Java Lab

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Q1)

```java
import java.util.*;

class q1
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the string :");
        String word = sc.next();
        int i=0,p=7;
        int num = 0,d=0;
        String s="";
        try
        {
            if(word.length()%8 !=0)
            {
                throw new Exception("Entered String should hava a length in terms of multiples of 8.");
            }
            while(i<word.length())
            {
                if(word.charAt(i)=='I')
                {
                    d = 1;
                }
                else if(word.charAt(i) == 'O')
                {
                    d=0;
                }
                num += Math.pow(2,p)*d;
                p--;
                if(p==-1)
                {
                    p=7;
                    if(num<32 || num>126)
                    {
                        throw new Exception("Number should be between 32 and 126");
                    }
                    s += (char)(num);
                    num=0;
                }
                i++;
            }
            if(s.charAt(0)==' ' || s.charAt(s.length()-1)==' ')
            {
                throw new Exception("The text should not start or end with a space.");
            }
```

```java
            System.out.println(s);
        }
        catch(Exception e)
        {
            System.out.println(e.getMessage());
        }
        finally
        {
            sc.close();
        }
    }
}
```

```
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q1.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q1
Enter the string :
IOOOIOOOIIIIIOOOIIIIIIOO
Number should be between 32 and 126
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q1
Enter the string :
OOOOOIIIOOOOIIII
Number should be between 32 and 126
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q1
Enter the string :
OIOOIIIIOIOOIOII
OK
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ []
```

Q2)

```java
import java.io.File;
import java.io.FileNotFoundException;
import java.util.*;

class q2
{
    public static void main(String[] args)
    {
        try
        {
            Scanner sc1 = new Scanner(System.in);
            System.out.println("Enter the file name to be read :");
            String w = sc1.next();
            w += ".txt";
            sc1.close();
            Scanner sc = new Scanner(new File(w));
            int arr[] = new int[10000];
            int i=0;
            while(sc.hasNextInt())
            {
                arr[i++] = sc.nextInt();
            }
            System.out.println("The numbers have been added into the vector.");
            for(int j=0;j<i;j++)
            {
                System.out.print(arr[j] + " ");
            }
            sc.close();
        }
        catch(FileNotFoundException e)
        {
            System.out.println("The specfied file cannot be found.");
        }
    }
}
```

```
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q2.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q2
Enter the file name to be read :
text
The numbers have been added into the vector.
22 223 333 55 85 567 456 456
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q2
Enter the file name to be read :
haha
The specfied file cannot be found.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$
```

Q3)

```java
import java.io.*;
import java.util.*;
class test
{
    private void hi(){}
}

class q3
{
    public static void main(String[] args)
    {
        try
        {
            Scanner sc1 = new Scanner(System.in);


            System.out.println("Enter the file name to be read :");
            String w = sc1.next();
            w += ".txt";
            Scanner sc = new Scanner(new File(w));
            System.out.println("The file has been read.");
            sc.close();

            System.out.println("--------------------------------------------------");

            int a = 22/0;
            sc1.close();

            System.out.println("--------------------------------------------------");

            int arr[] = {1, 3, 4, 5};
            System.out.println(arr[44]);

            System.out.println("--------------------------------------------------");

            String s = "abc";
            System.out.println(s.charAt(44));

            System.out.println("--------------------------------------------------");

            String ss=null;
            System.out.println(ss);

            System.out.println("--------------------------------------------------");

            int arr1[] = new int[-100];

            System.out.println("--------------------------------------------------");

        }
        catch(FileNotFoundException e1)
        {
            System.out.println("The specfied file cannot be found.");
        }
        catch(ArithmeticException e2)
        {
            System.out.println("Cannot divide by zero.");
```

```java
        }
        catch(ArrayIndexOutOfBoundsException e3)
        {
            System.out.println("The index of the array is larger than the length of the array.");
        }
        catch(StringIndexOutOfBoundsException e4)
        {
            System.out.println("The index of the String is larger than the length of the String.");
        }
        catch(NullPointerException e5)
        {
            System.out.println("NULL pointers cannot be used.");
        }
        catch(NegativeArraySizeException e6)
        {
            System.out.println("Array size cannot be negtive.");
        }

    }
}
```

```
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q3
Enter the file name to be read :
text
The file has been read.
----------------------------------------------------------------
Cannot divide by zero.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q3
Enter the file name to be read :
eee
The specfied file cannot be found.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q3
Enter the file name to be read :
text
The file has been read.
----------------------------------------------------------------
----------------------------------------------------------------
The index of the array is larger than the length of the array.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q3
The index of the String is larger than the length of the String.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ java q3
null
----------------------------------------------------------------
Array size cannot be negtive.
(base) Aadhityas-MacBook-Air:28Jan2020 aadhitya$ ▊
```