Assignment No:-39

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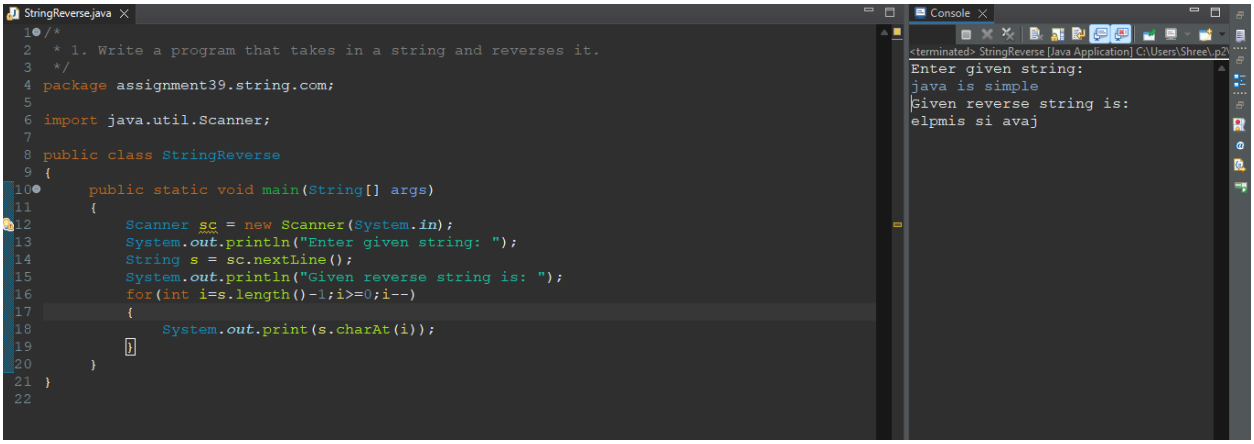
Batch: - Delta - DCA (Java) 2024 Date:-1/7/2024

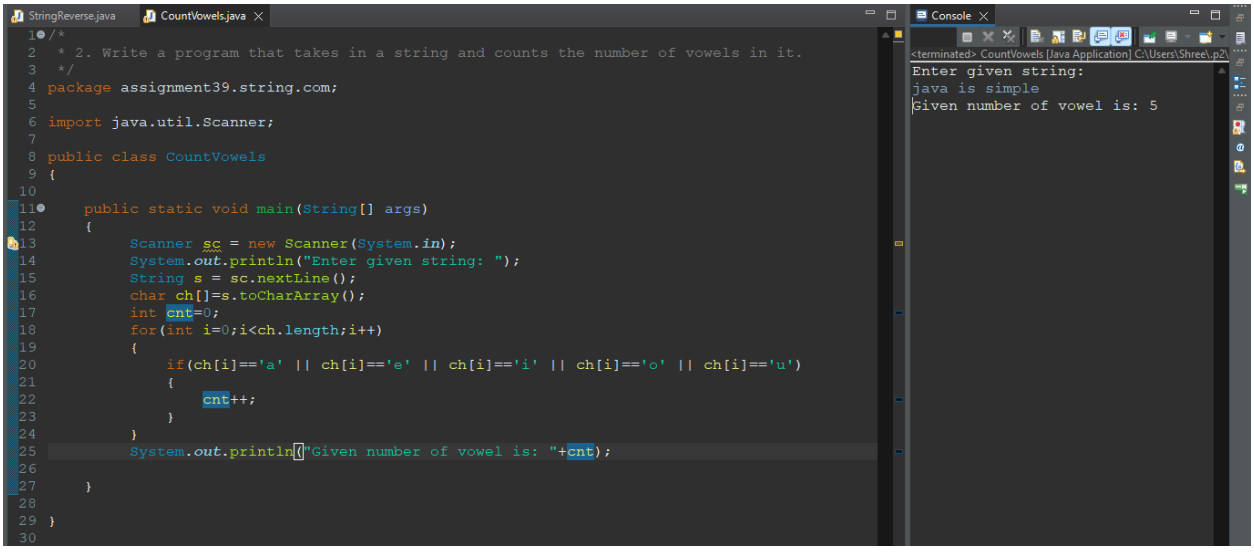
1. Write a program that takes in a string and reverses it.



```java
/*
 * 1. Write a program that takes in a string and reverses it.
 */
package assignment39.string.com;

import java.util.Scanner;

public class StringReverse
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String s = sc.nextLine();
        System.out.println("Given reverse string is: ");
        for(int i=s.length()-1;i>=0;i--)
        {
            System.out.print(s.charAt(i));
        }
    }
}
```

```
Enter given string:
java is simple
Given reverse string is:
elpmis si avaj
```

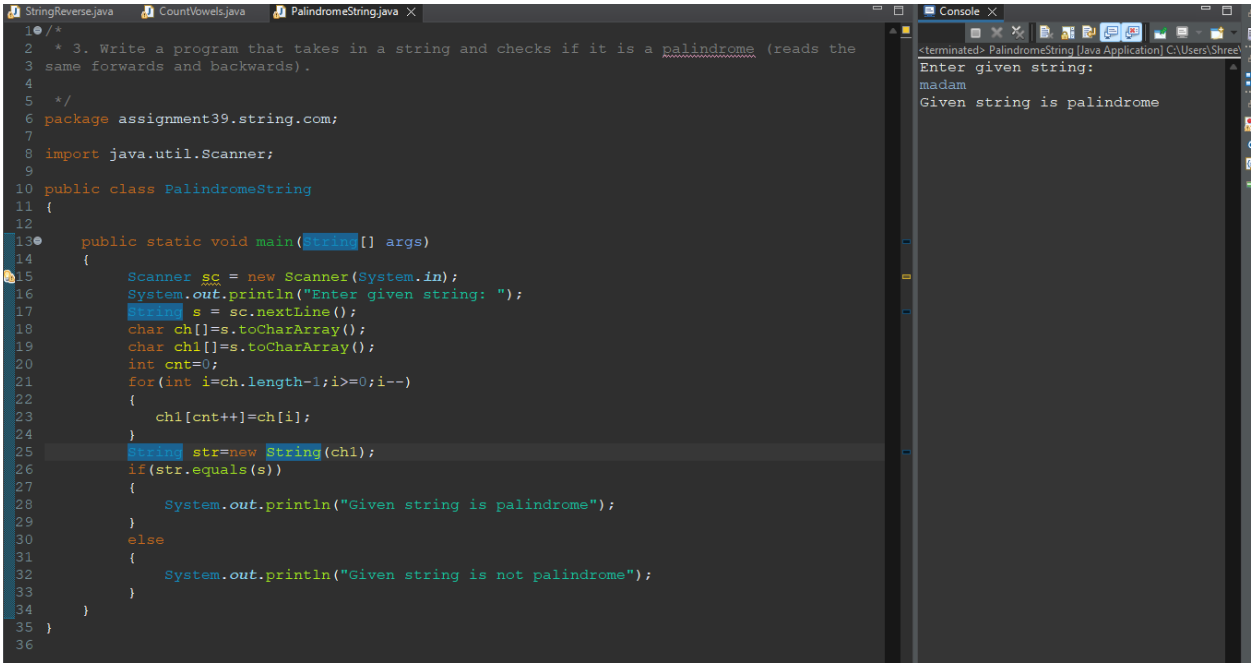
2. Write a program that takes in a string and counts the number of vowels in it.



```java
/*
 * 2. Write a program that takes in a string and counts the number of vowels in it.
 */
package assignment39.string.com;

import java.util.Scanner;

public class CountVowels
{

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String s = sc.nextLine();
        char ch[]=s.toCharArray();
        int cnt=0;
        for(int i=0;i<ch.length;i++)
        {
            if(ch[i]=='a' || ch[i]=='e' || ch[i]=='i' || ch[i]=='o' || ch[i]=='u')
            {
                cnt++;
            }
        }
        System.out.println("Given number of vowel is: "+cnt);

    }

}
```

```
Enter given string:
java is simple
Given number of vowel is: 5
```

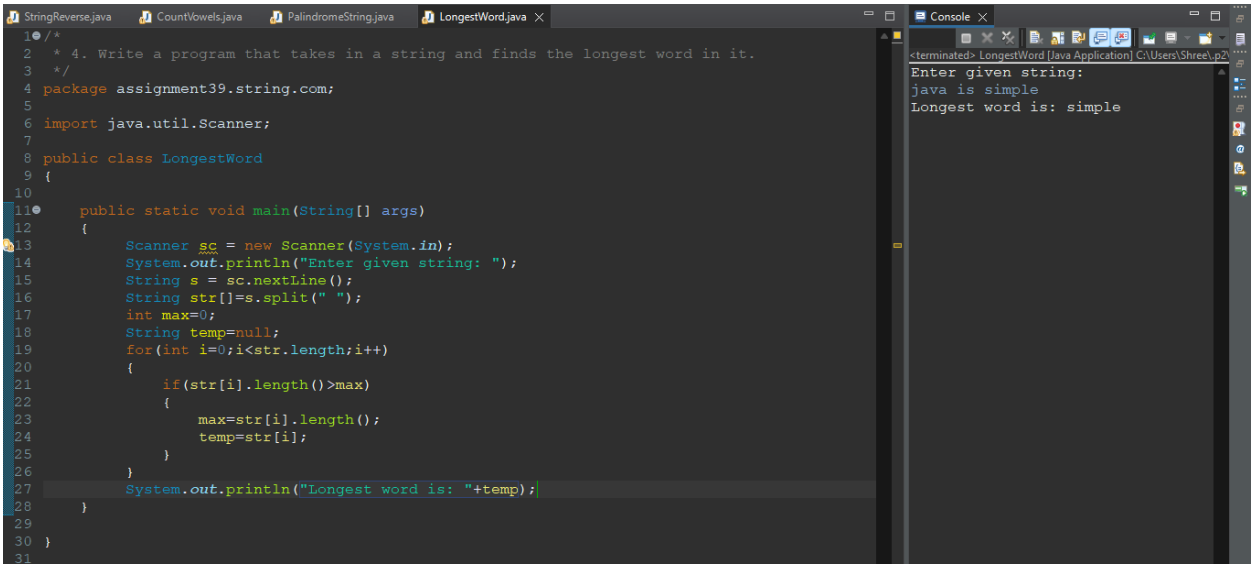
3. Write a program that takes in a string and checks if it is a palindrome (reads the same forwards and backwards).



```java
/*
 * 3. Write a program that takes in a string and checks if it is a palindrome (reads the
same forwards and backwards).

 */
package assignment39.string.com;

import java.util.Scanner;

public class PalindromeString
{

    public static void main(String[] args)
    {
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
         char ch[]=s.toCharArray();
         char ch1[]=s.toCharArray();
         int cnt=0;
         for(int i=ch.length-1;i>=0;i--)
         {
            ch1[cnt++]=ch[i];
         }
         String str=new String(ch1);
         if(str.equals(s))
         {
             System.out.println("Given string is palindrome");
         }
         else
         {
             System.out.println("Given string is not palindrome");
         }
    }
}
```

```
<terminated> PalindromeString [Java Application] C:\Users\Shree\
Enter given string:
madam
Given string is palindrome
```

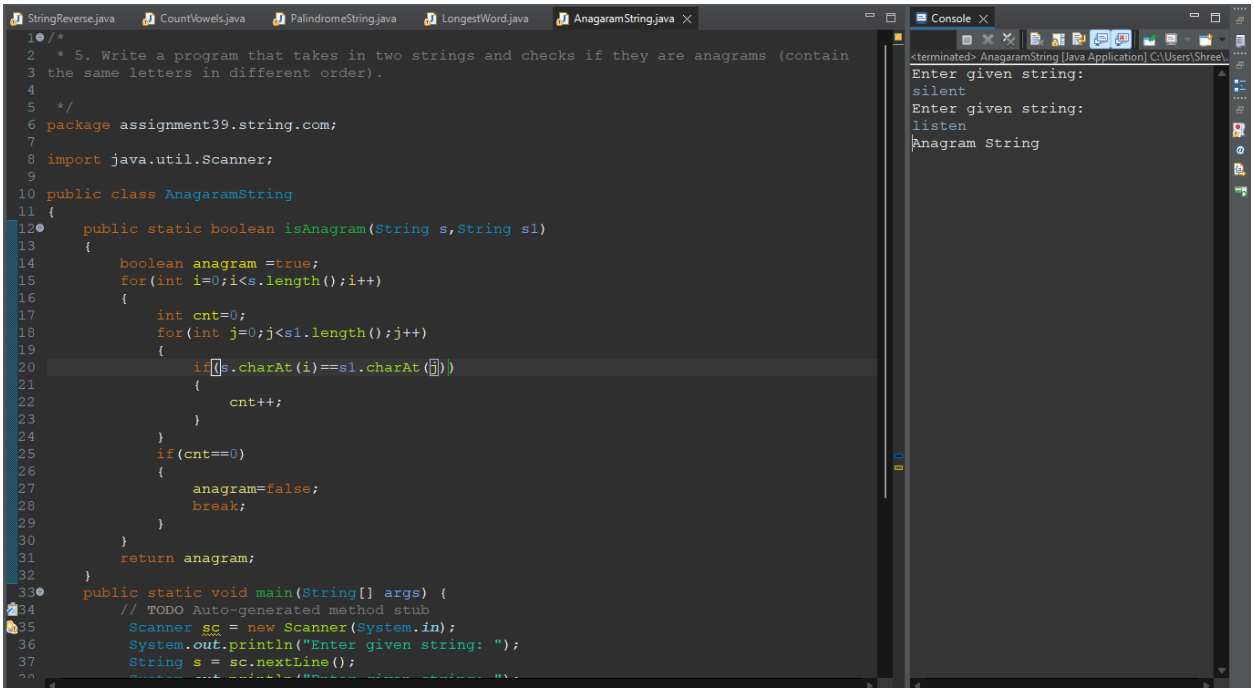
4. Write a program that takes in a string and finds the longest word in it.



```java
/*
 * 4. Write a program that takes in a string and finds the longest word in it.
 */
package assignment39.string.com;

import java.util.Scanner;

public class LongestWord
{

    public static void main(String[] args)
    {
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
         String str[]=s.split(" ");
         int max=0;
         String temp=null;
         for(int i=0;i<str.length;i++)
         {
             if(str[i].length()>max)
             {
                 max=str[i].length();
                 temp=str[i];
             }
         }
         System.out.println("Longest word is: "+temp);
    }

}
```

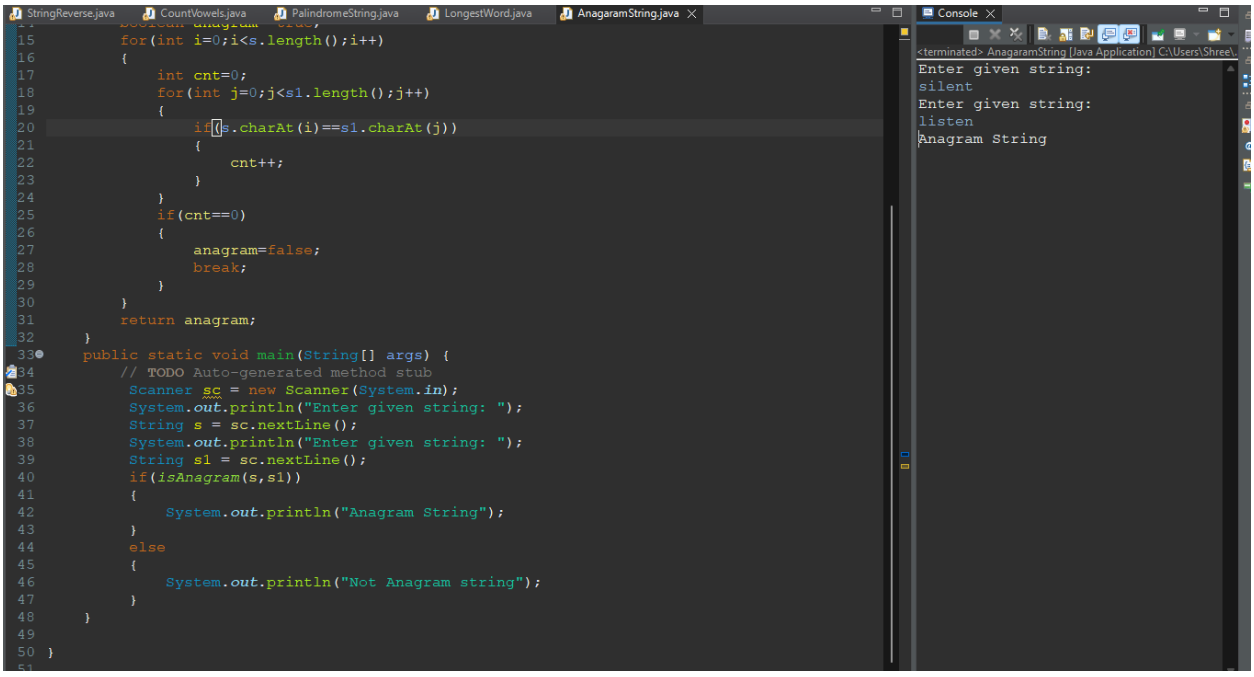
```
<terminated> LongestWord [Java Application] C:\Users\Shree\.p2\
Enter given string:
java is simple
Longest word is: simple
```

5. Write a program that takes in two strings and checks if they are anagrams (contain the same letters in different order).



```
/*
 * 5. Write a program that takes in two strings and checks if they are anagrams (contain
the same letters in different order).

 */
package assignment39.string.com;

import java.util.Scanner;

public class AnagaramString
{
    public static boolean isAnagram(String s,String s1)
    {
        boolean anagram =true;
        for(int i=0;i<s.length();i++)
        {
            int cnt=0;
            for(int j=0;j<s1.length();j++)
            {
                if(s.charAt(i)==s1.charAt(j))
                {
                    cnt++;
                }
            }
            if(cnt==0)
            {
                anagram=false;
                break;
            }
        }
        return anagram;
    }
    public static void main(String[] args) {
        // TODO Auto-generated method stub
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
```

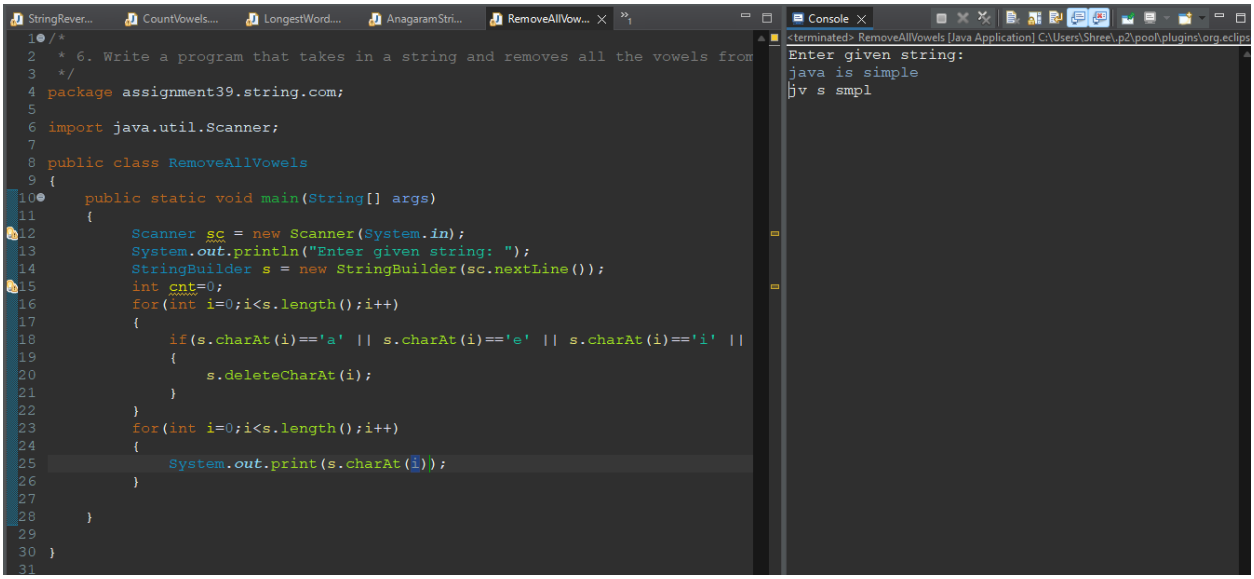
```
Console
<terminated> AnagaramString [Java Application] C:\Users\Shree\
Enter given string:
silent
Enter given string:
listen
Anagram String
```



```
        for(int i=0;i<s.length();i++)
        {
            int cnt=0;
            for(int j=0;j<s1.length();j++)
            {
                if(s.charAt(i)==s1.charAt(j))
                {
                    cnt++;
                }
            }
            if(cnt==0)
            {
                anagram=false;
                break;
            }
        }
        return anagram;
    }
    public static void main(String[] args) {
        // TODO Auto-generated method stub
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
         System.out.println("Enter given string: ");
         String s1 = sc.nextLine();
         if(isAnagram(s,s1))
         {
             System.out.println("Anagram String");
         }
         else
         {
             System.out.println("Not Anagram string");
         }
    }

}
```

```
Console
<terminated> AnagaramString [Java Application] C:\Users\Shree\
Enter given string:
silent
Enter given string:
listen
Anagram String
```

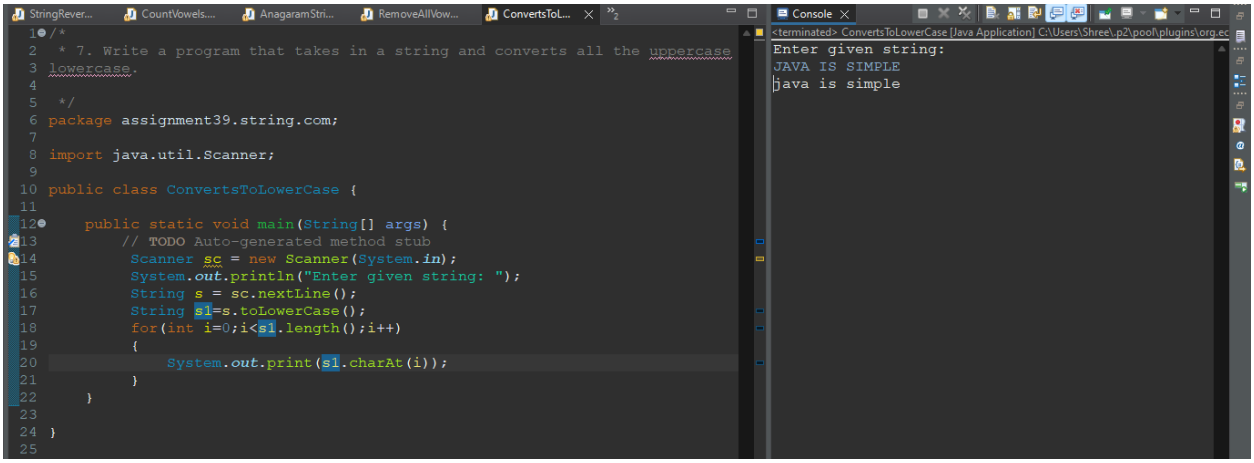
6. Write a program that takes in a string and removes all the vowels from it.



```
/*
 * 6. Write a program that takes in a string and removes all the vowels from
 */
package assignment39.string.com;

import java.util.Scanner;

public class RemoveAllVowels
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        StringBuilder s = new StringBuilder(sc.nextLine());
        int cnt=0;
        for(int i=0;i<s.length();i++)
        {
            if(s.charAt(i)=='a' || s.charAt(i)=='e' || s.charAt(i)=='i' ||
            {
                s.deleteCharAt(i);
            }
        }
        for(int i=0;i<s.length();i++)
        {
            System.out.print(s.charAt(i));
        }

    }

}
```

```
Enter given string:
java is simple
jv s smpl
```

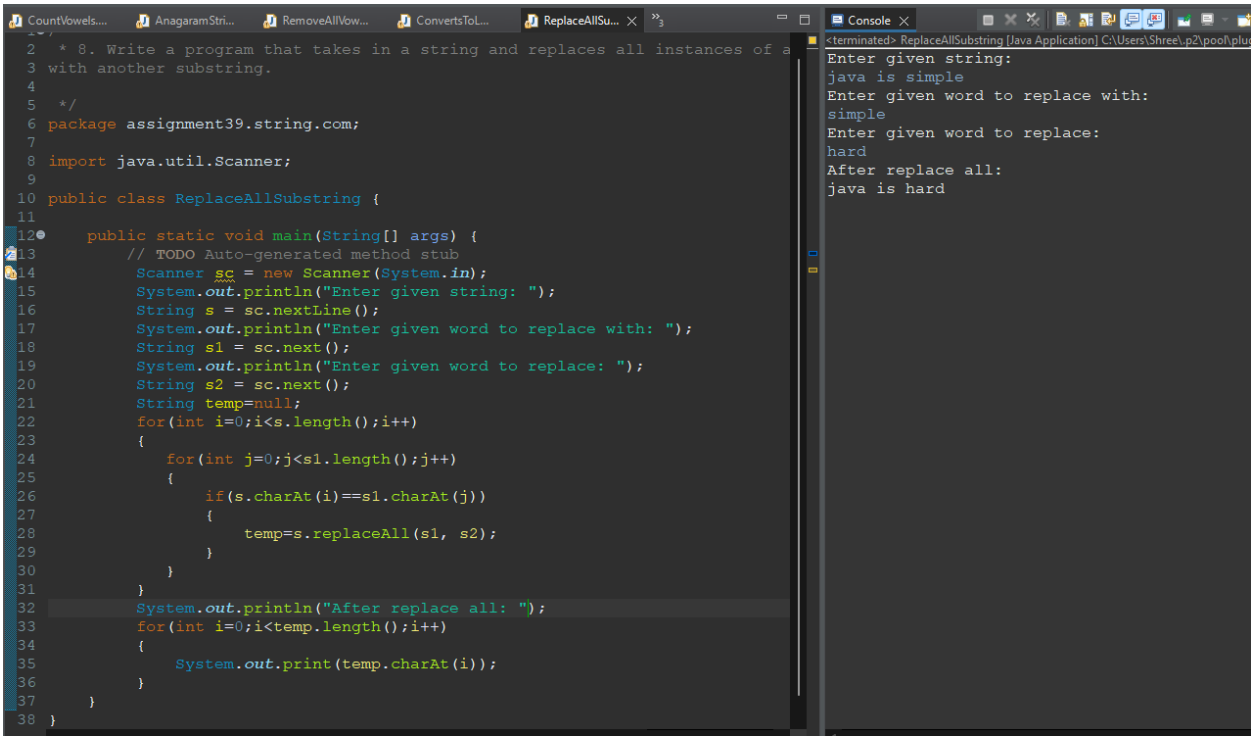
7. Write a program that takes in a string and converts all the uppercase letters to lowercase.



```
/*
 * 7. Write a program that takes in a string and converts all the uppercase
lowercase.

 */
package assignment39.string.com;

import java.util.Scanner;

public class ConvertsToLowerCase {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String s = sc.nextLine();
        String s1=s.toLowerCase();
        for(int i=0;i<s1.length();i++)
        {
            System.out.print(s1.charAt(i));
        }
    }

}
```

```
Enter given string:
JAVA IS SIMPLE
java is simple
```

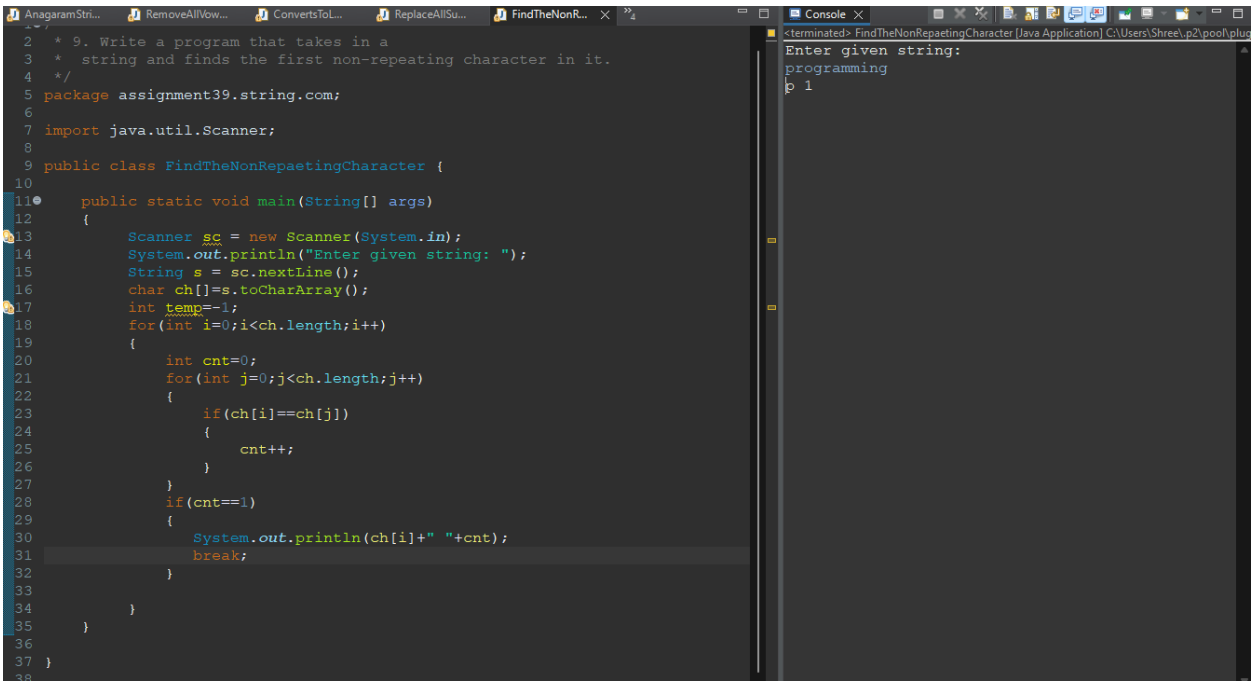
8. Write a program that takes in a string and replaces all instances of a given substring with another substring.



```java
/*
 * 8. Write a program that takes in a string and replaces all instances of a
with another substring.

 */
package assignment39.string.com;

import java.util.Scanner;

public class ReplaceAllSubstring {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
         System.out.println("Enter given word to replace with: ");
         String s1 = sc.next();
         System.out.println("Enter given word to replace: ");
         String s2 = sc.next();
         String temp=null;
         for(int i=0;i<s.length();i++)
         {
            for(int j=0;j<s1.length();j++)
            {
                if(s.charAt(i)==s1.charAt(j))
                {
                    temp=s.replaceAll(s1, s2);
                }
            }
         }
         System.out.println("After replace all: ");
         for(int i=0;i<temp.length();i++)
         {
             System.out.print(temp.charAt(i));
         }
    }
}
```

```
<terminated> ReplaceAllSubstring [Java Application] C:\Users\Shree\.p2\pool\plu
Enter given string:
java is simple
Enter given word to replace with:
simple
Enter given word to replace:
hard
After replace all:
java is hard
```

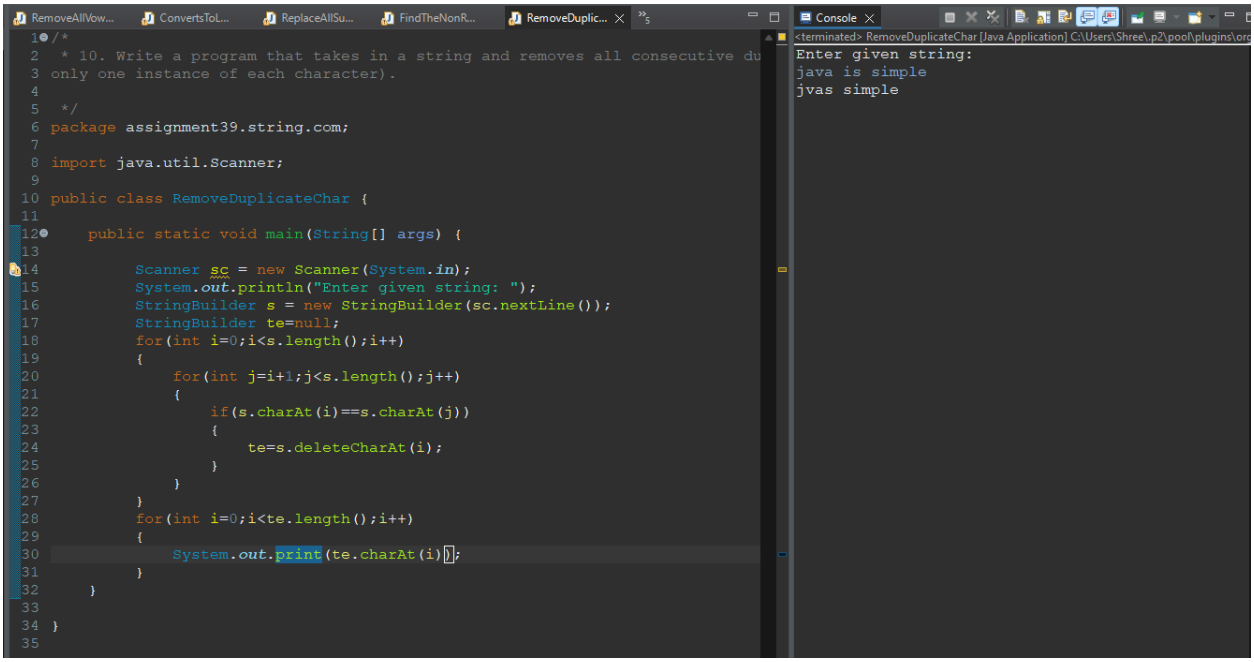
9. Write a program that takes in a string and finds the first non-repeating character in it.



```java
/*
 * 9. Write a program that takes in a
 *  string and finds the first non-repeating character in it.
 */
package assignment39.string.com;

import java.util.Scanner;

public class FindTheNonRepaetingCharacter {

    public static void main(String[] args)
    {
         Scanner sc = new Scanner(System.in);
         System.out.println("Enter given string: ");
         String s = sc.nextLine();
         char ch[]=s.toCharArray();
         int temp=-1;
         for(int i=0;i<ch.length;i++)
         {
             int cnt=0;
             for(int j=0;j<ch.length;j++)
             {
                 if(ch[i]==ch[j])
                 {
                     cnt++;
                 }
             }
             if(cnt==1)
             {
                System.out.println(ch[i]+" "+cnt);
                break;
             }

         }
    }

}
```

```
<terminated> FindTheNonRepaetingCharacter [Java Application] C:\Users\Shree\.p2\pool\plug
Enter given string:
programming
p 1
```

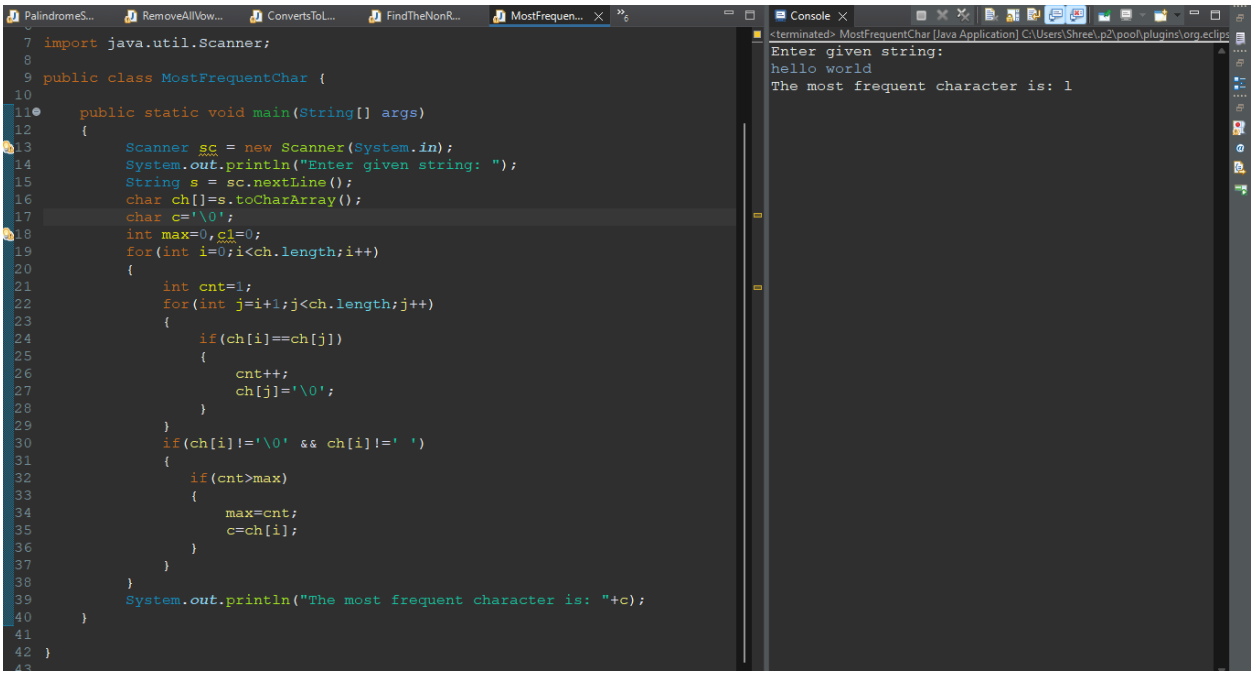
10. Write a program that takes in a string and removes all consecutive duplicates (leaves only one instance of each character).



```
/*
 * 10. Write a program that takes in a string and removes all consecutive du
only one instance of each character).

 */
package assignment39.string.com;

import java.util.Scanner;

public class RemoveDuplicateChar {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        StringBuilder s = new StringBuilder(sc.nextLine());
        StringBuilder te=null;
        for(int i=0;i<s.length();i++)
        {
            for(int j=i+1;j<s.length();j++)
            {
                if(s.charAt(i)==s.charAt(j))
                {
                    te=s.deleteCharAt(i);
                }
            }
        }
        for(int i=0;i<te.length();i++)
        {
            System.out.print(te.charAt(i));
        }
    }

}
```

```
Enter given string:
java is simple
jvas simple
```

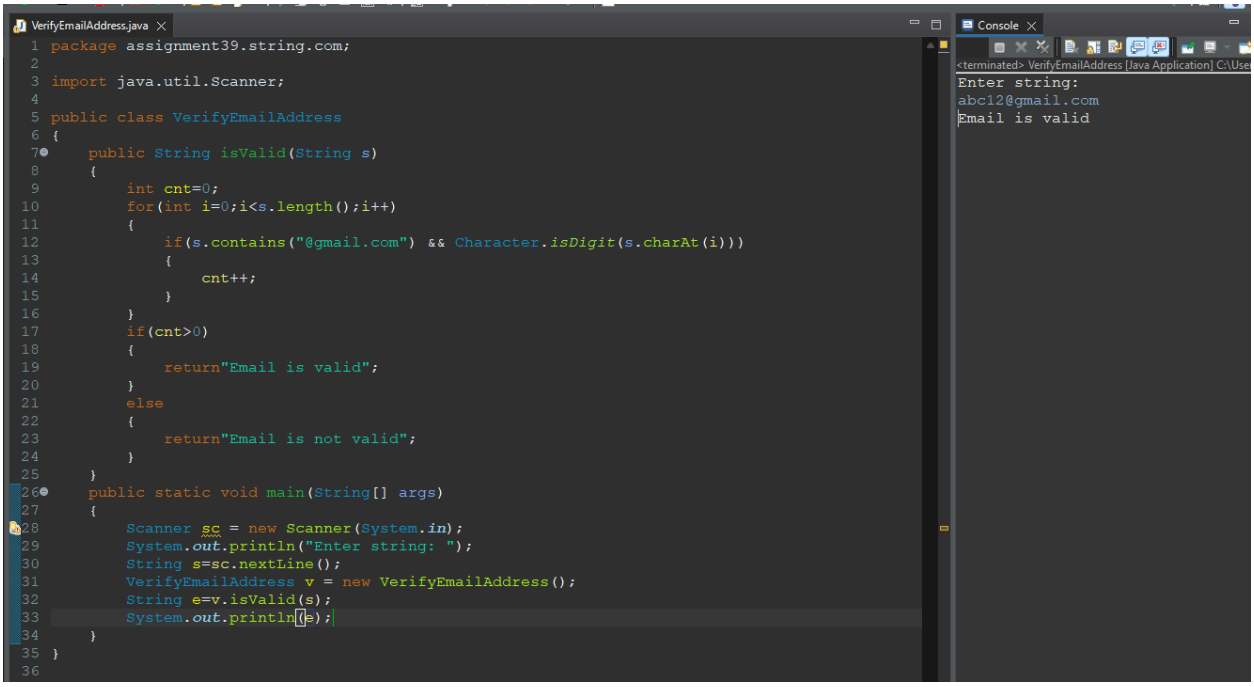
11. Write a program that takes in a string and finds the most frequent character in it.



```
import java.util.Scanner;

public class MostFrequentChar {

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String s = sc.nextLine();
        char ch[]=s.toCharArray();
        char c='\0';
        int max=0,c1=0;
        for(int i=0;i<ch.length;i++)
        {
            int cnt=1;
            for(int j=i+1;j<ch.length;j++)
            {
                if(ch[i]==ch[j])
                {
                    cnt++;
                    ch[j]='\0';
                }
            }
            if(ch[i]!='\0' && ch[i]!=' ')
            {
               if(cnt>max)
               {
                   max=cnt;
                   c=ch[i];
               }
            }
        }
        System.out.println("The most frequent character is: "+c);
    }

}
```

```
Enter given string:
hello world
The most frequent character is: l
```

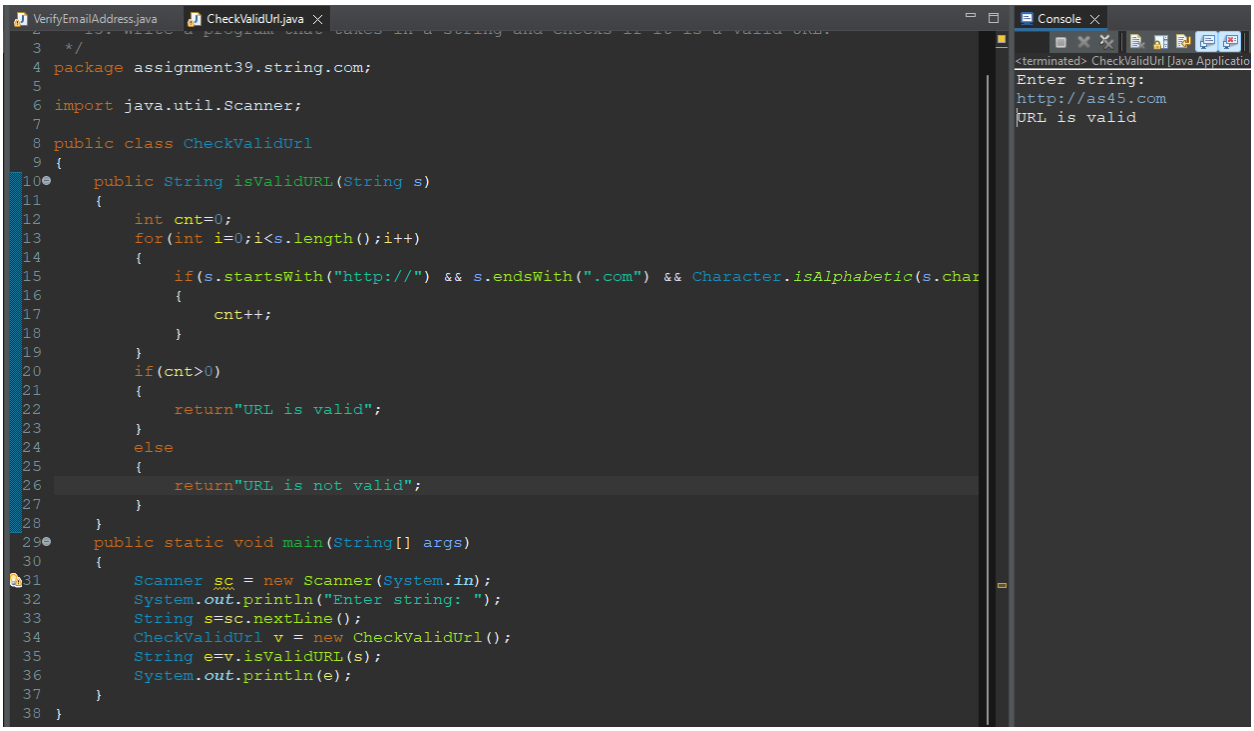
12. Write a program that takes in a string and checks if it is a valid email address.



```java
package assignment39.string.com;

import java.util.Scanner;

public class VerifyEmailAddress
{
    public String isValid(String s)
    {
        int cnt=0;
        for(int i=0;i<s.length();i++)
        {
            if(s.contains("@gmail.com") && Character.isDigit(s.charAt(i)))
            {
                cnt++;
            }
        }
        if(cnt>0)
        {
            return"Email is valid";
        }
        else
        {
            return"Email is not valid";
        }
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter string: ");
        String s=sc.nextLine();
        VerifyEmailAddress v = new VerifyEmailAddress();
        String e=v.isValid(s);
        System.out.println(e);
    }
}
```

```
Enter string:
abc12@gmail.com
Email is valid
```

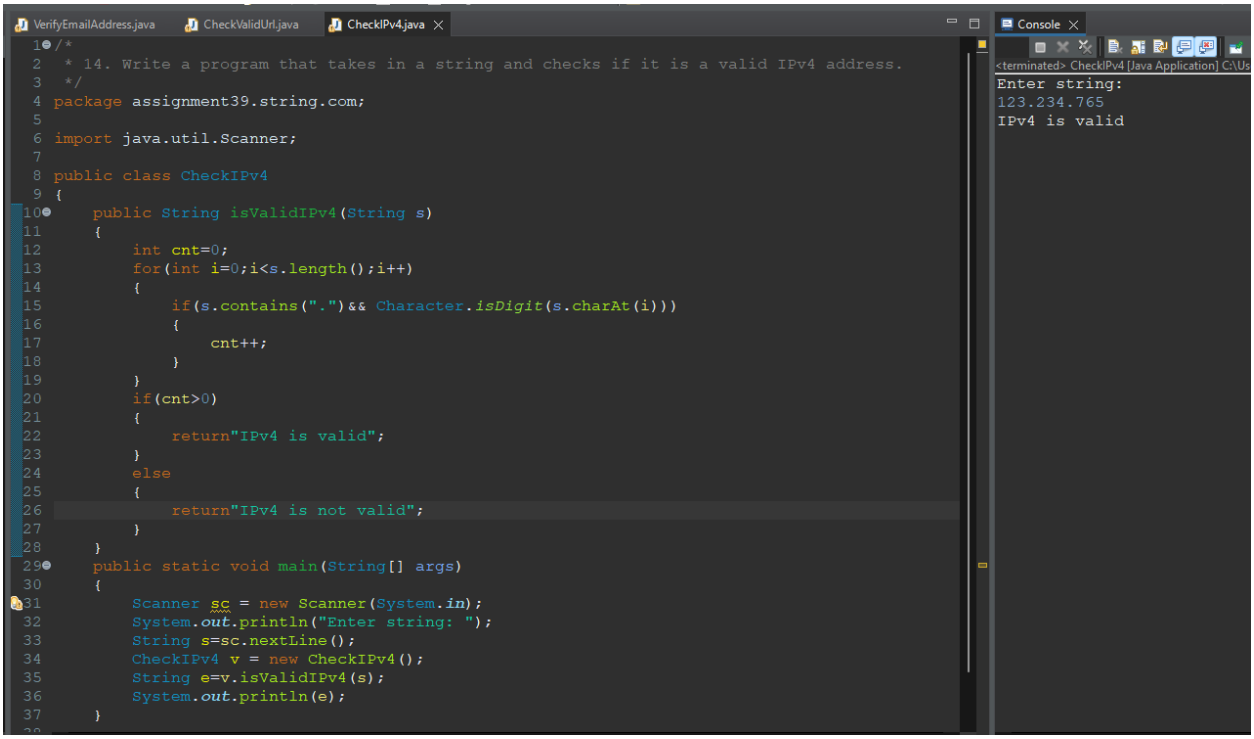
13. Write a program that takes in a string and checks if it is a valid URL.



```java
/*
package assignment39.string.com;

import java.util.Scanner;

public class CheckValidUrl
{
    public String isValidURL(String s)
    {
        int cnt=0;
        for(int i=0;i<s.length();i++)
        {
            if(s.startsWith("http://") && s.endsWith(".com") && Character.isAlphabetic(s.char
            {
                cnt++;
            }
        }
        if(cnt>0)
        {
            return"URL is valid";
        }
        else
        {
            return"URL is not valid";
        }
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter string: ");
        String s=sc.nextLine();
        CheckValidUrl v = new CheckValidUrl();
        String e=v.isValidURL(s);
        System.out.println(e);
    }
}
```

```
Enter string:
http://as45.com
URL is valid
```

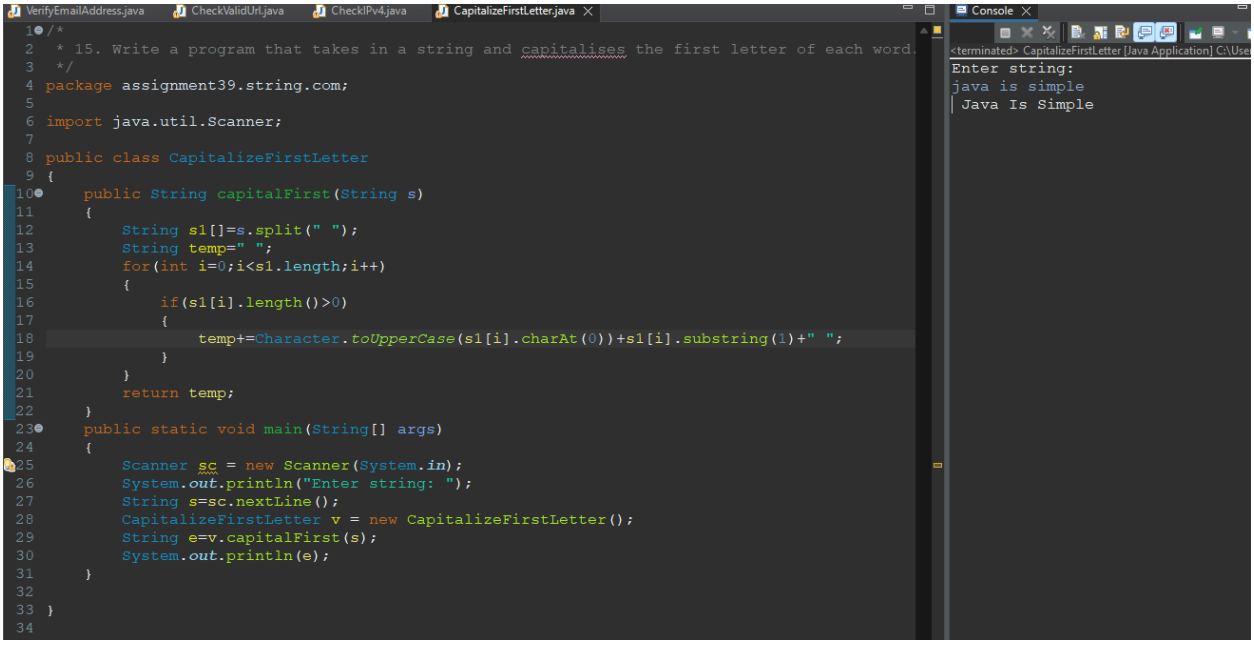
14. Write a program that takes in a string and checks if it is a valid IPv4 address.



```java
/*
 * 14. Write a program that takes in a string and checks if it is a valid IPv4 address.
 */
package assignment39.string.com;

import java.util.Scanner;

public class CheckIPv4
{
    public String isValidIPv4(String s)
    {
        int cnt=0;
        for(int i=0;i<s.length();i++)
        {
            if(s.contains(".")&& Character.isDigit(s.charAt(i)))
            {
                cnt++;
            }
        }
        if(cnt>0)
        {
            return"IPv4 is valid";
        }
        else
        {
            return"IPv4 is not valid";
        }
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter string: ");
        String s=sc.nextLine();
        CheckIPv4 v = new CheckIPv4();
        String e=v.isValidIPv4(s);
        System.out.println(e);
    }
```

```
Enter string:
123.234.765
IPv4 is valid
```

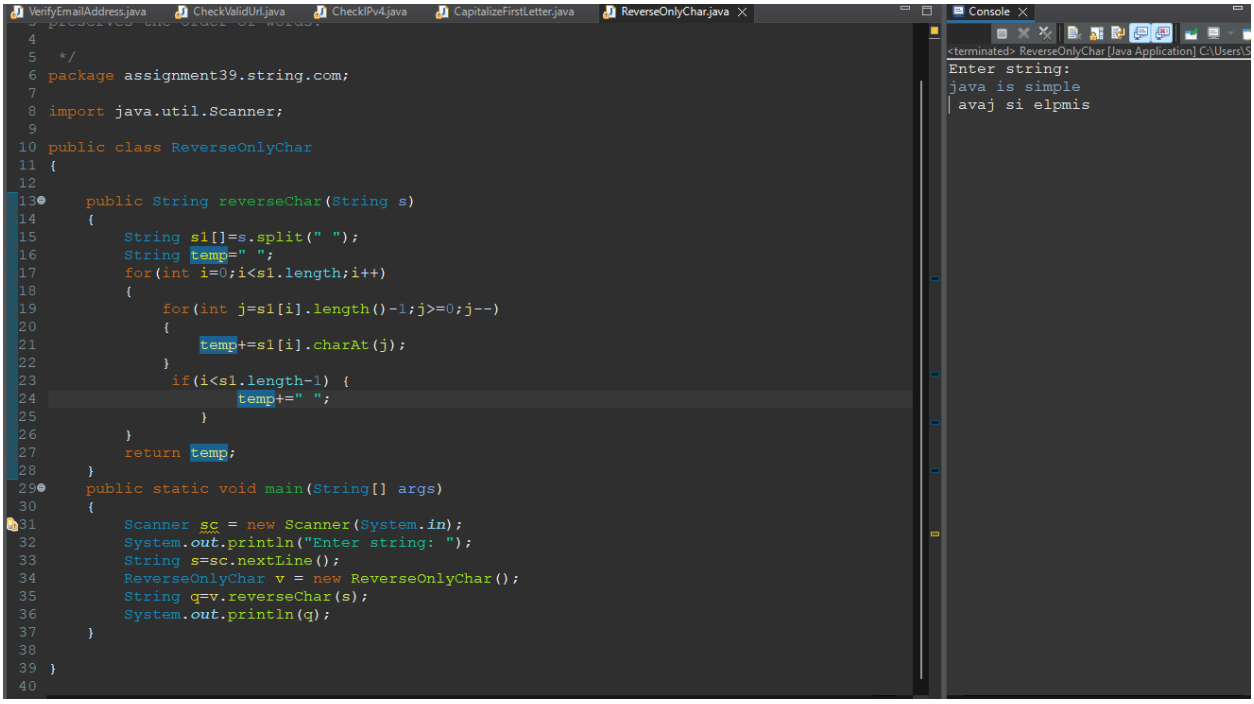
15. Write a program that takes in a string and capitalises the first letter of each word.



```java
/*
 * 15. Write a program that takes in a string and capitalises the first letter of each word.
 */
package assignment39.string.com;

import java.util.Scanner;

public class CapitalizeFirstLetter
{
    public String capitalFirst(String s)
    {
        String s1[]=s.split(" ");
        String temp=" ";
        for(int i=0;i<s1.length;i++)
        {
            if(s1[i].length()>0)
            {
                temp+=Character.toUpperCase(s1[i].charAt(0))+s1[i].substring(1)+" ";
            }
        }
        return temp;
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter string: ");
        String s=sc.nextLine();
        CapitalizeFirstLetter v = new CapitalizeFirstLetter();
        String e=v.capitalFirst(s);
        System.out.println(e);
    }

}
```

```
Enter string:
java is simple
 Java Is Simple
```

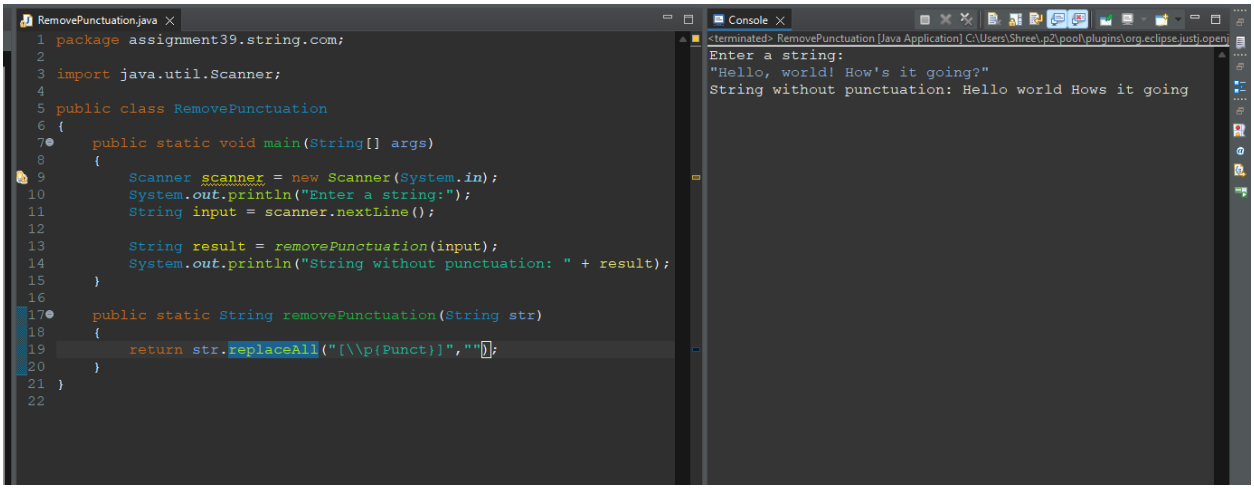
16. Write a program that takes in a string and returns the characters in reverse order, but preserves the order of words.



```
VerifyEmailAddress.java  CheckValidUrl.java  CheckIPv4.java  CapitalizeFirstLetter.java  ReverseOnlyChar.java

 4
 5  */
 6 package assignment39.string.com;
 7
 8 import java.util.Scanner;
 9
10 public class ReverseOnlyChar
11 {
12
13     public String reverseChar(String s)
14     {
15         String s1[]=s.split(" ");
16         String temp=" ";
17         for(int i=0;i<s1.length;i++)
18         {
19             for(int j=s1[i].length()-1;j>=0;j--)
20             {
21                 temp+=s1[i].charAt(j);
22             }
23              if(i<s1.length-1) {
24                     temp+=" ";
25                  }
26         }
27         return temp;
28     }
29     public static void main(String[] args)
30     {
31         Scanner sc = new Scanner(System.in);
32         System.out.println("Enter string: ");
33         String s=sc.nextLine();
34         ReverseOnlyChar v = new ReverseOnlyChar();
35         String q=v.reverseChar(s);
36         System.out.println(q);
37     }
38
39 }
40
```

```
Console
<terminated> ReverseOnlyChar [Java Application] C:\Users\S
Enter string:
java is simple
avaj si elpmis
```

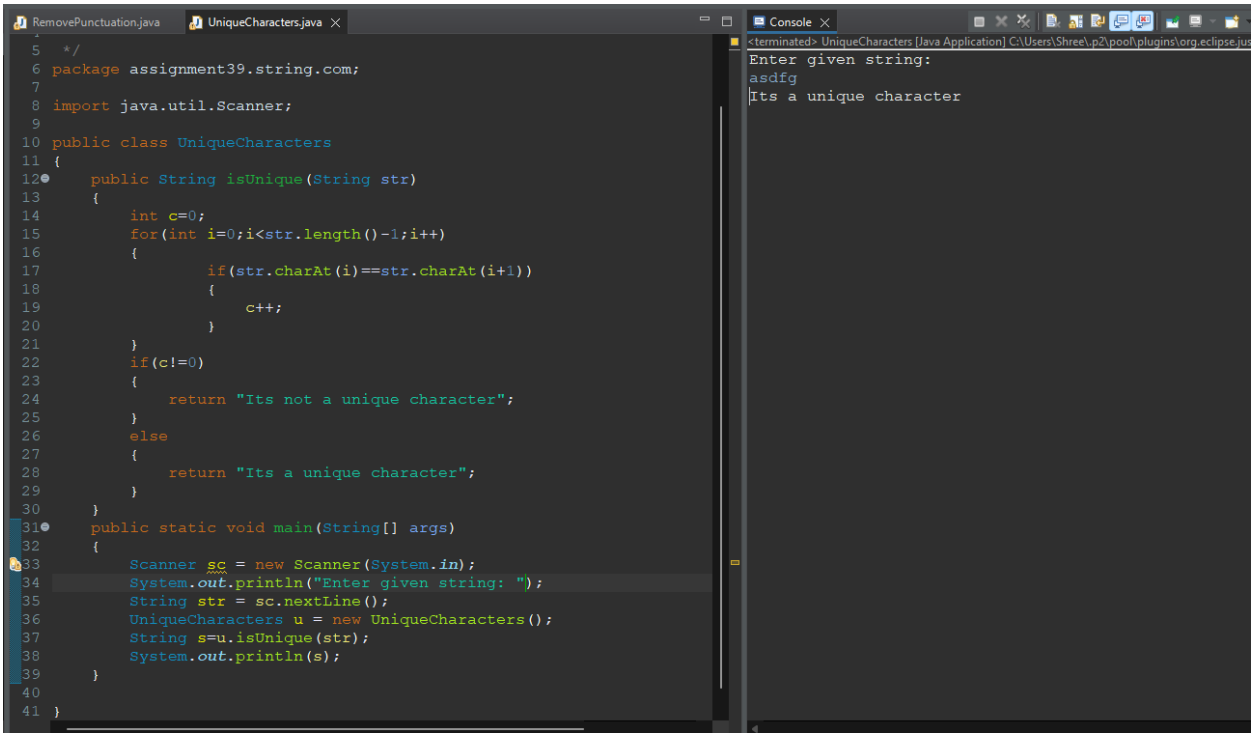
17. Write a program that takes in a string and removes all punctuation marks from it.



```
RemovePunctuation.java

 1 package assignment39.string.com;
 2
 3 import java.util.Scanner;
 4
 5 public class RemovePunctuation
 6 {
 7     public static void main(String[] args)
 8     {
 9         Scanner scanner = new Scanner(System.in);
10         System.out.println("Enter a string:");
11         String input = scanner.nextLine();
12
13         String result = removePunctuation(input);
14         System.out.println("String without punctuation: " + result);
15     }
16
17     public static String removePunctuation(String str)
18     {
19         return str.replaceAll("[\\p{Punct}]","");
20     }
21 }
22
```

```
Console
<terminated> RemovePunctuation [Java Application] C:\Users\Shree\.p2\pool\plugins\org.eclipse.justj.openj
Enter a string:
"Hello, world! How's it going?"
String without punctuation: Hello world Hows it going
```

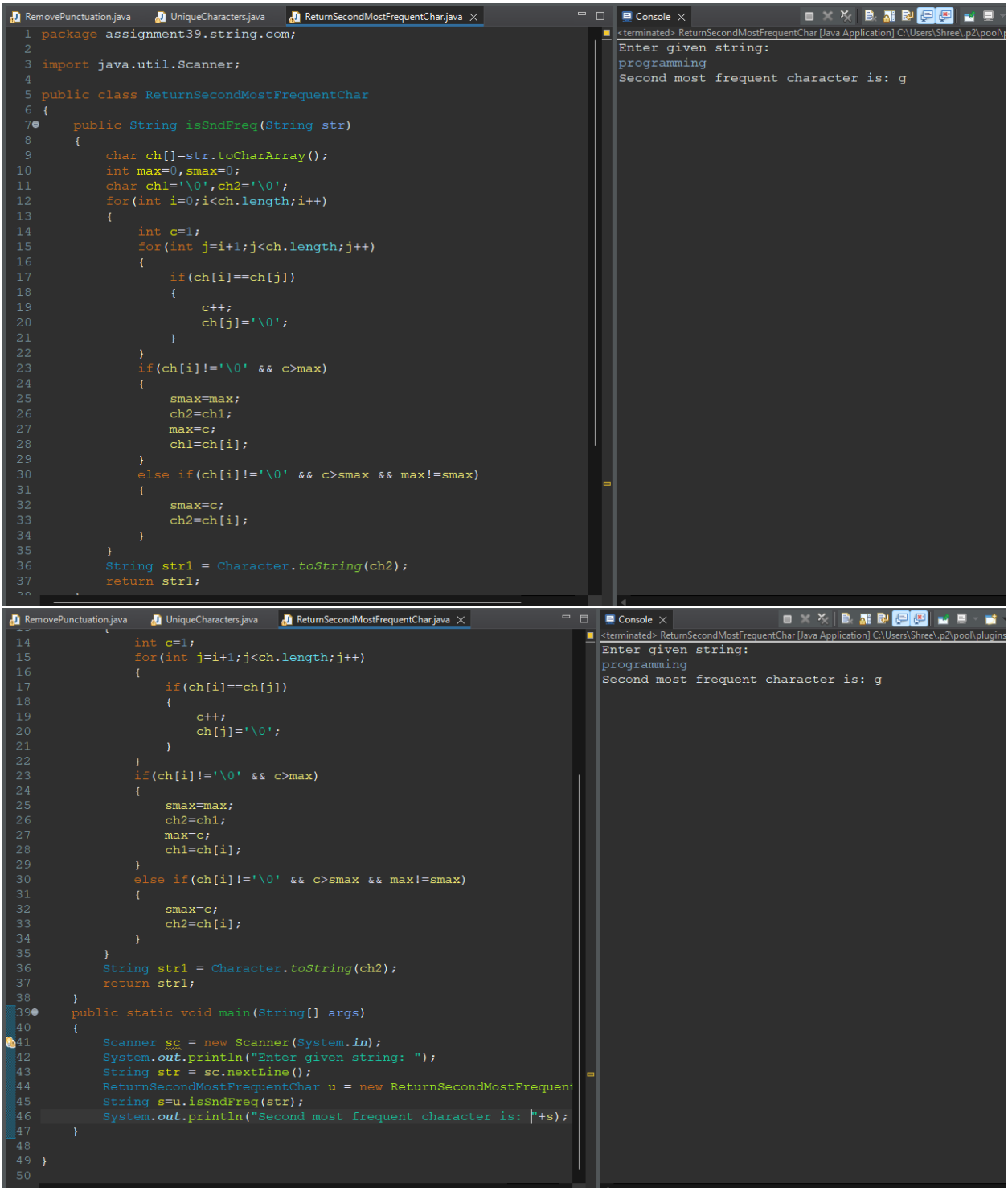
18. Write a program that takes in a string and checks if it contains only unique characters.



```
 */
package assignment39.string.com;

import java.util.Scanner;

public class UniqueCharacters
{
    public String isUnique(String str)
    {
        int c=0;
        for(int i=0;i<str.length()-1;i++)
        {
                if(str.charAt(i)==str.charAt(i+1))
                {
                    c++;
                }
        }
        if(c!=0)
        {
            return "Its not a unique character";
        }
        else
        {
            return "Its a unique character";
        }
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String str = sc.nextLine();
        UniqueCharacters u = new UniqueCharacters();
        String s=u.isUnique(str);
        System.out.println(s);
    }

}
```

```
Enter given string:
asdfg
Its a unique character
```

19. Write a program that takes in a string and returns the second most frequent character in it.



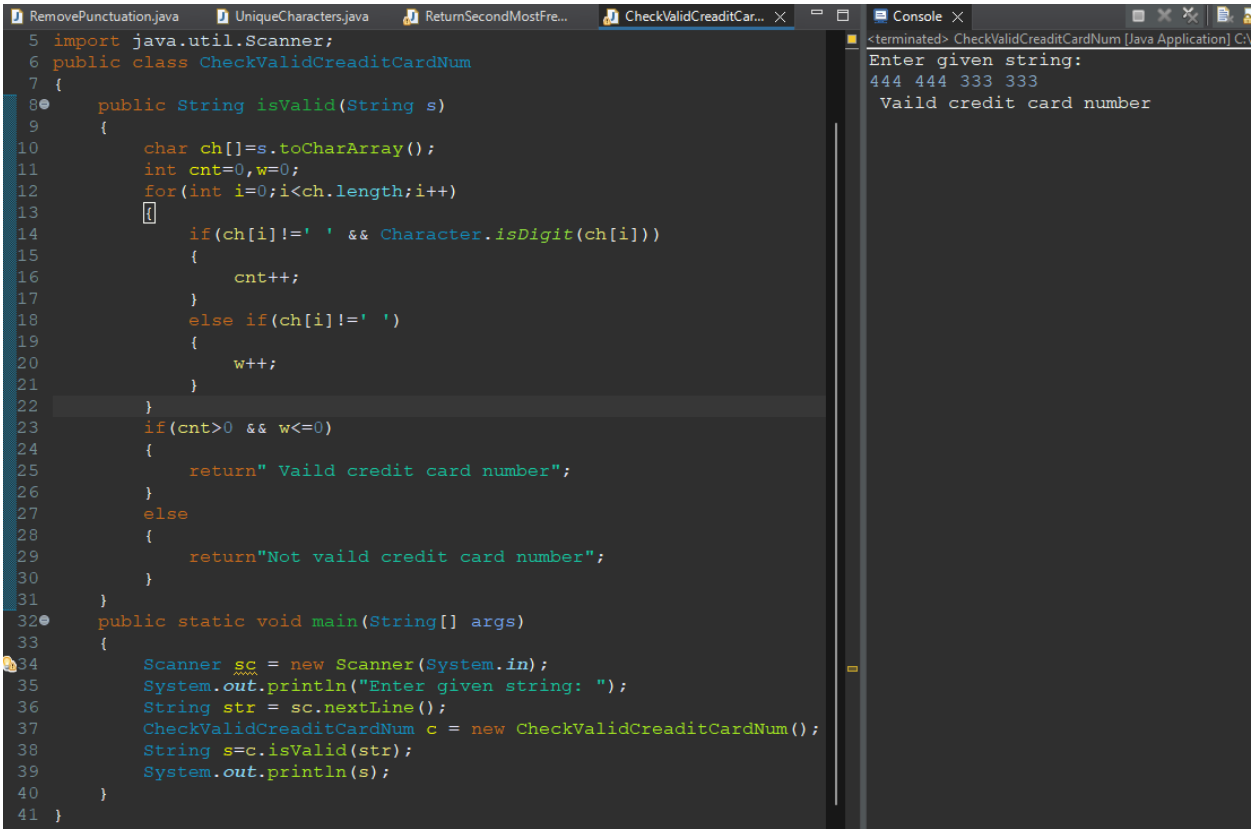
```
RemovePunctuation.java  UniqueCharacters.java  ReturnSecondMostFrequentChar.java

1  package assignment39.string.com;
2
3  import java.util.Scanner;
4
5  public class ReturnSecondMostFrequentChar
6  {
7      public String isSndFreq(String str)
8      {
9          char ch[]=str.toCharArray();
10         int max=0,smax=0;
11         char ch1='\0',ch2='\0';
12         for(int i=0;i<ch.length;i++)
13         {
14             int c=1;
15             for(int j=i+1;j<ch.length;j++)
16             {
17                 if(ch[i]==ch[j])
18                 {
19                     c++;
20                     ch[j]='\0';
21                 }
22             }
23             if(ch[i]!='\0' && c>max)
24             {
25                 smax=max;
26                 ch2=ch1;
27                 max=c;
28                 ch1=ch[i];
29             }
30             else if(ch[i]!='\0' && c>smax && max!=smax)
31             {
32                 smax=c;
33                 ch2=ch[i];
34             }
35         }
36         String str1 = Character.toString(ch2);
37         return str1;
```

```
Console
<terminated> ReturnSecondMostFrequentChar [Java Application] C:\Users\Shree\.p2\pool\
Enter given string:
programming
Second most frequent character is: g
```

```
RemovePunctuation.java  UniqueCharacters.java  ReturnSecondMostFrequentChar.java

14             int c=1;
15             for(int j=i+1;j<ch.length;j++)
16             {
17                 if(ch[i]==ch[j])
18                 {
19                     c++;
20                     ch[j]='\0';
21                 }
22             }
23             if(ch[i]!='\0' && c>max)
24             {
25                 smax=max;
26                 ch2=ch1;
27                 max=c;
28                 ch1=ch[i];
29             }
30             else if(ch[i]!='\0' && c>smax && max!=smax)
31             {
32                 smax=c;
33                 ch2=ch[i];
34             }
35         }
36         String str1 = Character.toString(ch2);
37         return str1;
38     }
39     public static void main(String[] args)
40     {
41         Scanner sc = new Scanner(System.in);
42         System.out.println("Enter given string: ");
43         String str = sc.nextLine();
44         ReturnSecondMostFrequentChar u = new ReturnSecondMostFrequent
45         String s=u.isSndFreq(str);
46         System.out.println("Second most frequent character is: "+s);
47     }
48
49 }
50
```

```
Console
<terminated> ReturnSecondMostFrequentChar [Java Application] C:\Users\Shree\.p2\pool\plugins
Enter given string:
programming
Second most frequent character is: g
```

20. Write a program that takes in a string and checks if it is a valid credit card number




```java
import java.util.Scanner;
public class CheckValidCreaditCardNum
{
    public String isValid(String s)
    {
        char ch[]=s.toCharArray();
        int cnt=0,w=0;
        for(int i=0;i<ch.length;i++)
        {
            if(ch[i]!=' ' && Character.isDigit(ch[i]))
            {
                cnt++;
            }
            else if(ch[i]!=' ')
            {
                w++;
            }
        }
        if(cnt>0 && w<=0)
        {
            return" Vaild credit card number";
        }
        else
        {
            return"Not vaild credit card number";
        }
    }
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter given string: ");
        String str = sc.nextLine();
        CheckValidCreaditCardNum c = new CheckValidCreaditCardNum();
        String s=c.isValid(str);
        System.out.println(s);
    }
}
```