SDM College of Engineering and Technology, Dharwad-580002

Department of Computer Science and Engineering

Title: 18UCSE508 / Advanced Object-Oriented Programming

Course Instructor: Prof. Indira Umarji

Semester: V B

AOOP ASSIGNMENT-1

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Q1. Write a Java program to generate and handle any three built-in exceptions and display appropriate error messages.

```
package tm1;

import java.io.*;

import java.util.*;


public class tm1 {


    public static void main(String[] args)  {

        int [] a;

        int n,b,c;


        System.out.println("Enter size of array");

        Scanner scan=new Scanner(System.in);


        try{

            a =new int[scan.nextInt()];

            for(int i=0;i<a.length;i++){

                a[i]=scan.nextInt();

        }

     }catch(InputMismatchException e){

            System.out.println(e);

    }
```

```
            catch(NegativeArraySizeException e) {
                System.out.println(e);
            }
            catch(ArrayIndexOutOfBoundsException e) {
                System.out.println( e );
            }
        }
}
```

OUTPUT:

Q2. 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.

```
public class tm2 {
	public static void main(String[] args) throws Exception{
		Scanner scan=new Scanner(System.in);
		int n;
		int flag=0;
		System.out.println("Enter n value");
		n=scan.nextInt();
		if(n<=0) {
			throw new negativeNumberException(n);
		}
		for(inti=2;i<=(n/2);i++)
		{
			if(n%i==0) {
				flag=1;
				break;
			}
		}
		if(flag==1) {
			throw new numberNotPrimeException(n);
		}
```

```
        else {
                System.out.println("The number is prime "+n);
        }
}
public static void main(String[] args) throws Exception{
        Scanner scan=new Scanner(System.in);
        int n;
        int flag=0;
        System.out.println("Enter n value");
        n=scan.nextInt();
        if(n<=0) {
                throw new negativeNumberException(n);
        }
        for(int i=2; i<=(n/2); i++)
        {
                if(n%i==0) {
                        flag=1;
                        break;
                }
        }
        if(flag==1) {
                throw new numberNotPrimeException(n);
         }
```

```
            else {
                System.out.println("The number is prime "+n);
            }
        }
}
public class negativeNumberException extends Exception {
        intn;
        negativeNumberException(int n){
            this.n=n;
        }
        public String toString() {
            return"negativeNumberException [n=" + n + "]";
        }
}
public class numberNotPrimeException extends Exception {

        int n;
        numberNotPrimeException(int n){
            this.n=n;
        }

        public String toString() {
            return"numberNotPrimeException [n=" + n + "]";
        }
}
```

OUTPUT:


<terminated> tm2 [Java Application] D:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (17-Sep-2022, 7:28:37 pm – 7:28:42 pm)
Enter n value
-7
Exception in thread "main" negativeNumberException [n=-7]
at tm2.tm2.main(tm2.java:22)


Markers Properties Servers Data Source Explorer Snippets Console
<terminated> tm2 [Java Application] D:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (17-Sep-2022, 7:26:14 pm – 7:28:24 pm)
Enter n value
5
The number is prime 5

Q3. 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.

```
package tm3;

import java.util.*;

import java.io.*;


public class tm3 {

        public static void main(String args[])throws Exception   {

                String s1,s2;

                int j=0,c=0;

                s2="SDMCET";

                Scanner scan=new Scanner(System.in);

                System.out.println("Enter the string");

                 s1=scan.nextLine();

                        s1=s1.toUpperCase();

                try {

                        if(s1.contains(s2)) {

                                System.out.println("The SubSTring is present");

                        }

                        else {
```

```
                    throw new substringNotFoundException();
                }
            }catch(substringNotFoundException e) {
                System.out.println(e);
            }
        }
}
```

```
package tm3;

public class substringNotFoundExceptionextends Exception {

    @Override
    public String toString() {
        return"substringNotFoundException []";
    }

}
```

OUTPUT:


Markers Properties Servers Data Source Explorer Snippets Console
<terminated> tm3 [Java Application] D:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (17-Sep-2022, 7:50:00 pm – 7:50:06 pm)
Enter the string
this is sdmcet
The SubSTring is present
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> tm3 [Java Application] D:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (17-Sep-2022, 7:50:23 pm – 7:50:27 pm)
Enter the string
this is
substringNotFoundException []

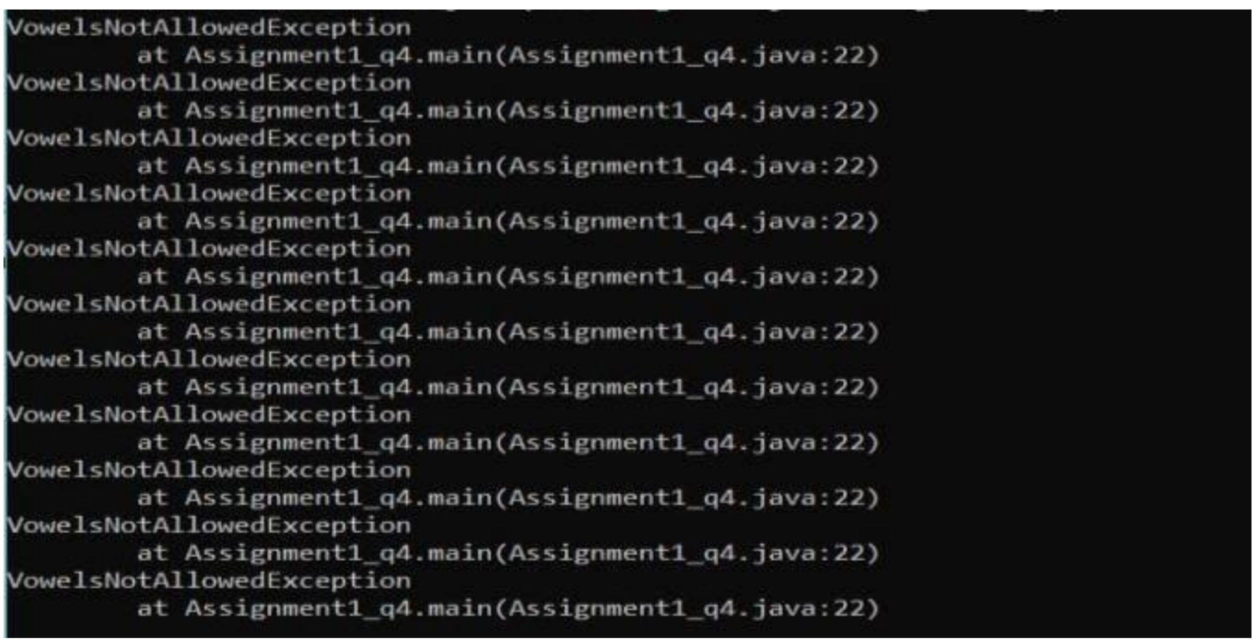
Q4. Write a Java program to perform the following operations:
a) Create a file named Alphabets.txt and insert appropriate data into it
b) Read the file and copy all the consonants into another file named Consonants.txt
c)If vowel is encountered, throw an exception vowelNotAllowedException and continue until end of file.

```
import java.io.FileInputStream;

import java.io.FileOutputStream;

import java.io.FileNotFoundException;

import java.lang.Integer;


        public class confile{

            public static void main(String args[]) throws Exception{

                try{

                   FileInputStream fis =new      FileInputStream("alphabet.txt");

                  FileOutputStreamfos=new    FileOutputStream("consonant.txt);


                int ch;

                while((ch=(fis.read()))!=-1){

                try{

                   switch(ch){

                            case 'a':

                            case 'A':

                            case 'e':

                            case 'E':
```

```
                    case 'i':
                    case 'I':
                    case 'o':
                    case 'O': throw new VowelNotAllowedException(ch);
                    default:
                    {
                    Fos.write(ch);
                    }
                }
}catch(VowelNotAllowedException  vn){
        Vn.printStackTrace();
}//catch end
}//while end
}catch(FileNotException fn){
System.out.println(fn);
}
}//main end
}//class end
```

```
public class VowelNotAllowedException(ch extends Exception{
int a;
public VowelNotAllowedException(int a){
this.a=a;
}
public String toString(){
        return “Vowel not allowed in the file”;
}
}
```

OUTPUT:



```
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
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VowelsNotAllowedException
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VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
VowelsNotAllowedException
	at Assignment1_q4.main(Assignment1_q4.java:22)
```