OOP Lab: Experiment 8

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**Exercise 1:** Write a program for searching strings for the first occurrence of a character or substring and for the last occurrence of a character or substring.

Code:

import java.util.\*;

public class Occurance

{

    int nonRepeat(String s)

    {

        int index = -1;

        char arr[] = new char[256];

        for(int i = 0; i < s.length(); i++)

        {

            arr[s.charAt(i)]++;

        }

        for(int i = 0; i < s.length(); i++)

        {

            if(arr[s.charAt(i)] == 1)

            {

                index = i;

                break;

            }

        }

        return index;

    }

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        Occurance obj = new Occurance();

        String s;

        System.out.print("Enter String: ");

        s = sc.nextLine();

        int index = obj.nonRepeat(s);

        if(index == -1)

            System.out.println("No Repeating Character!");

        else

        {

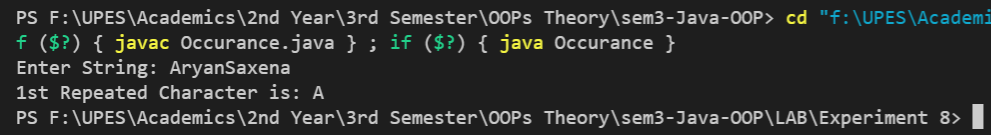
            System.out.println("1st Repeated Character is: " + s.charAt(index));

        }

    }

}

## Output:



**Exercise 2:** Write a program that converts all characters of a string in capital letters. (Use StringBuffer to store a string). Don’t use inbuilt function.

## Code:

import java.util.\*;

public class CapitalBuffer

{

    public static void main(String[] args)

    {

        Scanner sc = new Scanner(System.in);

        StringBuffer str = new StringBuffer();

        System.out.println("Enter a String: ");

        String s = sc.nextLine();

        str.append(s);

        for(int i = 0; i < str.length(); i++) {

            if(str.charAt(i) >= 'a' && str.charAt(i) <= 'z') {

                char c = str.charAt(i);

                c = (char)((int)c - 32);

                str.setCharAt(i, c);

            }

        }

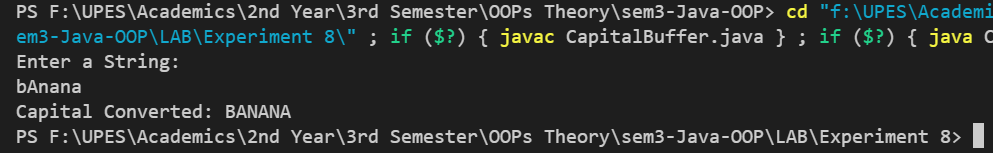
        System.out.println("Capital Converted: " + str);

        sc.close();

    }

}

## Output:



**Exercise 3:** Write a program in Java to read a statement from console, convert it into upper case and again print on console. (Don’t use inbuilt function)

## Code:

import java.util.\*;

class Exception500 extends Exception

{

    public Exception500(String s)

    {

        super(s);

    }

}

class Lessthan500

{

    public static void main(String[] args)

    {

        Scanner sc= new Scanner(System.in);

        System.out.print("Enter a number: ");

        int n= sc.nextInt();

        sc.close();

        try

        {

            if(n<500)

                throw new Exception500("Value less than 500");

            else

                System.out.println("No Exception found!\n");

        }

        catch (Exception500 e)

        {

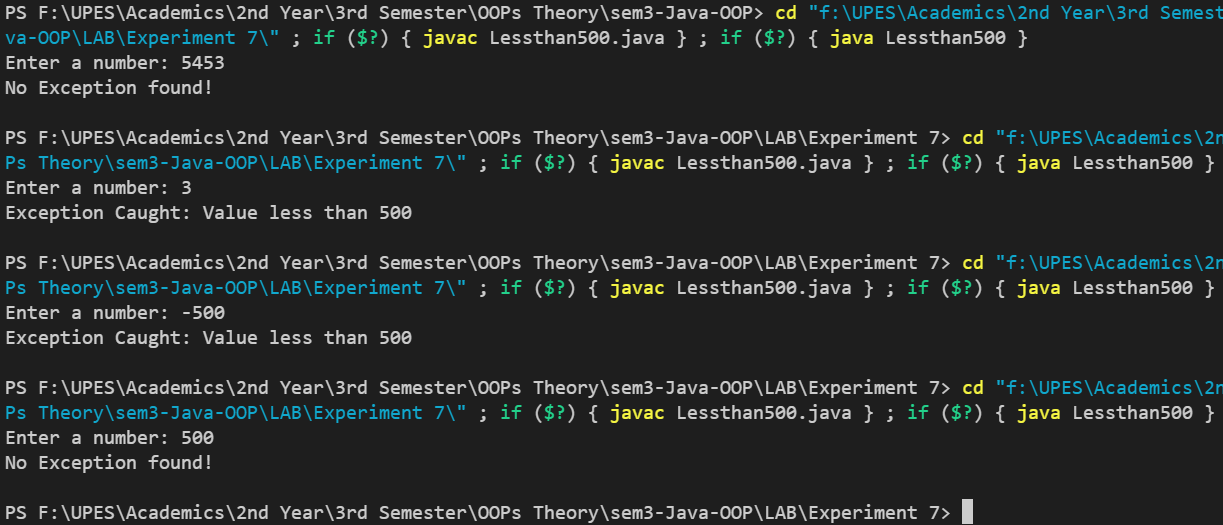
            System.out.println("Exception Caught: " + e.getMessage() + "\n");

        }

    }

}

## Output:



**Exercise 4:** You are given two integers,a and b as input, you have to compute a/b: If a and b are not bit signed integers or if is zero, exception will occur and you have to report it. Read sample Input/Output to know what to report in case of exceptions.

## Code:

import java.util.\*;

public class InputOutputException {

    public static void main(String[] args)

    {

        int a,b;

        try

        {

            Scanner sc = new Scanner(System.in);

            System.out.println("Input a & b: ");

            a= sc.nextInt();

            b= sc.nextInt();

            sc.close();

            try

            {

                System.out.println(a + "/" + b + " = " + a/b);

            }

            catch(ArithmeticException e)

            {

                System.out.println(e);

            }

        }

        catch(InputMismatchException e)

        {

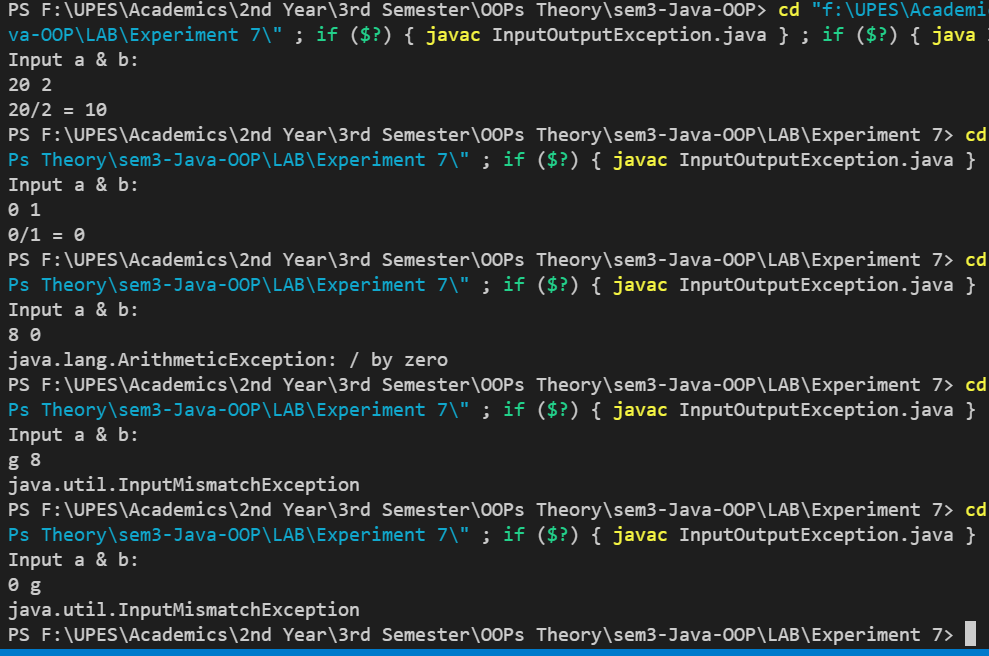
            System.out.println(e);

        }

    }

}

## Output:



**Exercise 5:** You are required to compute the power of a number by implementing a calculator. Create a class Calc which consists of a single method long power(int, int). This method takes two integers, a and b, as parameters and finds ab. If either a or b is negative, then the method must throw an exception which says "a and b should not be negative". Also, if both a and bare zero, then the method must throw an exception which says "a and b should not be zero"

1. lang.Exception: a and b should not be negative.

Complete the function power in class *Calc* and return the appropriate result after the power operation or an appropriate exception as detailed above.

## Code:

import java.util.\*;

public class Calc

{

    public static long power(int a, int b) throws Exception

    {

        if(a<0 || b<0)

            throw new Exception("a and b should be non-negative");

        else if(a == 0 && b == 0)

            throw new Exception("a and b should not be zero.");

        else

            return (long)Math.pow(a, b);

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter a & b: ");

        int a = sc.nextInt();

        int b = sc.nextInt();

        try

        {

            long Result = power(a,b);

            System.out.println("Calculated Result: "+Result);

        }

        catch(Exception e)

        {

            System.out.println(e);

        }

        sc.close();

    }

}

## Output:

