **WRONG word:-**

