JAVA SE PROGRAMMING

ASSIGNMENT -1

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Assignment-1

1) Write a Java method to countall words and vowels in a string without using library functions.

=)
```
Import java.util.Scanner;
public class Main {
    public static void main (String[] args) {
        Scanner in = new Scanner (System.in);
        System.out.println ("Input the string : ");
        String str = in.nextLine();
      System.out.println ("Number of vowels
                 in the string : " + Count_vowels (str) + "\n
      System.out.println ("Number of words in the
                 string : " + Count_words (str) + "\n"
    }
  public static int Count_vowels (String str)
    {
     int count =0;
     for (int i=0; i<str.length(); i++) {
       If (str.CharAt(i) == 'a' || str.charAt(i) == 'e' ||
          str.CharAt(i) == 'i' || str.CharAt(i) == 'o' ||
         str.CharAt(i) == 'u') {
        count ++;
       }
     return Count;
  }
public static int count_words (string str)
    {
     int count = 0;
     if (!(" ".equals(str.substring(0,1))) ||
        !(" ".equals(str.substring(str.length()-1))))
      {
       for (int i = 0; i < str.length(); i++)
       {
         if (str.charAt(i) == ' '){
             count++;
          }
       }
        count = count+1;
     }
     return count;
    }
}
```

Q2) Write a Java method to check wheather a string is a valid username and password.

=>
```
Import java.util.scanner;
public class Question 2{
  public static void main(String[] args) {
    Scanner input = new Scanner(system.in);
    System.out.print("Enter Username");
    String U= input.nextLine();
    String s = input.nextLine();
    If(is_valid_Password(s)) {
        System.out.println("Password is valid:" +s);
    } else {
      System.out.println("Not a valid Password:" +s);
    }
  }
}
public static boolean is_valid_Password (String Password) {
    If(password.length()< ~~Password_Lenth~~ 8) return false;
    ~~If~~ int char =0;
     int num =0;
for(int i=0; i< password.length(); i++){
    char ch = password.charAt(i);
    If (is Numeric(ch)) num++;
    If (Is_Letter(ch)) Char ++;
    else return false;
  }
  return (char >= 2 && num > 2);
}
public static boolean Is_Letter(char ch){
      ch = character.toUpperCase(ch);
      return (ch >= 'A' && ch <= 'Z');
  }
public static boolean is_Numeric(char ch){
      return (ch >= '0' && ch <= '9');
  }
}
```

Q1) Write a programs for the following sections :—

Qa) For Arraylist, Write a program :—

```
-> import java.util.*;
      public class Main{
         public static void main (string[] args) {
           List<string> list1 = new ArrayList<string>();
            list1.add("Red");
            list1.add("Green");
            list1.add("Orange");
            list1.add("White");
            list1.add("Black");

         Scanner sc = new Scanner(System.in);
         System.out.println("List-1 : "+List1);

   //Question1—
     System.out.println("Enter the index to retrieve Element");
       int i1 = sc.nextInt();
     system.out.println(list1.get(i1));

   // Question 2 :—
     System.out.println ("Enter the index to Edit");
      int i2 = sc.nextInt();
      system.out.println ("Enter the value ");
      String val = sc.next();
      list1.set(i2, val);
      system.out.println(list1);
// Question 3:-
  int len;
  List <string> list2 = new ArrayList<string>();
  System.out.println ("Enter length for List-2:");
  len = sc.nextInt();
   for (int i=1 ; i<len+1 ; i++) {
       System.out.println("enter element"+ i+":");
       String str= sc.next();
       list2.add (str);
   }
   if( list1.equals(list2) == true) {
         System.out.println ("List-1:" + list + "is
                    equal to List-2:" +list2);

   } else {
       System.out.println ("List-1" + list1 + "is
              not equal to List-2: "+ list2);

   }

// Question 4:-
   ArrayList<string> list3 = new ArrayList<>();
   for (string st: list1){
         list3.add(st);
      }
      System.out.println("Cloning list-1 to list-3");
      System.out.println(" list-3: " +list3);

   }

}
```

b) for LinkedList, write a program:-

```
Import Java.util.*;
 public Class Main {
      public static void main (String[] args) {
            LinkedList<Integer> cl = new LinkedList<>();
            cl.add (100);
            cl.add ( 200);
            cl.add(300);
            cl.add(400);
            cl.add(500);

      //question 1 :-
      System.out.println("Original linked list : ");
      System.out.println(cl);

      cl.addFirst(0);
      cl.addLast (600);
      System.out.println("Linked list after adding
                      anelement at start &end: ");
      System.out.println(cl);


      //question 2 :-
      System.out.println("First element of list is : "+ cl.getFirst());
      System.out.println("Last element of list is:" + cl.getLast());

      //question 3 :-
//Question3:-
LinkedList<Integer> c2 = new LinkedList<>();
  c2.add(700);
~~Ques~~ c2.add(800);
  c2.add(900);
  c2.add(1000);
  System.out.println("second linked List: "+c2);

LinkedList <Integer> newList = new LinkedList<>();
  newlist.addAll(c1);
  newList.addAll(c2);
System.out.println("Joining"+c1+" and" + c2+".....");
System.out.println("New linked list:"+ newList);


//question 4 :-
 Scanner sc = new Scanner(system.in);
System.out.println("Enter number to find:");
int num= sc.nextLine();
system.out.println("Does the List contains "+num+"? "
                      + newList.contains(num));

//question 5:-
 List<Integer> arrayList = new ArrayList<>(newList);
 System.out.println ("The Arraylist elements are: ");
   for (Object i : arraylist) {
          System.out.print(i+" ");

   }
 }
}
```

i) Hashset, Write a program;—

```
import java.util.*;
public class Main{
    public static void main(string args[]){
        Hashset<string> set = new Hashset<string>();
        set.add("Java");
        set.add("Python");
        set.add("C");
        set.add("swift");
        set.add("kotlin");
        System.out.println("Hashset:"+set);
        string arr[] = new string[set.size()];
        int i=0;
        for (string element:set){
            arr[i++] = element;
        }
        for (string n: arr){
            system.out.println(n);
        }
    List<string> list = new ArrayList<string>(set);
    System.out.println("Hashset contains:"+set);
    System.out.println("ArrayList contains:"+List);
    set.clear();
        system.out.println("The set after clear(): "+set);
    }
}
```

d) Treeset, Write a program:—

```
import.java.util.Treeset;
public class Main {
   public static void main(String [ ]args ) {
      Treeset <Integer> TreeSet 1 = new TreeSet<
                        Integer>();
     Treeset.add (10);
     Treeset. add (22);
     Treeset.add (36);
     Treeset.add ( 25);
     Treeset.add (16);
     Treeset.add .(14);
     System.out. println ("Orginal tree set: "+Treeset1);

     //question 1
     System.out.println("Removes the first (lowest)
           element: " + Treeset1.pollFirst());
     System.out.println (" Removes the last(highest)
                    element: " +TreeSet1.pollLast());
     System.out.println("Tree set after removing first
                    element: " +TreeSet1);

     //question 2
     Treeset<Integer> Treeset2 = (TreeSet<Integers) TreeSet1.
                                   clone();
System.out.println ("Original tree set: "+ Treeset1);
system.out.println ("Cloned tree list: "+ Treeset 2);

//question 3:-
 System.out.println("size of the tree set: "+
                 Treeset1.size());
//question 4:-
 Tree set <Integer> TreeSet3 = new TreeSet <Integer>();
      TreeSet3.add (234);
      Tree set 3.add (12);
      Tree set 3.add (23);
      Treeset 3.add (5);
      Treeset 3.add (87);
 System.out.println ("Original tree set: "+TreeSet1);
System.out.println ("Third Treeset: "+ Tree set3);
  boolean value = Treeset1.equals (Tree Set 3);
   System.out.println ("Are both set equals: "+ value);

 }
}
```

e) HashMap, Write a program:—

```
→ import java.util.*;
  public class Main {
      public static void main(String[] args) {
     HashMap<Integer, String> hashMap1 = new
     HashMap<Integer, String>();

     HashMap1.put(1, "Red");
     hashMap1.put(2, "Green");
     hashMap1.put(3, "Black");
     hashMap1.put(4, "White");
     hashMap1.put(5, "Blue");

    //question 1:—
    System.out.println("Size of the Hash Map: "
                  +hashMap1.size());

    //question 2:—
    for(Map.Entry x: hashMap1.entry.set()){
        System.out.println(x.getKey()+" "+x.getValue());
     }


    //question 3:—
    System.out.println("The Original map: " + hashMap1);
HashMap<Integer, string> hashMap2 = new
                        HashMap<Integer, String>();
hashMap2 = (HashMap) hashMap1.clone();
System.out.println("Cloned map: " + hashMap2);

//question 4:

 set keyset = hashMap1.keyset();
 system.out.println("key set values are: " + keyset);
 String val = (String) hashMap1.get(3);
 System.out.println("value for key 3 is: " +val);
  }
}
```