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USN : 2SD20CS107

SUBJECT : AOOP

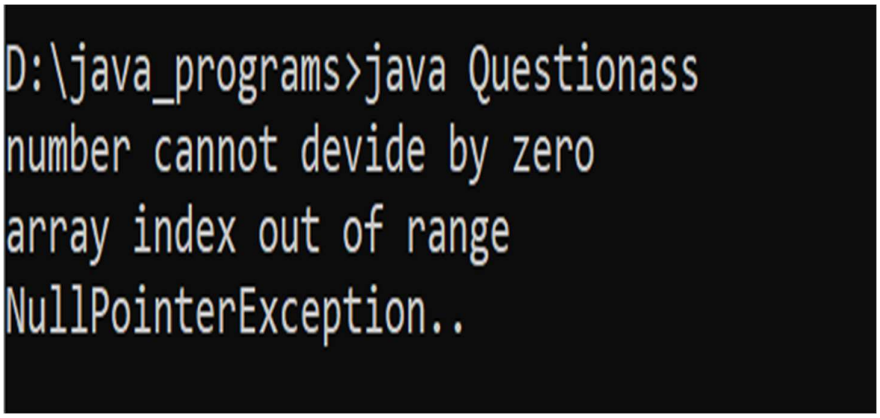
1.Write a Java program to generate and handle any three built-in exceptions and display appropriate error messages.

ANS :

```
import java.io.*;
class    Question1 {
        public static void main(String args[]){
                try {
                        int a=30,b=0;
                        int c=a/b;
                        System.out.println("result="+ c);
                }
                        catch(ArithmeticException e){
                        System.out.println("number cannot devide by zero");
                        }
                try {
                        int f[]=new int[5];
                        f[6]=9;
                        }
                        catch( ArrayIndexOutOfBoundsException ed){
                                System.out.println("array index out of range");
                        }
                 try {
        String a = null; // null value
         System.out.println(a.charAt(0));
    }
                 catch (NullPointerException e)
```

```
  System.out.println("NullPointerException..");
      }
                  }
}
```

Output :



2.Write a Java program to read an integer and check whether the number is prime or not. If negative number is entered, throw an exception NegativeNumberNotAllowedException and if entered number is not prime, then throw NumberNotPrimeException.

ANS :

```
import java.io.*;
import java.util.Scanner;


class NegativeNumberNotAllowedException extends Exception {
	NegativeNumberNotAllowedException(){
			}
		public String toString(){
			return "Negative num not allowed";
				}


	}
class NumberNotPrimeException extends Exception {
	NumberNotPrimeException(){
		}
		public String toString(){
			return "not prime";
			}


	}
class Myclass {
	public static void main(String args[]) throws Exception {
		Scanner sc=new Scanner(System.in);
		System.out.println("enter a number");
		int a=sc.nextInt();
		int f=0;
```

```
                for(int i=2;i<a/2;i++){
                        if(a%i==0){
                                //System.out.println("not prime");
                         f=1;     //throw new NumberNotPrimeException();
                        }

                        }
                        try {
                                if(f==1)
                                        throw new NumberNotPrimeException();
                                else
                                        System.out.println(" prime");
                        }catch(NumberNotPrimeException e){
                        System.out.println("not prime");
                        }

        try{
                if(a<0)
                        throw new NegativeNumberNotAllowedException();
                }catch(NegativeNumberNotAllowedException e){
                                System.out.println("Negative num not allowed");
                                        }

}
```

} **Output :**

```
D:\java_programs>java Myclass
enter a number
3
 prime

D:\java_programs>java Myclass
enter a number
-5
 prime
Negative num not allowed

D:\java_programs>java Myclass
enter a number
6
not prime
```

3.Write a Java program to perform the following operations:

a) Read a line of text

b) Search for a sub-string SDMCET (case insensitive search)

c) If found, then print success message

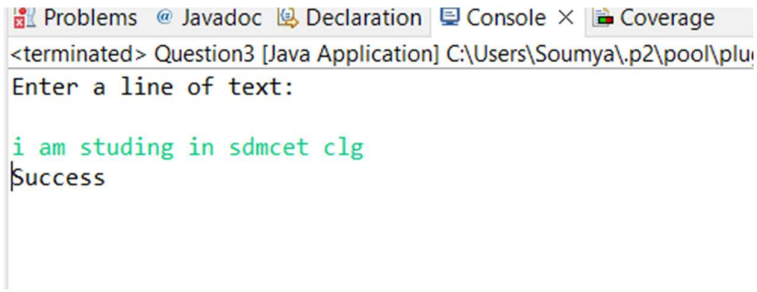
d) Otherwise throw an exception SubStringNotFoundException with appropriate message

ANS :

```
import java.util.Scanner;


class SubStringNotFoundException extends Exception {
	String s;
	SubStringNotFoundException (String s){
		this.s=s;
		}
	public String toString() {
		return "not present";
	}
}
public class Question3 {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a line of text");
		String s=sc.nextLine();
		boolean val=s.contains("SDMCET");
		boolean val1=s.contains("sdmcet");
		try {
			if(val ||val1)
				System.out.println("Success");
```

```
                else
                        throw new SubStringNotFoundException ("not found");
                }catch(SubStringNotFoundException e){
                        System.out.println("not present");
                }
        }
}
```

Output :



4.Write a Java program to perform the following operations:

a) Create a file named Alphabets.txt and insert appropriate data into it

b) Read the file and copy all the consonants into another file named Consonants.txt

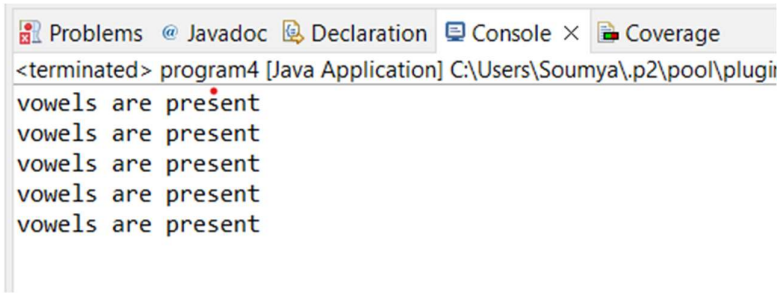
c) If vowel is encountered, throw an exception VowelNotAllowedException and continue until end of file

ANS :

```
import java.io.FileOutputStream;
import java.io.FileInputStream;
 class VowelsNotAllowedException extends Exception {
            String s;
              VowelsNotAllowedException(String s){
                        this.s=s;
            }
            public String toString() {
                        return "vowels not allowed";
            }
}
public class program4 {
             public static void main(String args[]) throws Exception {
```

```
                FileInputStream fos1 = new  FileInputStream("C:\\Users\\Soumya\\eclipse-
workspace\\program\\src\\alphabet.txt");

                FileOutputStream fis=  new FileOutputStream("C:\\Users\\Soumya\\eclipse-
workspace\\program\\src\\consonent.txt");

                 int s;

               while((s= fos1.read())!=-1)

                        try {

                                if(s=='a'||s=='e'||s=='i'||s=='o'||s=='u')

                                        throw new VowelsNotAllowedException("vowels present");

                                fis.write(s);

                        }catch(VowelsNotAllowedException e) {

                        System.out.println("vowels are present ");


               }

        }

}
```

Output :



5.Write a Java program to implement the following scenario:

a) Create a file named Integers.txt and insert n-random integers into it

b) Create three threads T1, T2 and T3 that read n/3 integers in sequence of occurrence of

numbers from the file and sort the read n/3 integers

c) Thread T4 waits for all the threads T1, T2 and T3 to complete sorting, then sorts and outputs

the entire list of sorted numbers to another file named SortedIntegers.txt

ANS :

```
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileWriter;
import java.io.IOException;
import java.util.Arrays;
import java.util.Scanner;
```