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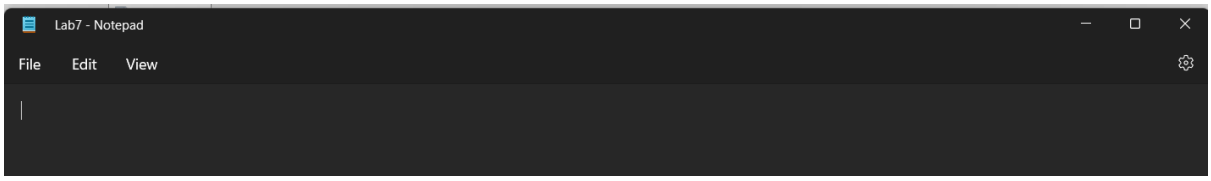
Programme	:	**BTech. CSE Core**	Semester	:	**Win 2021-22**
Course	:	**Java Programming**	Code	:	**CSE1007**
Faculty	:	**Dr. Pradeep K**	Slot	:	**L9+L10**
Name	:	**Hariket Sukesh Kumar Sheth**	Register No.	:	**20BCE1975**

1. Create a text file (Example: aa.txt) and write contents into the file using Java.

```
package lab7;
import java.io.*;
import java.util.*;

public class Lab7 {
    public static void main(String[] args) {
        File file = new File("C:\\Users\\Hariket Sheth\\Desktop\\Lab7.txt");
        boolean result;
        try {
            result = file.createNewFile();
            if (result)
                System.out.println("file created " + file.getCanonicalPath());
            else
                System.out.println("File already exist at location: " +
file.getCanonicalPath());
        } catch (IOException e) {
            e.printStackTrace();
        }
        try {
            FileOutputStream fos = new FileOutputStream(file.getCanonicalPath(),
true);
            System.out.print("Enter file content: ");
            Scanner sc = new Scanner(System.in);
            String str = sc.nextLine() + "\n";
            byte[] b = str.getBytes();
            fos.write(b);
            fos.close();
            System.out.println("file saved.");
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

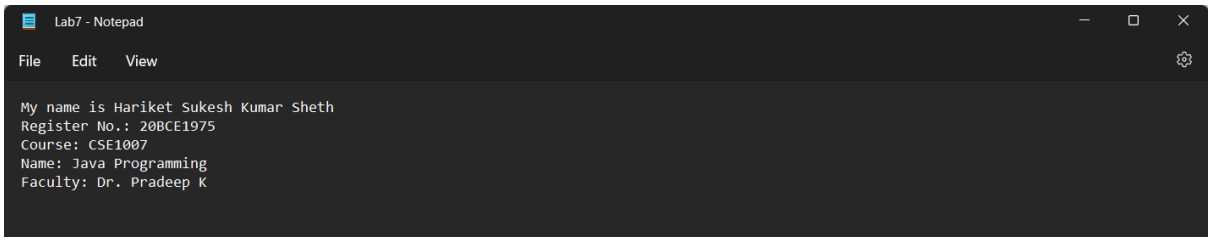
OUTPUT:

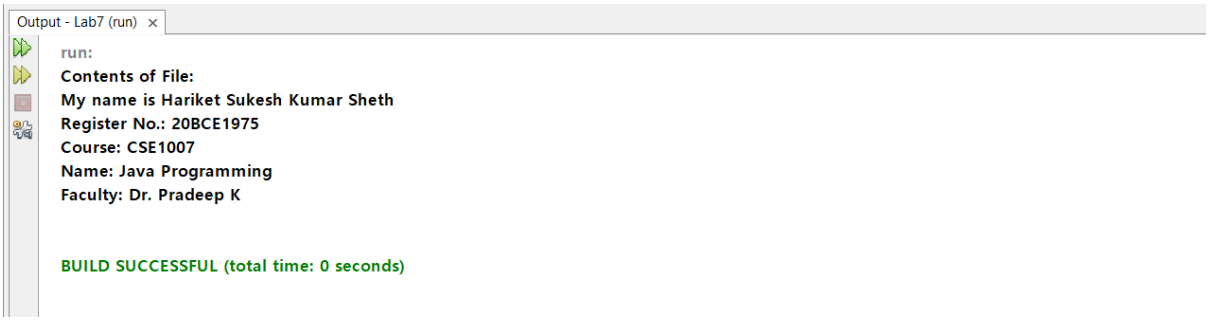


2. Read the text file contents and print all the contents using java.

```java
package lab7;
import java.io.*;
import java.util.*;

public class Lab7 {
    public static void main(String[] args) {
        try {
            File file = new File("C:\\Users\\Hariket Sheth\\Desktop\\Lab7.txt");
            FileReader fr = new FileReader(file);
            BufferedReader br = new BufferedReader(fr);
            StringBuffer sb = new StringBuffer();
            String line;
            while ((line = br.readLine()) != null) {
                sb.append(line);
                sb.append("\n");
            }
            fr.close();
            System.out.println("Contents of File: ");
            System.out.println(sb.toString());
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

OUTPUT:





3. Write a Java Program to perform the following operations using FileOutputStream and FileInputStream classes
    - To Read the Content and Write the Content into a File
    - To Count the Number of Lines in a file
    - To Count the Number of Vowels and Consonants from a File
    - To Count the Number of Words from a File
    - Read a character from a file and check its case. If it is Upper, then convert it into Lower else convert it into Upper and finally write it into another character.

```
package lab7;
import java.io.*;
import java.util.*;

public class Lab7 {
    public static void main(String[] args) {
        int count = 0, count_vowel=0, count_con=0;
        int count_words = 0;
        try {
            File file = new File("C:\\Users\\Hariket Sheth\\Desktop\\Lab7.txt");
            FileReader fr = new FileReader(file);
            BufferedReader br = new BufferedReader(fr);
            StringBuffer sb = new StringBuffer();
            String line;
            StringBuffer converted = new StringBuffer();
            while ((line = br.readLine()) != null) {
                sb.append(line);
                sb.append("\n");
                String[] words=line.split(" ");
                for(int i=0; i<line.toString().length();i++){
                    char temp = line.toString().charAt(i);
                    if(Character.isLowerCase(temp))
                        converted.append(Character.toUpperCase(temp));
                    else if(Character.isUpperCase(temp))
                        converted.append(Character.toLowerCase(temp));
                    else
```

```
                    converted.append(temp);
                }
                converted.append('\n');
                count_words += words.length;
                 for(int i=0;i<words.length;i++){
                    for(int j=0;j<words[i].length();j++){
                       char ch= Character.toLowerCase(words[i].charAt(j));
                       if(ch == 'a' || ch == 'e' || ch == 'i' ||ch == 'o' || ch == 'u')
                           count_vowel += 1;
                       else if(ch != ' ')
                           count_con +=1;
                    }
                 }
            }
            fr.close();
            Scanner sc = new Scanner(file);
            while(sc.hasNextLine()) {
                sc.nextLine();
                count++;
            }
            System.out.println("Contents of File: ");
            System.out.print(sb.toString());
            System.out.println("Number of Lines: "+count);
            System.out.println("Number of Vowels: "+count_vowel);
            System.out.println("Number of Consonants: "+count_con);
            System.out.println("Number of Words: "+count_words);
            System.out.println("\nContents of Converted File: ");
            System.out.print(converted.toString());
        } catch (Exception e) {
            e.getStackTrace();
        }
    }
}
```

OUTPUT:

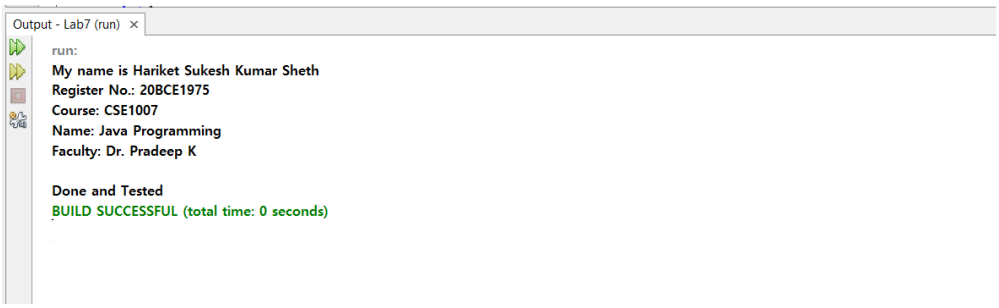
```
Output - Lab7 (run)
run:
Contents of File:
My name is Hariket Sukesh Kumar Sheth
Register No.: 20BCE1975
Course: CSE1007
Name: Java Programming
Faculty: Dr. Pradeep K

Number of Lines: 6
Number of Vowels: 32
Number of Consonants: 73
Number of Words: 20

Contents of Converted File:
mY NAME IS hARIKET sUKESH kUMAR sHETH
rEGISTER nO.: 20bce1975
cOURSE: cse1007
nAME: jAVA pROGRAMMING
fACULTY: dR. pRADEEP k

BUILD SUCCESSFUL (total time: 0 seconds)
```

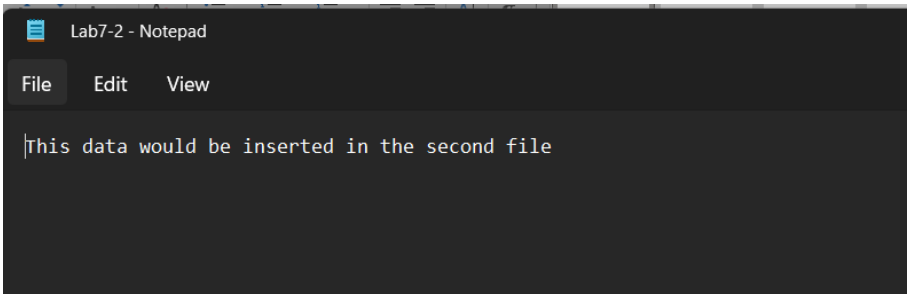
4. Deduce the Java programs for the following Input and Output stream classes with the help of predefined methods provided in each class.
    - BufferedOutputStream and BufferedInputStream
    - SequenceInputStream
    - ByteArrayOutputStream and ByteArrayInputStream
    - DataOutputStream and DataInputStream
    - Java FilterOutputStream and Java FilterInputStream

A. BufferedOutputStream and BufferedInputStream

```
package lab7;
import java.io.*;
import java.util.*;

import java.io.*;
public class Lab7 {
    public static void main(String args[]) throws Exception {
        FileInputStream fin=new FileInputStream("C:\\\\Users\\\\Hariket
Sheth\\\\Desktop\\\\Lab7-1.txt");
        BufferedInputStream bin=new BufferedInputStream(fin);
        int i;
        while((i =bin.read())!=-1){
            System.out.print((char)i);
        }
        FileOutputStream fout = new FileOutputStream("C:\\\\Users\\\\Hariket
Sheth\\\\Desktop\\\\Lab7-2.txt");
        BufferedOutputStream bout = new BufferedOutputStream(fout);
        String s = "This data would be inserted in the second file";
        byte b[] = s.getBytes();
        bout.write(b);
        bout.flush();
        bout.close();
        fout.close();
        System.out.println("Done and Tested");
    }
}
```

OUTPUT:

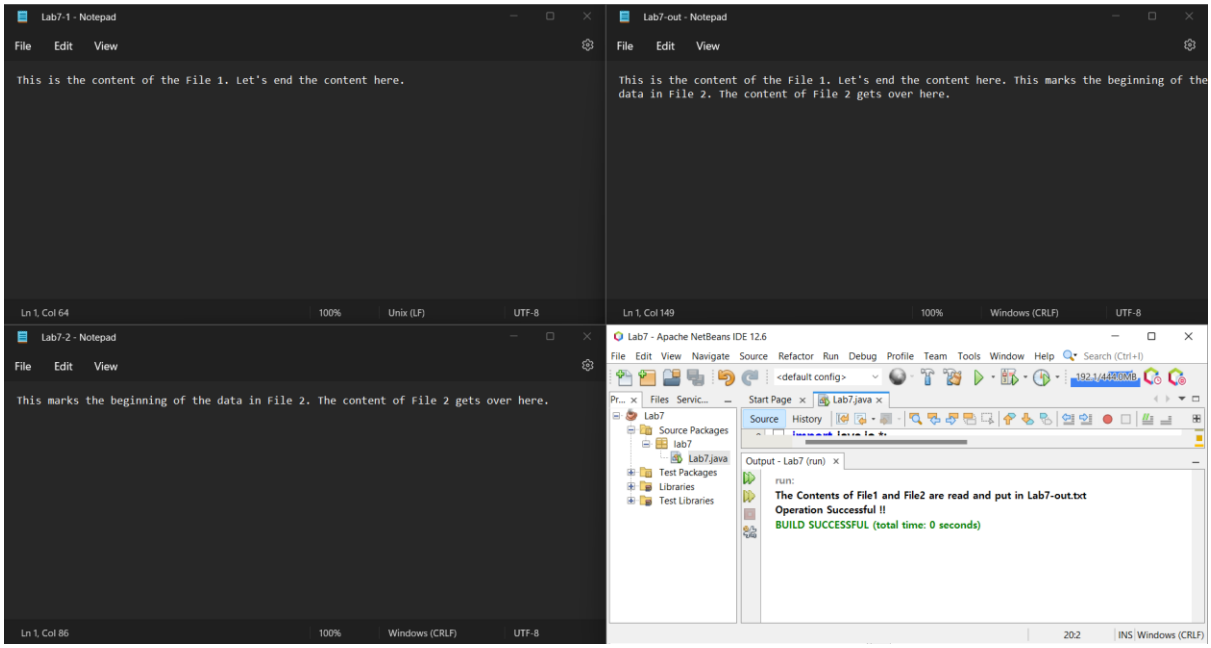


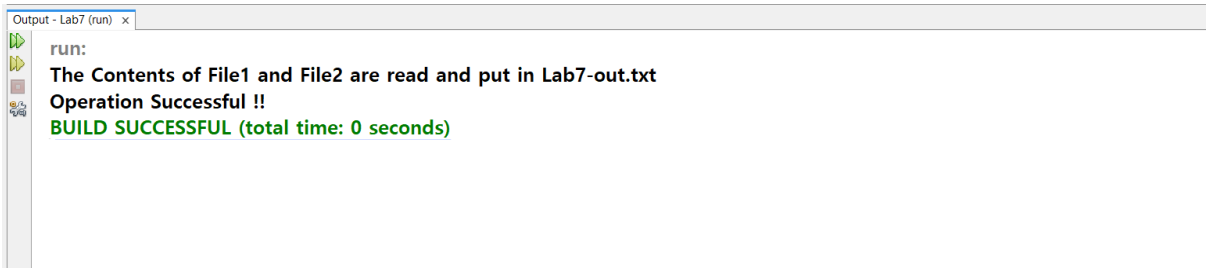


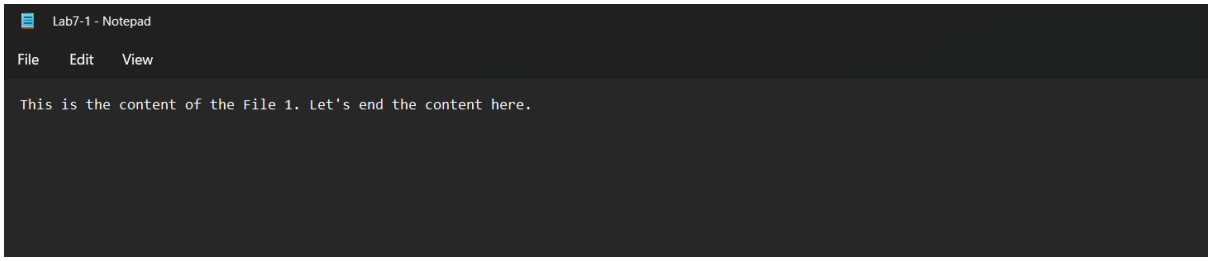
B. **SequenceInputStream**

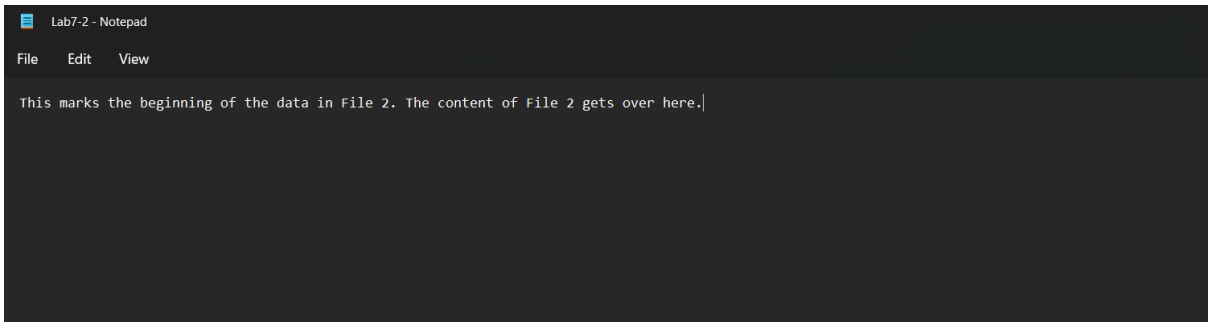
```
package lab7;
import java.io.*;
public class Lab7 {
    public static void main(String args[]) throws Exception {
        FileInputStream fin1 = new FileInputStream("C:\\Users\\Hariket
Sheth\\Desktop\\Lab7-1.txt");
        FileInputStream fin2 = new FileInputStream("C:\\Users\\Hariket
Sheth\\Desktop\\Lab7-2.txt");
        FileOutputStream fout = new FileOutputStream("C:\\Users\\Hariket
Sheth\\Desktop\\Lab7-out.txt");
        SequenceInputStream output = new SequenceInputStream(fin1, fin2);
        int i;
        while ((i = output.read()) != -1) {
            fout.write(i);
        }
        output.close();
        fout.close();
        fin1.close();
        fin2.close();
        System.out.println("The Contents of File1 and File2 are read and put in Lab7-
out.txt");
        System.out.println("Operation Successful !!");
    }
}
```

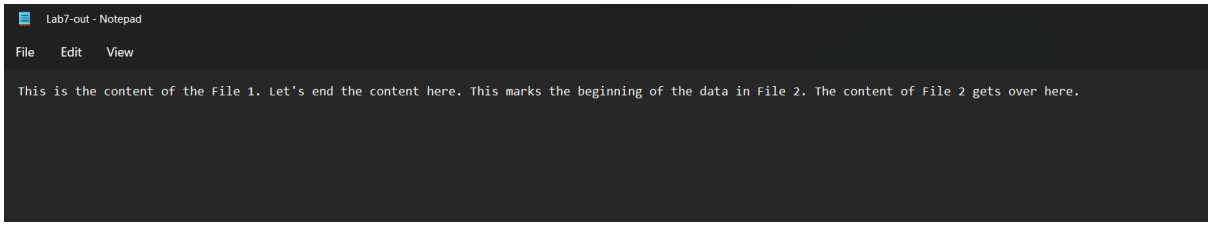
OUTPUT:







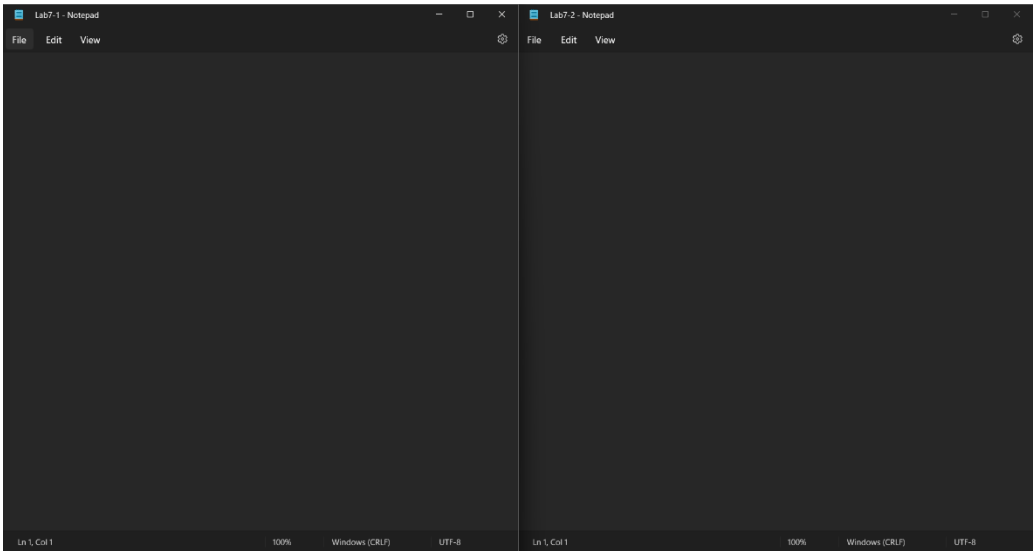


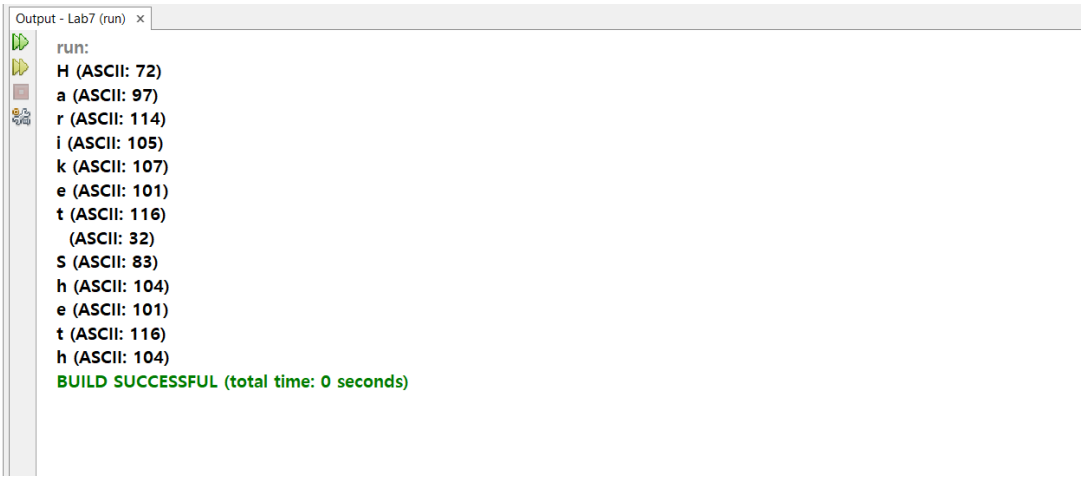


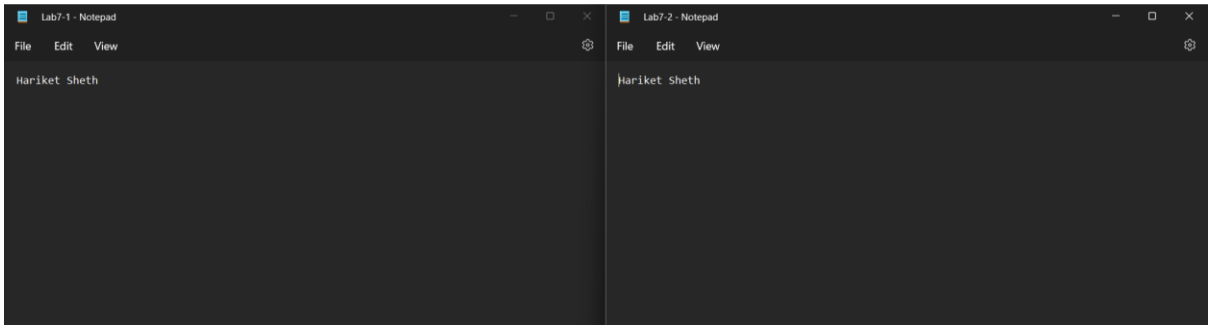
C. ByteArrayOutputStream and ByteArrayInputStream

```java
package lab7;

import java.io.*;
public class Lab7 {
    public static void main(String[] args) throws IOException {
        FileOutputStream fout1 = new FileOutputStream("C:\\Users\\Hariket
Sheth\\Desktop\\Lab7-1.txt");
        FileOutputStream fout2 = new FileOutputStream("C:\\Users\\Hariket
Sheth\\Desktop\\Lab7-2.txt");
        byte[] buf = {72, 97, 114, 105, 107, 101, 116, 32, 83, 104, 101, 116, 104};
        ByteArrayInputStream byt = new ByteArrayInputStream(buf);
        int k = 0;
        while ((k = byt.read()) != -1) {
            char ch = (char) k;
            System.out.println(ch + " (ASCII: " + k + ")");
        }
        ByteArrayOutputStream bout = new ByteArrayOutputStream();
        bout.write(buf);
        bout.writeTo(fout1);
        bout.writeTo(fout2);

        bout.flush();
        bout.close();
    }
}
```

OUTPUT:


Lab7-1 - Notepad
File Edit View
Ln 1, Col 1 100% Windows (CRLF) UTF-8
Lab7-2 - Notepad
File Edit View
Ln 1, Col 1 100% Windows (CRLF) UTF-8

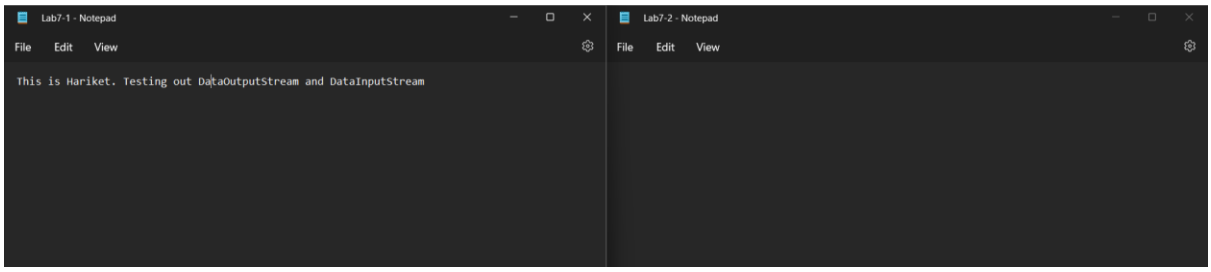

Output - Lab7 (run)
run:
H (ASCII: 72)
a (ASCII: 97)
r (ASCII: 114)
i (ASCII: 105)
k (ASCII: 107)
e (ASCII: 101)
t (ASCII: 116)
(ASCII: 32)
S (ASCII: 83)
h (ASCII: 104)
e (ASCII: 101)
t (ASCII: 116)
h (ASCII: 104)
BUILD SUCCESSFUL (total time: 0 seconds)

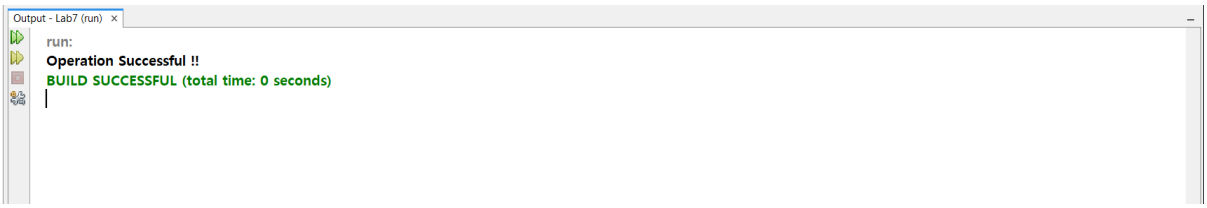

Lab7-1 - Notepad
File Edit View
Hariket Sheth
Lab7-2 - Notepad
File Edit View
Hariket Sheth

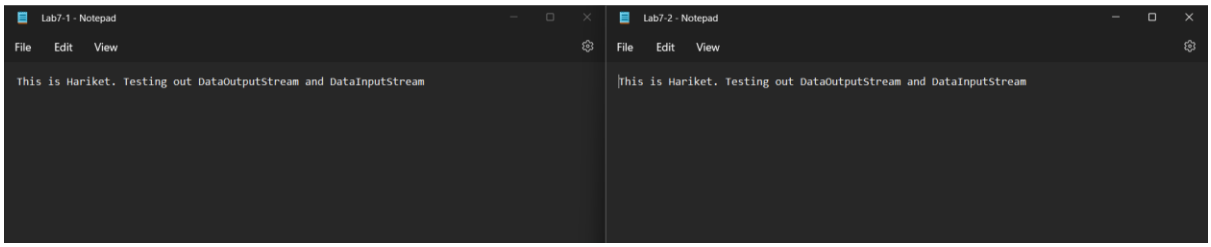
D. DataOutputStream and DataInputStream

```java
package lab7;

import java.io.*;
public class Lab7 {
    public static void main(String[] args) throws IOException {
        InputStream input = new FileInputStream("C:\\Users\\Hariket Sheth\\Desktop\\Lab7-1.txt");
        FileOutputStream fout2 = new FileOutputStream("C:\\Users\\Hariket Sheth\\Desktop\\Lab7-2.txt");

        DataInputStream inst = new DataInputStream(input);
        int count = input.available();
        byte[] ary = new byte[count];
        inst.read(ary);

        DataOutputStream data = new DataOutputStream(fout2);
        data.write(ary);
        data.flush();
        data.close();
        System.out.println("Operation Successful !!");
    }
}
```

OUTPUT:







E. **Java FilterOutputStream and Java FilterInputStream**

```java
package lab7;

import java.io.*;
public class Lab7 {
    public static void main(String[] args) throws IOException {

        File data = new File("C:\\Users\\Hariket Sheth\\Desktop\\Lab7-1.txt");
        File output = new File("C:\\Users\\Hariket Sheth\\Desktop\\Lab7-2.txt");
        FileInputStream  file = new FileInputStream(data);
        FilterInputStream filter = new BufferedInputStream(file);
        FileOutputStream file1 = new FileOutputStream(output);
        FilterOutputStream filter1 = new FilterOutputStream(file1);

        int k =0;
        while((k=filter.read())!=-1){
            System.out.print((char)k);
            filter1.write((char)k);
            filter1.flush();
        }
        System.out.print("\n");
        file.close();
        filter.close();
        filter1.close();
        file1.close();

        System.out.println("Operation Successful !!");
    }
}
```

OUTPUT: