Core Java

ASSIGNMENT 4

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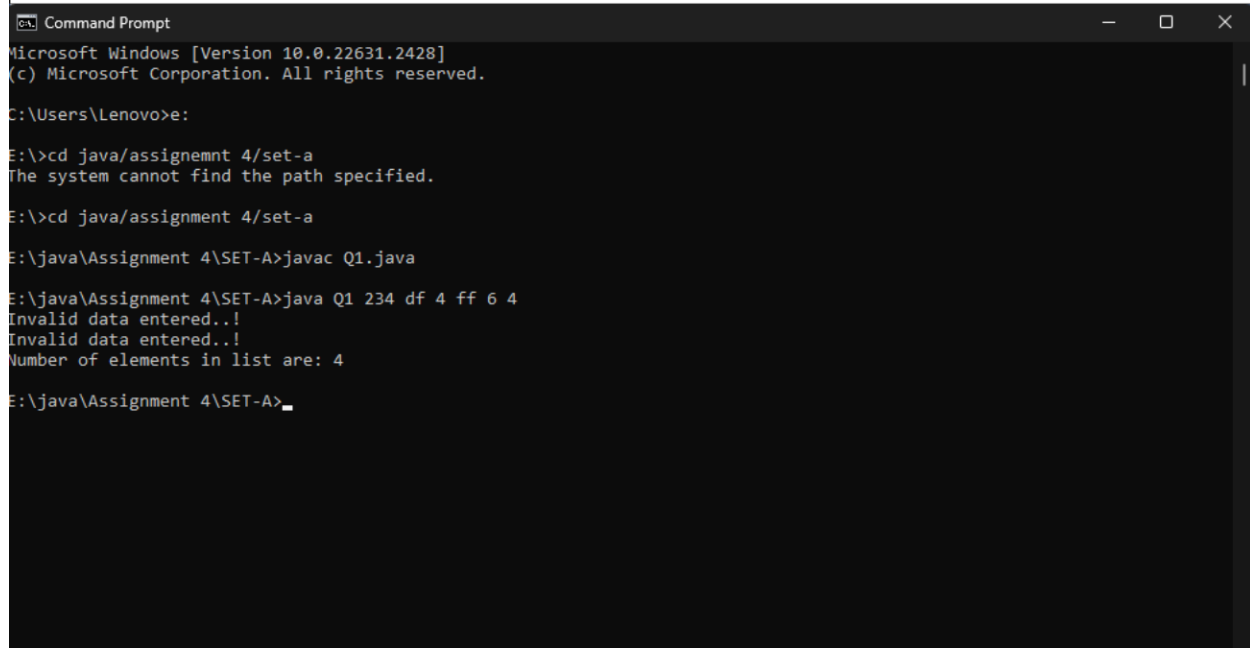ASSIGNMENT BASED ON: FILE AND EXCEPTION HANDLING

ASSIGNMENT 4
SET-A

Q.1 Write a java program to count the number of integers from a given list.(Use command line arguments).

Ans:
```java
import java.util.*;
class Q1{
public static void main(String[] args) {
ArrayList<String> al=new ArrayList<String>();
int count=0;
for(int i=0;i<args.length;i++){
al.add(args[i]);
}
for(int j=0;j<al.size();j++){
String val=al.get(j);
try{
int k=Integer.parseInt(val);
count++;
}catch(Exception e){
System.out.println("Invalid data entered..!");
}}
System.out.println("Number of elements in list are: "+count);
}
}
```

Output:

```
Command Prompt                                                        —  □  ×
Microsoft Windows [Version 10.0.22631.2428]
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C:\Users\Lenovo>e:

E:\>cd java/assignemnt 4/set-a
The system cannot find the path specified.

E:\>cd java/assignment 4/set-a

E:\java\Assignment 4\SET-A>javac Q1.java

E:\java\Assignment 4\SET-A>java Q1 234 df 4 ff 6 4
Invalid data entered..!
Invalid data entered..!
Number of elements in list are: 4

E:\java\Assignment 4\SET-A>_
```

ASSIGNMENT 4
SET-A

Q.2 Write a java program to check whether given candidate is eligible for voting or not. Handle user defined as well as system defined Exception.

Ans:
```java
import java.util.*;
class MyException extends Exception{
        MyException(String msg){
                super(msg);
        }
}
class age{
        public static void age(int a) throws MyException{
          if(a<18)
          throw new MyException("User is not eligible for voting.");
          else if(a==0)
          throw new MyException("Age is invalid.");
          else
          throw new MyException("User valid for voting.");
        }
        public static void main(String[] args) {
                try{
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Age: ");
        int a=sc.nextInt();
        age(a);
                }
                catch(MyException e){
                        System.out.println(e);
                }
        }
}
```
Output:

```
E:\>cd java/assignment 4/set-a

E:\java\Assignment 4\SET-A>javac Q1.java

E:\java\Assignment 4\SET-A>java Q1 234 df 4 ff 6 4
Invalid data entered..!
Invalid data entered..!
Number of elements in list are: 4

E:\java\Assignment 4\SET-A>java age
Enter Age:
19
MyException: User valid for voting.

E:\java\Assignment 4\SET-A>
```

ASSIGNMENT 4
SET-A

Q.3 Write a java program to calculate the size of a file.

Ans:
```
import java.io.*;
class Q3{
        public static void main(String[] args) {
        try{
        File f=new File("E:\\test.txt");
   long size=f.length();
        System.out.println("File size in Bytes are: "+size);
}
catch(Exception e){
        System.out.println(e);
}
}
}
```

Output:

```
E:\java\Assignment 4\SET-A>java Q3
File size in Bytes are: 36

E:\java\Assignment 4\SET-A>_
```

ASSIGNMENT 4
SET-A

Q.4 Write a java program to accept a number from a user, if it is zero then throw user defined Exception "Number is Zero". If it is non-numeric then generate an error "Number is Invalid" otherwise check whether it is palindrome or not.
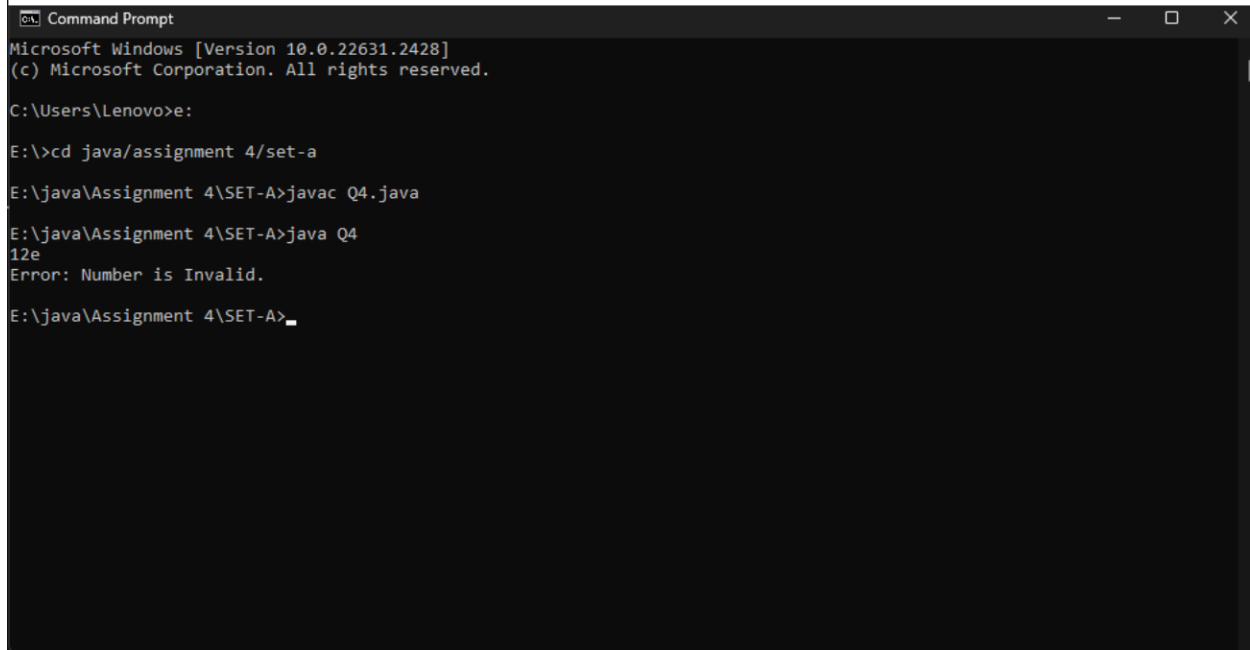
Ans:
```
import java.util.*;
class MyException extends Exception{
   MyException(String msg){
        super(msg);
   }
}
class Q4{
        public static void check(String num) throws MyException{
                //int original=Integer.parseInt(num);
                int original=Integer.parseInt(num);
                if(original<1){
                        throw new MyException(": Number is Zero.");
                }
                else{
                        int n=Integer.parseInt(num);
                        int temp=0;
                        while(n!=0){
        int digit=n%10;
        temp=temp*10+digit;
        n=n/10;
     }
     if(temp==original)
        System.out.println("Number is Palindrome");
     else
        System.out.println("Number is not Palindrome");
   }
}
        public static void main(String[] args) {
                Scanner sc=new Scanner(System.in);
                String num=sc.next();
                try{
                        check(num);

                }
                catch(MyException e){
                        System.out.println(e);
                }
                catch(Exception e1){
                        System.out.println("Error: Number is Invalid.");
                }
```

```
}
}
```

Output:


```
Command Prompt                                                    —    □    ×

Microsoft Windows [Version 10.0.22631.2428]
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C:\Users\Lenovo>e:

E:\>cd java/assignment 4/set-a

E:\java\Assignment 4\SET-A>javac Q4.java

E:\java\Assignment 4\SET-A>java Q4
12e
Error: Number is Invalid.

E:\java\Assignment 4\SET-A>_
```

ASSIGNMENT 4
SET-A

Q.5 Write a java program to accept a number from user, If it is greater than 100 then throw user defined exception "Number is out of Range" otherwise do the addition of digits of that number. (Use static keyword)

Ans:
```java
import java.util.*;
class MyException extends Exception{
        public MyException(String message){
                super(message);
        }
}

class Q5{
        static int num;
        public static void validate(int val) throws MyException{
                if(val>100)
                throw new MyException("Number is out of range.");
                else if(val==0)
                throw new MyException("Number should not equals to 0");
                else{
                        int sum=0;
                        while(val!=0){
                                int digit=val%10;
                                sum=sum+digit;
                                val=val/10;
                        }
                        System.out.println("Result: Sum of digits of a given number is :"+sum);
                }
        }

        public static void main(String[] args) {
                try{
                Scanner get=new Scanner(System.in);
                System.out.println("Enter a Number: ");
                int val=Q5.num;
                val=get.nextInt();
                validate(val);
        }
        catch(MyException e){
                System.out.println(e);
        }
}
```
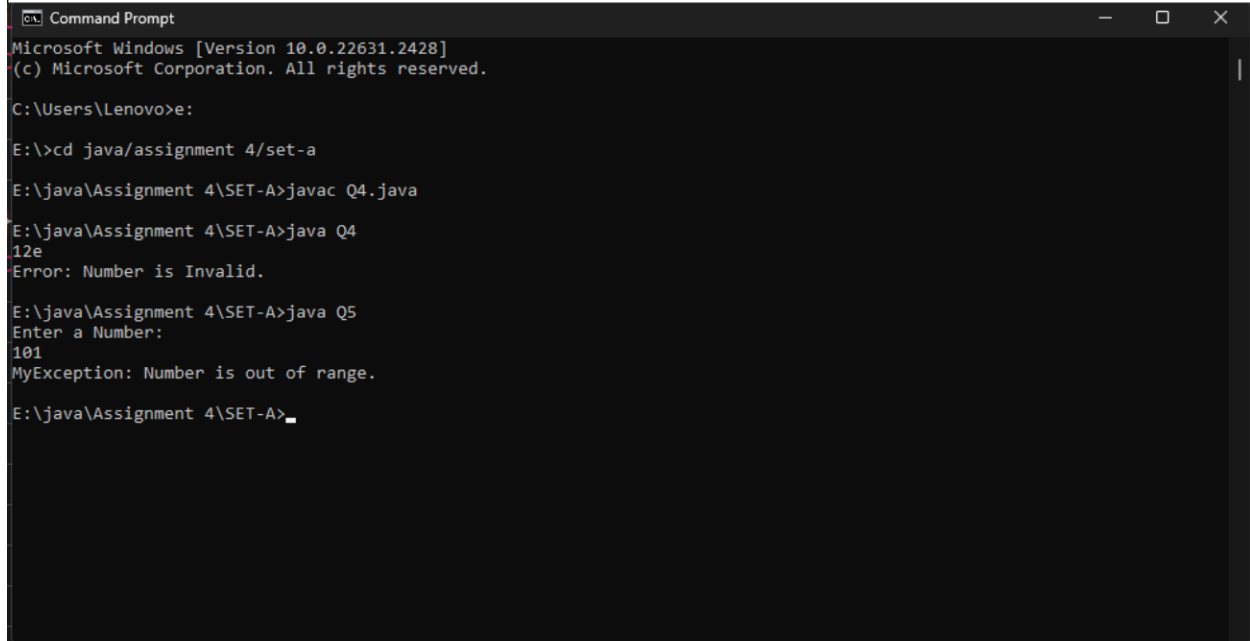
```
        }

}
```

Output:


```
Command Prompt                                                    —    □    ×

Microsoft Windows [Version 10.0.22631.2428]
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C:\Users\Lenovo>e:

E:\>cd java/assignment 4/set-a

E:\java\Assignment 4\SET-A>javac Q4.java

E:\java\Assignment 4\SET-A>java Q4
12e
Error: Number is Invalid.

E:\java\Assignment 4\SET-A>java Q5
Enter a Number:
101
MyException: Number is out of range.

E:\java\Assignment 4\SET-A>_
```

ASSIGNMENT 4
SET-B

Q.1 Write a java program to copy the data from one file into another file, while copying change the case of characters in target file and replaces all digits by '*' symbol.

Ans:
```java
import java.io.*;
class Q1{
        public static void main(String[] args) {
        try{
        File reader=new File("G:\\demo.txt");
        File writer=new File("G:\\demo2.txt");
        BufferedReader r=new BufferedReader(new FileReader(reader));
        BufferedWriter w=new BufferedWriter(new FileWriter(writer));
        String line;
        while((line=r.readLine())!=null){
                String modified=line.toLowerCase().replaceAll("\\d","*");
                        w.write(modified);
                        w.newLine();
        }
        r.close();
        w.close();
        System.out.println("File created.");
}
        catch(IOException e){
                System.out.println(e);
        }
}
}
```
Output:

```
E:\java\Assignment 4>cd set-b

E:\java\Assignment 4\SET-B>java Q1
File created.

E:\java\Assignment 4\SET-B>_
```

ASSIGNMENT 4
SET-B

Q.2 Write a java program to accept string from a user. Write ASCII values of the characters from a string into the file.

Ans:
```java
import java.io.*;
import java.util.*;
class Q2{
        public static void main(String[] args) {
        try{
        FileOutputStream writer=new FileOutputStream("G:\\file.txt");
        Scanner get=new Scanner(System.in);
        System.out.println("Enter a String: ");
        String input=get.next();
        for(int i=0;i<input.length();i++){
                char c=input.charAt(i);
                int ascval=(int)c;
                writer.write(ascval);
        }
        writer.close();
}catch(IOException e){
        System.out.println(e);
}
}
}
```

Output:

```
E:\java\Assignment 4\SET-B>javac Q2.java

E:\java\Assignment 4\SET-B>java Q2
Enter a String:
axabdc
```

ASSIGNMENT 4
SET-B

Q.3 Write a java program to accept a number from a user, if it less than 5 then throw user defined Exception "Number is small", if it is greater than 10 then throw user defined exception "Number is Greater", otherwise calculate its factorial. 4. Write a java program to display contents of a file in reverse order.

Ans:
```java
import java.util.*;
class MyException extends Exception{
        MyException(String msg){
                super(msg);
        }
}
class Q3{
        public static void fun(int n) throws MyException{
                if(n<5)
                        throw new MyException(": Number is small.");
                else if(n>10)
                        throw new MyException(": Number is Greater.");
                else{
                        int fact=1;
                        for(int i=1;i<=n;i++){
        fact=fact*i;
                        }
                        System.out.println("Factorial of "+n+" is: "+fact);
                }
        }
        public static void main(String[] args) {
        try{
                Scanner get=new Scanner(System.in);
                System.out.println("Enter a Number: ");
                int n=get.nextInt();
                fun(n);
        }catch(MyException e){
                System.out.println(e);
        }
}
}
```

Output:

```
E:\java\Assignment 4\SET-B>java Q3
Enter a Number:
123
MyException: : Number is Greater.

E:\java\Assignment 4\SET-B>_
```
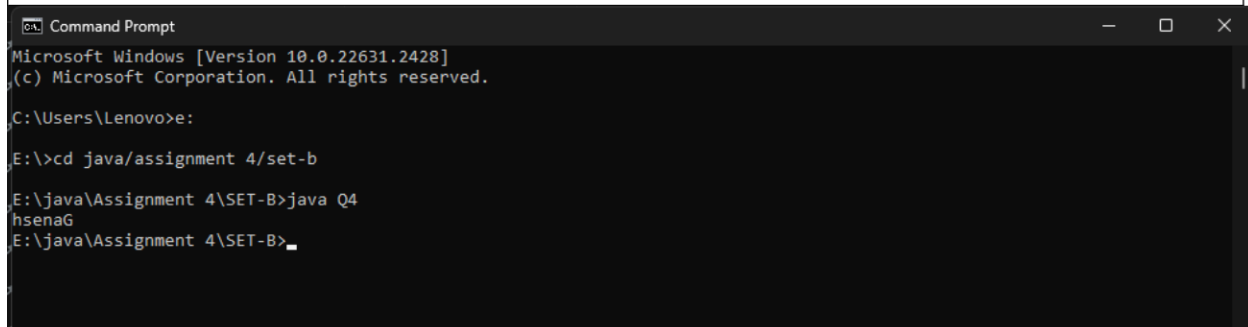
ASSIGNMENT 4
SET-B

Q.4 Write a java program to display contents of a file in reverse order.

Ans:
```java
import java.io.*;
import java.util.*;
class Q4{
        public static void main(String[] args) {

        try{
                List<Character> l=new ArrayList<Character>();
                FileInputStream reader=new FileInputStream("G:\\file.txt");
                int i=0;
                String content=new String();
                while((i=reader.read())!=-1){
                        content=String.valueOf((char)i);
                        l.add((char)i);
                }
                Collections.reverse(l);
                for(Character r:l){
                        System.out.print(r);
                }
                reader.close();
        }
        catch(IOException e){
                System.out.println(e);
        }
}
}
```

Output:

```
Command Prompt                                               —   □   ×

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C:\Users\Lenovo>e:

E:\>cd java/assignment 4/set-b

E:\java\Assignment 4\SET-B>java Q4
hsenaG
E:\java\Assignment 4\SET-B>
```
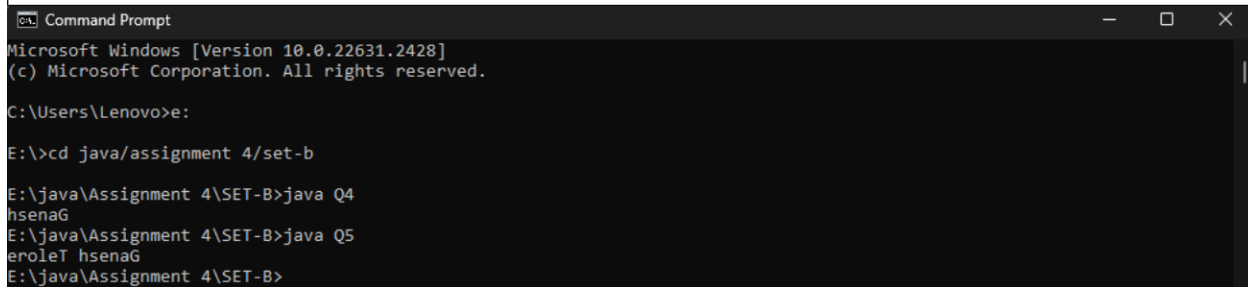
ASSIGNMENT 4
SET-B

Q.5 Write a java program to display each word from a file in reverse order.

Ans:
```java
import java.io.*;
import java.util.*;
class Q5{
        public static void main(String[] args) {

        try{
                List<Character> l=new ArrayList<Character>();
                FileInputStream reader=new FileInputStream("G:\\file2.txt");
                int i=0;
                String content=new String();
                while((i=reader.read())!=-1){
                        //content=String.valueOf((char)i);
                        l.add((char)i);
                }
                Collections.reverse(l);
                for(Character r:l){
                        System.out.print(r);
                }
                reader.close();
        }
        catch(IOException e){
                System.out.println(e);
        }
}
}
```

Output:

```
Command Prompt                                                    —    □    ×
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C:\Users\Lenovo>e:

E:\>cd java/assignment 4/set-b

E:\java\Assignment 4\SET-B>java Q4
hsenaG
E:\java\Assignment 4\SET-B>java Q5
eroleT hsenaG
E:\java\Assignment 4\SET-B>
```

ASSIGNMENT 4
SET-C

Q.1 Write a java program to accept list of file names through command line. Delete the files having extension .txt. Display name, location and size of remaining files.

Ans:
```java
import java.io.*;
class Q1{
        public static void main(String[] args) {
                try{
                for(String fname:args){
                        File file=new File(fname);
                        if(file.exists() && file.isFile()){
                                if(file.getName().endsWith(".txt")){
                                        if(file.delete()){
                                        System.out.println("File has deleted"+file.getName());
                                        }
                                        else{
                                        System.out.println("File not deleted."+file.getName());
                                        }
                                }else{
                                        System.out.println("Remaining files list: "+file.getName());
                                        System.out.println("File Location: "+file.getAbsolutePath());
                                        System.out.println("File Size: "+file.length());
                                        }
                                }else{
                                        System.out.println("Invalid file name");
                                }
                        }
                }
                catch(Exception e){
                        System.out.println(e);
                }
        }
}
```

Output:

```
E:\java\Assignment 4\SET-C>java Q1 text.txt img.bmp
File has deletedtext.txt
Remaining files list: img.bmp
File Location: E:\java\Assignment 4\SET-C\img.bmp
File Size: 0

E:\java\Assignment 4\SET-C>_
```

ASSIGNMENT 4
SET-C

Q.2 Write a java program to display the files having extension .txt from a given directory.

Ans:
```java
import java.io.*;
class Q2{
        public static void main(String[] args) {
                try{
                                File file=new File("E://java/Assignment 4/SET-C/demo");
                                if(file.exists() && file.isDirectory()){
                                        File fi[]=file.listFiles();
                                        if(fi!=null){
                                                for(File f:fi){
                                        if(f.isFile() && f.getName().endsWith(".txt")){
                                        System.out.println("Remaining files list: "+f.getName());
                                        }
                                        else
                                                System.out.println("No Files with .txt extension");
                                }
                                }else{
                                        System.out.println("Invalid file name");
                                }
                        }
                }
                catch(Exception e){
                        System.out.println(e);
                }
        }
}
```

Output:

```
E:\java\Assignment 4\SET-C>java Q2
Remaining files list: demo1.txt
Remaining files list: demo2.txt
```

ASSIGNMENT 4
SET-C

Q.3 Write a java program to count number of lines, words and characters from a given file.

Ans:

```java
import java.io.*;
class Q3{
        public static void main(String[] args) {
                try{
                        FileReader reader=new FileReader("demo/test.txt");
                        int data=reader.read();
                        int characters=0;
                        int lines=0;
                        while(data!=-1){
                                char ch2=(char)data;
                                if(ch2=='\n' || ch2=='\r'){
                                        lines++;
                                }
                                else if(Character.isLetter(ch2)){
                                        characters++;
                                }
                                data=reader.read();
                        }
                        reader.close();

                        FileReader reader2=new FileReader("demo/test.txt");
                        int data2=reader2.read();
                        int words=0;
                        while(data2!=-1){
                                char ch2=(char)data2;
                                if(Character.isWhitespace(ch2)){
                                        words++;
                                }
                                data2=reader2.read();
                        }
                        reader2.close();
                        System.out.println("No of Lines: "+lines);
                        System.out.println("No of words: "+words);
                        System.out.println("No of characters: "+characters);
                }
                catch(Exception e){
                        System.out.println(e);
                }
        }
}
```

Output:

```
E:\java\Assignment 4\SET-C>java Q3
No of Lines: 0
No of words: 6
No of characters: 16
```

ASSIGNMENT 4
SET-C

Q.4 Write a java program to read the characters from a file, if a character is alphabet then reverse its case, if not then display its category on the Screen. (whether it is Digit or Space)

Ans:
```java
import java.io.*;
class Q4{
        public static void main(String[] args) {
                try{
                        FileReader reader=new FileReader("demo/test.txt");
                        int data=reader.read();
                        while(data!=-1){
                                char ch=(char)data;
                                //String data2=String.valueOf(data);
                                if(Character.isLetter(ch)){
                                        if(Character.isUpperCase(ch)){
                                                System.out.println(Character.toLowerCase(ch));
                                        }
                                        else if(Character.isLowerCase(ch)){
                                                System.out.println(Character.toUpperCase(ch));
                                        }
                                }
                                else if(Character.isDigit(ch)){
                                        System.out.println("Categeory: Digit");
                                }
                                else if(Character.isWhitespace(ch)){
                                        System.out.println("Categeory: Space");
                                }
                                data=reader.read();
                        }
                        reader.close();
                }catch(Exception e){
                        System.out.println(e);
                }
        }
}
```
Output:

```
Command Prompt                                                        —   □   ✕

E:\java\Assignment 4\SET-C>javac Q4.java

E:\java\Assignment 4\SET-C>java Q4
h
E
L
L
O
Categeory: Space
I
Categeory: Space
A
M
Categeory: Space
g
t
Categeory: Space
B
O
R
N
Categeory: Space
I
N
Categeory: Space
Categeory: Digit
Categeory: Digit
Categeory: Digit
Categeory: Digit
```

ASSIGNMENT 4
SET-C

Q.5 Write a java program to validate PAN number and Mobile Number. If it is invalid then throw user defined Exception "Invalid Data", otherwise display it.

Ans:
```java
import java.io.*;
import java.util.*;
class InvalidPAN extends Exception{
        InvalidPAN(String msg){
                super(msg);
        }
}
class Q5{
        public static void main(String[] args) {
                try{
                        String PAN=args[0];
                        String mno=args[1];
                        int PANlen=PAN.length();
                        boolean isPAN=PANlen==10;
                        boolean alphanumeric=PAN.matches("[A-Z0-9]+");
                        int mobileno=mno.length();
                boolean ismno=mobileno==10;
                        boolean digit=mno.matches("[0-9]+");
                                if(alphanumeric && isPAN && ismno && digit){
                                        System.out.println("PAN No: "+PAN);
                                        System.out.println("Mobile No: "+mno);
                                }
                                else{
                                        throw new InvalidPAN(": Invalid Data");
                                }
                }
                catch(ArrayIndexOutOfBoundsException e1){
                        System.out.println("Warning: Please enter 10 PAN No and Mobile No
respectively..!");
                }
                catch(Exception e){
                        System.out.println(e);
                }
        }
}
```
Output:

```
E:\java\Assignment 4\SET-C>java Q5 ABC2035GT0 9010486885
PAN No: ABC2035GT0
Mobile No: 9010486885
```