Department of Computer Science & Engineering, SDMCET, Dharwad-2

AOOP Assignment Submission Report

[Submitted as part of CTA Assignment No-1]

Course:	Advanced Object-Oriented Programming	Course Code:	18UCSE508
Semester:	V	Division:	A

Submitted by:

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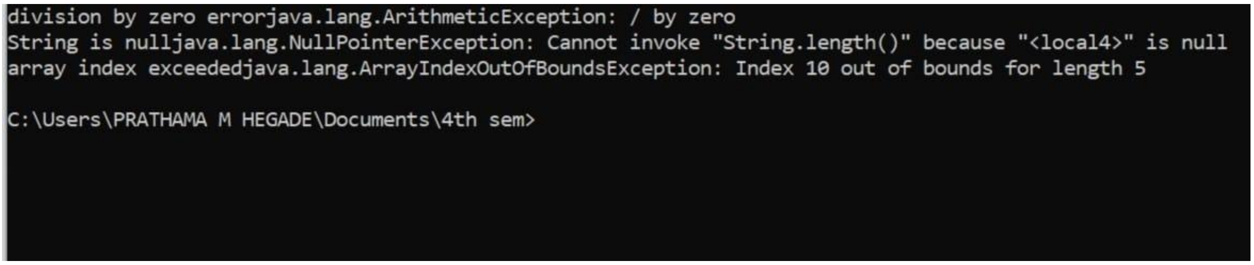
1.Write a Java Program to generate and handle any three built-in exceptions and display appropriate error messages.

PROGRAM

```
public class Q1{
  public static void main(String[] args){
        int a=10;
        int b=5;
        int c=5;
        String s=null;
        int d[]=new int[5];
        try{
          System.out.println(a/(b-c));
         }
         catch(ArithmeticException ae){
           System.out.println("division by zero error"+ae);
          }
         try{
            System.out.println(s.length());
         }
          catch(NullPointerException ne){
              System.out.println("String is null"+ne);
          }
          try{
            d[10]=50;
          }
          catch(ArrayIndexOutOfBoundsException aoe){
            System.out.println("array index exceeded"+aoe);
          }
     }


}
```

OUTPUT



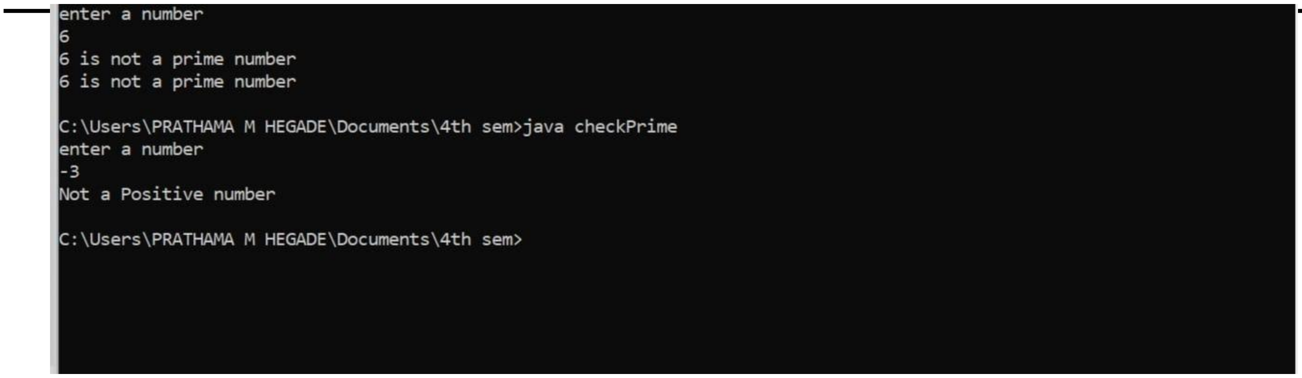
```
division by zero errorjava.lang.ArithmeticException: / by zero
String is nulljava.lang.NullPointerException: Cannot invoke "String.length()" because "<local4>" is null
array index exceededjava.lang.ArrayIndexOutOfBoundsException: Index 10 out of bounds for length 5

C:\Users\PRATHAMA M HEGADE\Documents\4th sem>
```

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 NUMBER NOTPRIMEEXCEPTION

PROGRAM

```
import java.util.Scanner;


public class Q2{
   public static void main(String[] args)throws numException{
          Scanner sc=new Scanner(System.in) ;
          System.out.println("Enter an integer");
          int n=sc.nextInt();
          if(n<0){
                throw new numException(
"NegativeNumberNotAllowedException");
            }
            for(int i=2;i<n;i++){
                if(n%i==0)
                      throw new
numException("NumberNotPrimeException");
            }
            System.out.println("Its Prime number");
      }
   }
 class numException extends Exception{
           String msg;
           public numException(String msg){
                 this.msg=.msg;
            }
            public String toString(){
                  return "Exception:"+msg;
             }
}
```

OUTPUT



```
enter a number
6
6 is not a prime number
6 is not a prime number

C:\Users\PRATHAMA M HEGADE\Documents\4th sem>java checkPrime
enter a number
-3
Not a Positive number

C:\Users\PRATHAMA M HEGADE\Documents\4th sem>
```

3 Write a java program to perform the following operations

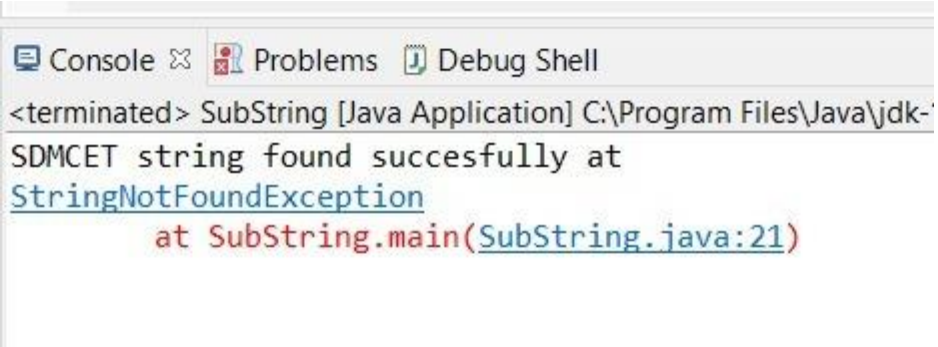
a) Read a line of text
b) Search for a sub string SDMCET
c) If found ,then print success message
d) Otherwise throw an exception SubStringNotFoundException with appropriate message

PROGRAM

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

/**
  *
   Assignment_3
  */
public class Assignment_3 {
    public static void main(String[] args)throws
SubstringNotFoundException {
            Scanner sc=new Scanner(System.in);
```

```
             System.out.print("Enter the string=");
                    String testString = sc.nextLine();
          testString = testStirng.toUpperCase();
              String subString="SDMCET";

                  int i=0,j=0;
           while(i<testString.length()){
if(testString.charAt(i)==subString.charAt(j) && j<subString.length()-1){
                     i++;
                                   j++;
               }else{
                      i++;
                }

     } //end of while

     if(j == subString.length()-1){
          System.out.println("Substring is present");
              }else{
                  throw new
   SubstringNotFoundException("Substring is not found !! please enter the
valid input");
         }

         }
    }
    class SubstringNotFoundException  extends Exception{

            String str;
            SubstringNotFoundException(String str){
                      this.str = str;
               }
             public String toString() {
                       return this.str;
               }
 }
```

OUTPUT



```
<terminated> SubString [Java Application] C:\Program Files\Java\jdk-
SDMCET string found succesfully at
StringNotFoundException
	at SubString.main(SubString.java:21)
```

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

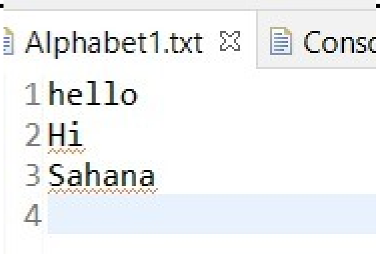
c)If vowel is encountered,throw an exception VowelsNOTAllowedException and continues until end of file

PROGRAM

```
import java.util.Scanner;

import java.io.*;



public class Assignment_4{


    public static void main(String[] args){


        try{


                        FileWriter w = new FileWriter("Alphabets.txt");

                    Scanner sc = new Scanner(System.in);


                System.out.print("Enter the data to write in the file :");

                        String str = sc.nextLine();

                        w.write(str);

                        w.close();

                        File file = new File("Alphabets.txt");
Scanner reader = new Scanner(file);
StringBuilder s = new StringBuilder();
FileWriter write = new FileWriter("Consonate.txt");

          while(reader.hasNext()){
      String data = reader.next();
       for(int i =0; i<data.charAt(i));

                              }else{
             s.append(data.charAt(i));
            }
      }
      write.write(s.toString());
      }
      write.close();

    }
 catch(VowelNotFoundException v){
         System.out.println("vowel found");
                }catch(FileNotFoundException e){
           System.out.println(e);

    }catch(IOException ex){
         System.out.println(ex){
       }
```

```
                  }
                 static boolean isVowel(char c) throws
VowelNotFoundException{
                            if(c=='a' || c =='e' || c=='i' || c=='o' || c=='u' ||
c=='A' ||c=='E' || c=='I' || c=='O' || c=='U'){

     return true;
                                  }else{
                                     return false;
                                   }
                           }
                  class VowelNotFoundException extends Exception{
                              String str;
                              VowelNotFoundException extends
Exception{
                                 String str;
                                 VowelNotFoundException(String str){
                                      this.str = str;
                              }
                              public String toString() {
                                    return this.str;
                              }
                        }
```

OUTPUT



```
hello
Hi
Sahana

```

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

PROGRAM