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**Department
of
COMPUTER SCIENCE AND ENGINEERING**

ASSIGNMENT-1

[18UCSE508- ADVANCED OBJECT ORIENTED PROGRAMMING]

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Submitted

By

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2SD20CS106

5th Semester B division

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 prgm1;

import java.util.Scanner;

public class ques3 {

    public static void main(String[] args) throws Exception {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the text");
        String str=sc.next();
        String substr="SDMCET";
        boolean b=str.toLowerCase().contains(substr.toLowerCase());
        if(!b)
            throw new SubStringNotFoundException();
        else
            System.out.println("Substring found");
    }

}
```

```
package prgm1;

public class SubStringNotFoundException extends Exception{

    public String toString() {
        return " SubString not found";
    }

}
```

OUTPUT:

```
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques3 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justopenjdk\hotspot\re.full.win32.x86_64_16.0.1.v20210628-1205\re\bin\javaw.exe (Sep 15, 2022, 5:44:06 PM - 5:44:21 PM)
enter the text

i am studing in engineering clg
Exception in thread "main" SubString not found
    at prgm1.ques3.main(ques3.java:14)
```

```
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques3 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justopenjdk\hotspot\re.full.win32.x86_64_16.0.1.v20210628-1205\re\bin\javaw.exe (Sep 15, 2022, 9:24:52 PM - 9:25:15 PM)
enter the text

sdmcet_is_in_dharwad
Substring found
```

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

```
package prgm2;
```

```
public class ques1 {

    public static void main(String[] args) {
```

```

    try {
        int a=10,b=0;

        int res=a/b;

        System.out.println(res);
    }catch(ArithmeticException ae) {
        System.out.println(ae);
    }

    try {
        String str=null;

        System.out.println(str.charAt(0));
    }catch(NullPointerException ne) {
        System.out.println(ne);
    }

    try {
        int[] A= new int[2];

        A[0]=10;

        A[1]=20;

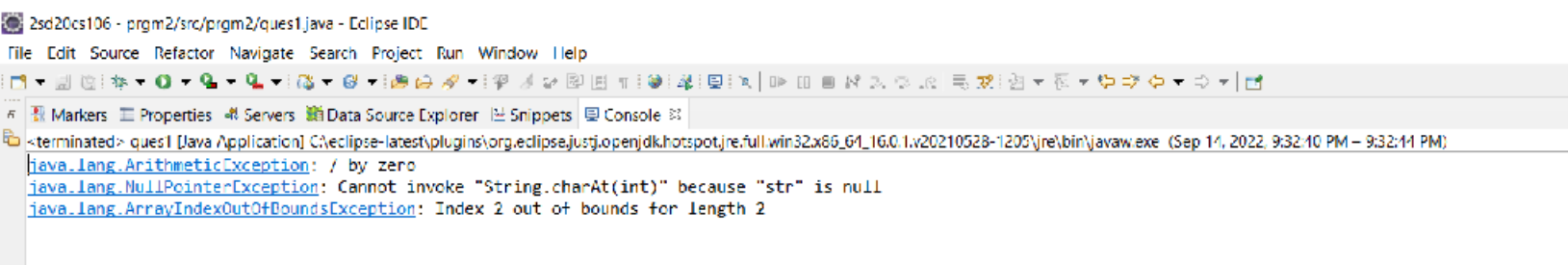
        A[2]=30;

    }catch(ArrayIndexOutOfBoundsException aie) {
        System.out.println(aie);
    }

}

```

OUTPUT:

The screenshot shows the Eclipse IDE interface. The top menu bar includes File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. Below the menu is a toolbar with various icons. The main workspace area shows the 'Markers' tab, which displays three error messages: 'java.lang.ArithmeticException: / by zero', 'java.lang.NullPointerException: Cannot invoke "String.charAt(int)" because "str" is null', and 'java.lang.ArrayIndexOutOfBoundsException: Index 2 out of bounds for length 2'. The console window at the bottom shows the same error messages.

```
2sd20cs106 - prgm2/src/prgm2/ques1.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Markers Properties Servers Data Source Explorer Snippets Console
-terminated> ques1 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (Sep 14, 2022, 9:32:10 PM - 9:32:11 PM)
java.lang.ArithmeticException: / by zero
java.lang.NullPointerException: Cannot invoke "String.charAt(int)" because "str" is null
java.lang.ArrayIndexOutOfBoundsException: Index 2 out of bounds for length 2
```

Q4. Write a Java program to perform the following operations:

- Create a file named Alphabets.txt and insert appropriate data into it
- Read the file and copy all the consonants into another file named Consonants.txt
- If vowel is encountered, throw an exception VowelNotAllowedException and continue until end of file

```
package prgm4;
import java.io.FileInputStream;
import java.io.FileOutputStream;

public class ques4 {

    public static void main(String[] args) throws Exception {
        FileInputStream fis = new FileInputStream("C:\\eclipse-
latest\\2sd20cs106\\prgm4\\src\\Alphabets.txt");
        FileOutputStream fos = new FileOutputStream("C:\\eclipse-
latest\\2sd20cs106\\prgm4\\src\\Consonants.txt");
        int c;
        while((c=fis.read())!=-1) {
            try {
                if(c=='a' || c=='e' || c=='i' || c=='o' || c=='u' ||
c=='A' || c=='E' || c=='I' || c=='O' || c=='U') {
                    throw new VowelsNotAllowedException();
                }
                fos.write(c);
            } catch (Exception e) {
                System.out.println(e);
            }
        }
    }
}
```

```
        }  
    }  
}  
  
package prgm4;  
  
public class VowelsNotAllowedException extends Exception {  
    public String toString() {  
        return "vowels not allowed";  
    }  
}
```

OUTPUT:

2sd20cs106 - prgm4/src/Alphabets.txt - Eclipse IDE

File Edit Navigate Search Project Run Window Help

Project Explorer Alphabets.txt Consonants.txt VowelsNotAllowedException.java ques4.java

Project Explorer
prgm1
prgm2
prgm4
JRE System Library [JavaSE-16]
src
prgm4
ques4.java
VowelsNotAllowedException.java
Alphabets.txt
Consonants.txt

Alphabets.txt
1 ABCDEFGHIJKLMNOPQRST

Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques4 [Java Application] (C:\eclipse-latest\plugins\org.eclipse.justjopenjdk\hotspot\re.full.win32.x86_64_16.
vowels not allowed
vowels not allowed
vowels not allowed
vowels not allowed

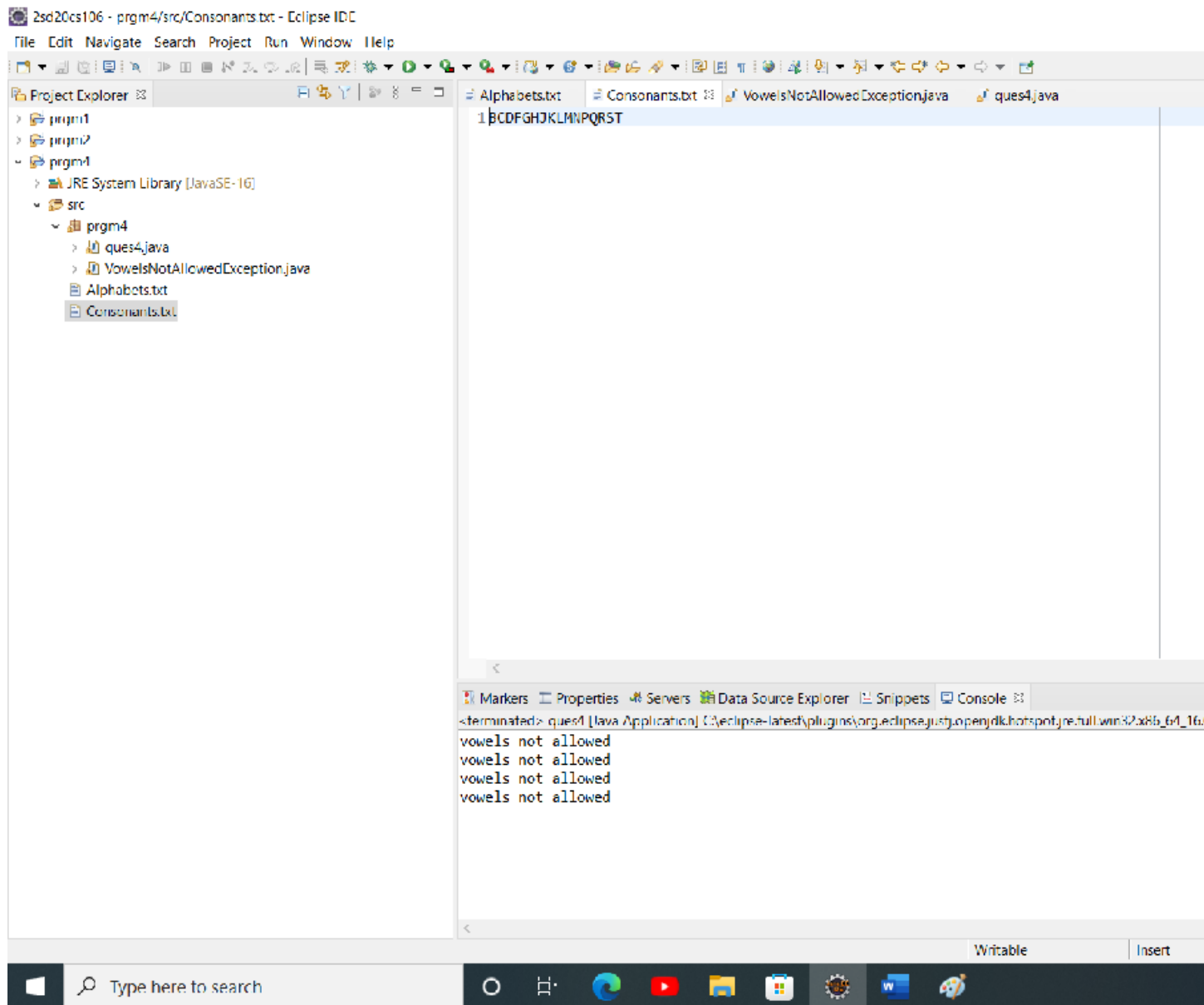
Writable

Insert



Type here to search





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`.

```
package prgm3;
import java.util.Scanner;

public class ques3 {
```



```

    public static void main(String[] args) throws Exception {
        Scanner sc=new Scanner(System.in);
        System.out.println("enetr an integer");
        int n=sc.nextInt();
        if(n<0) {
            throw new NegativeNumberNotAllowedException();
        }
        for(int i=2;i<n;i++) {
            if(n%i==0) {
                throw new NumberNotPrimeException();
            }
        }
    }
}

```

```

package prgm3;

public class NegativeNumberNotAllowedException extends Exception {

    public String toString() {
        return "negative number not allowed";
    }

}

```

```

package prgm3;

public class NumberNotPrimeException extends Exception {

    public String toString() {
        return "number not prime";
    }

}

```

OUTPUT:

```
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques3 (1) [Java Application] C:\eclipse-latest\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (Sep 15, 2022, 4:27:42 PM - 4:28:00 PM)
enetr an integer

2
```

```
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques3 (1) [Java Application] C:\eclipse-latest\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (Sep 15, 2022, 4:30:04 PM - 4:30:10 PM)
enetr an integer

-5
Exception in thread "main" negative number not allowed
    at prgm3.ques3.main(ques3.java:11)
```

```
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> ques3 (1) [Java Application] C:\eclipse-latest\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_16.0.1.v20210528-1205\jre\bin\javaw.exe (Sep 15, 2022, 4:30:17 PM - 4:30:23 PM)
enetr an integer

4
Exception in thread "main" number not prime
    at prgm3.ques3.main(ques3.java:15)
```