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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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2SD20CS049
5th Semester B division**

Q1. 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 program1;
```

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

```
public class program1 {
```

```
    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 program1;
```

```
public class SubStringNotFoundException extends Exception{
```

```
    public String toString() {
```

```
        return " SubString not found";
```

```
    }
```

```
}
```

```
}
```

OUTPUT

2sd20cs049 - program1/src/program1/program1.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Project Explorer

- example3
 - JRE System Library [JavaSE-16]
 - src
- program1
 - JRE System Library [JavaSE-16]
 - src
 - program1
 - program1.java
 - SubStringNotFoundException.java
 - program2
 - program4

program1.java

```
1 package program1;
2
3 import java.util.Scanner;
4
5 public class program1 {
6
7     public static void main(String[] args) throws Exception {
8         Scanner sc=new Scanner(System.in);
9         System.out.println("enter the text");
10        String str=sc.next();
11        String substr="SDMCET";
12        boolean b=str.toLowerCase().contains(substr.toLowerCase());
13        if(!b)
14            throw new SubStringNotFoundException();
15        else
16            System.out.println("Substring found");
17
18    }
19 }
20
21 }
22
23 }
```

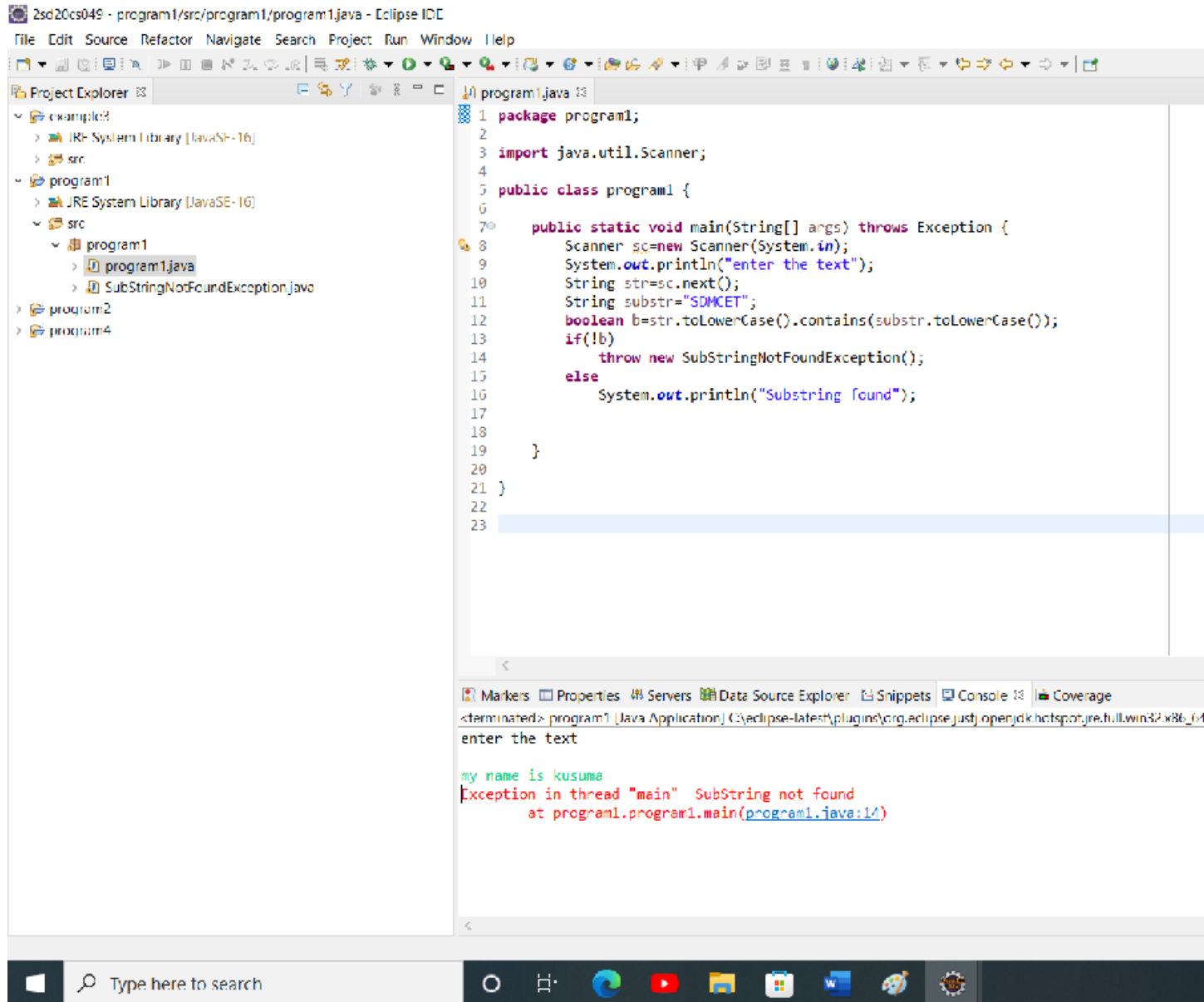
Markers Properties Servers Data Source Explorer Snippets Console Coverage

<terminated> program1 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64...
enter the text

SDMCET_is_an_engineering_clg
Substring found

Type here to search





Q2. Write a Java program to generate and handle any three built-in exceptions and display appropriate error messages.

```
package program2;
```

```
public class program2 {
```

```

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);

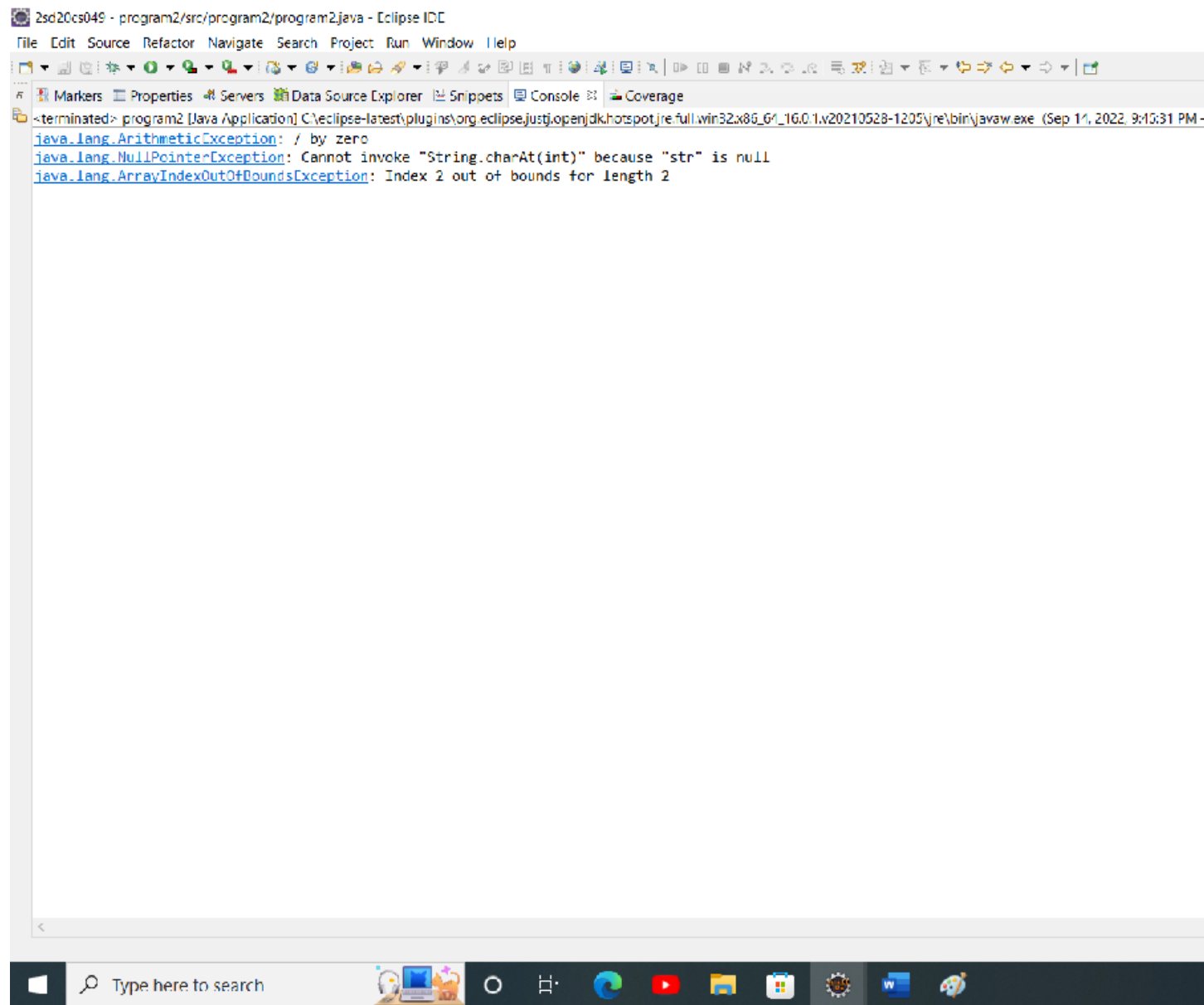
    }

}

}

```

OUTPUT:



The screenshot shows the Eclipse IDE interface. The title bar reads "2sd20cs049 - program2/src/program2/program2.java - Eclipse IDE". The menu bar includes "File", "Edit", "Source", "Refactor", "Navigate", "Search", "Project", "Run", "Window", and "Help". The toolbar contains various icons for file operations, editing, and running. The "Console" tab is active, displaying the following output:

```
<terminated> program2 [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, 9:15:31 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
```

The Windows taskbar is visible at the bottom, showing the search bar and several application icons.

Q3. 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 program4;
import java.io.FileInputStream;
import java.io.FileOutputStream;

public class program4 {
    public static void main(String[] args) throws Exception {
        FileInputStream fis = new FileInputStream("C:\\eclipse-
latest\\2sd20cs049\\program4\\src\\Alphabets.txt");
        FileOutputStream fos = new FileOutputStream("C:\\eclipse-
latest\\2sd20cs049\\program4\\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 VowelNotAllowedException();
                }
                fos.write(c);
            } catch (Exception e) {
                System.out.println(e);
            }
        }
    }
}

```

```

package program4;

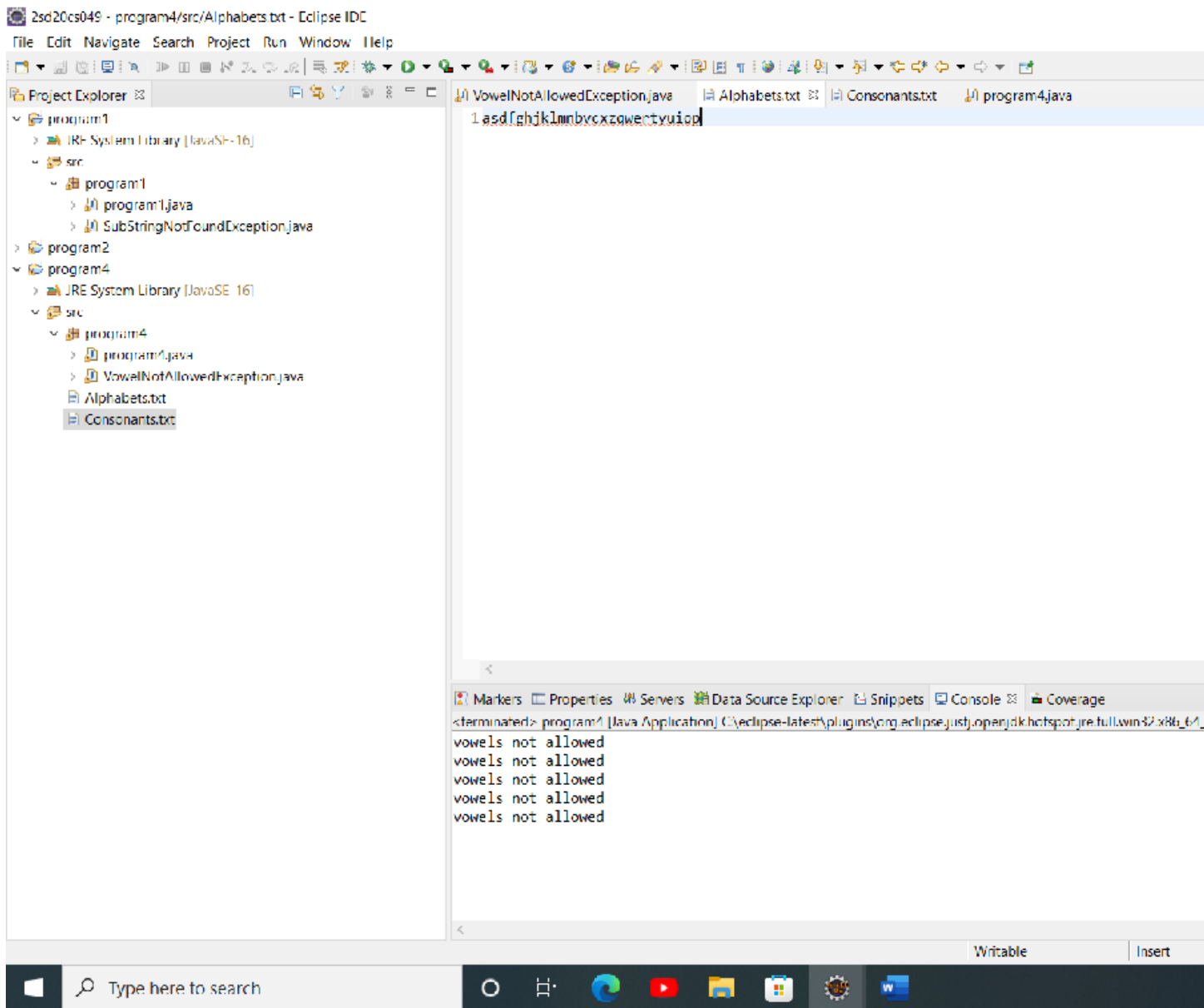
public class VowelNotAllowedException extends Exception {

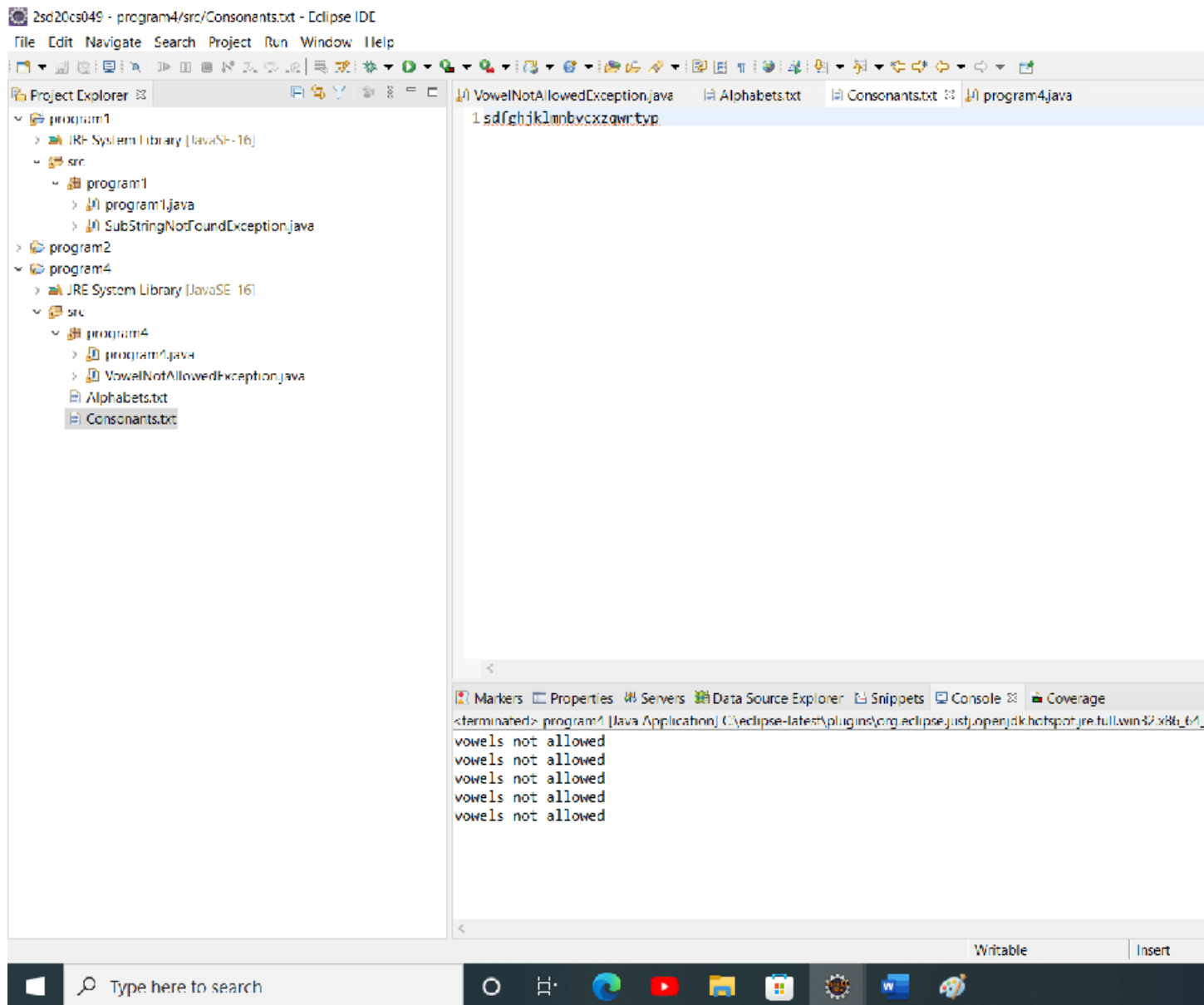
    public String toString() {
        return "vowels not allowed";
    }

}

```

OUTPUT:





Q4. 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 example3;
import java.util.Scanner;
public class example3 {

    public static void main(String[] args) throws Exception {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter 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 example3;
```

```

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

```

```
package example3;
```

```

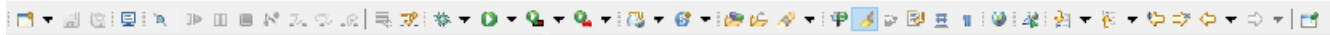
public class NumberNotPrimeException extends Exception {
    public String toString() {
        return "number not prime";
    }
}

```

OUTPUT:

2sd20cs049 - example3/src/example3/NumberNotPrimeException.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Project Explorer

- example3
 - IRK-System Library [JavaSE-16]
 - src
 - example3
 - example3.java
 - NegativeNumberNotAllowedException.java
 - NumberNotPrimeException.java
- program1
- program2
- program4

NegativeNumberNotAllowedException.java NumberNotPrimeException.java example3.java

```
1 package example3;
2
3 public class NumberNotPrimeException extends Exception {
4
5     public String toString() {
6         return "number not prime";
7     }
8 }
9
10
11
```

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<terminated> example3 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win-x86_64...
enetr an integer

7

Writable

Smart Insert



Type here to search



2sd20cs049 - example3/src/example3/example3.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Project Explorer

- example3
 - IRK-System Library [JavaSE-16]
 - src
 - example3
 - example3.java
 - NegativeNumberNotAllowedException.java
 - NumberNotPrimeException.java
 - program1
 - program2
 - program4

NegativeNumberNotAllowedException.java NumberNotPrimeException.java example3.java

```
1 package example3;
2 import java.util.Scanner;
3 public class example3 {
4
5     public static void main(String[] args) throws Exception {
6         Scanner sc=new Scanner(System.in);
7         System.out.println("enetr an integer");
8         int n=sc.nextInt();
9         if(n<0) {
10             throw new NegativeNumberNotAllowedException();
11         }
12         for(int i=2;i<n;i++) {
13             if(n%i==0) {
14                 throw new NumberNotPrimeException();
15             }
16         }
17     }
18 }
19
20 }
21
```

Markers Properties Servers Data Source Explorer Snippets Console Coverage

<terminated> example3 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win-x86_64-b15\jre\bin\java.exe
enetr an integer

-9
Exception in thread "main" negative number not allowed
at example3.example3.main(example3.java:10)

Type here to search



2sd20cs049 - example3/src/example3/example3.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



Project Explorer

- example3
 - IRL System Library [JavaSE-16]
 - src
 - example3
 - example3.java
 - NegativeNumberNotAllowedException.java
 - NumberNotPrimeException.java
 - program1
 - program2
 - program4

NegativeNumberNotAllowedException.java NumberNotPrimeException.java example3.java

```
1 package example3;
2 import java.util.Scanner;
3 public class example3 {
4
5     public static void main(String[] args) throws Exception {
6         Scanner sc=new Scanner(System.in);
7         System.out.println("enetr an integer");
8         int n=sc.nextInt();
9         if(n<0) {
10             throw new NegativeNumberNotAllowedException();
11         }
12         for(int i=2;i<n;i++) {
13             if(n%i==0) {
14                 throw new NumberNotPrimeException();
15             }
16         }
17     }
18 }
19
20 }
21
```

Markers Properties Servers Data Source Explorer Snippets Console Coverage

<terminated> example3 [Java Application] C:\eclipse-latest\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win-x86_64

enetr an integer

6

Exception in thread "main" number not prime
at example3.example3.main(example3.java:14)



Type here to search

