**Experiment – 6**

Q1) Write a program in Java to develop user defined exception for “Divide by Zero” error.

Ans:

**Program:**

// exp 1

package Exp\_6;

import java.util.Scanner;

public class DivideByZero{

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter first value: ");

        int n = sc.nextInt();

        System.out.print("Enter second value: ");

        int m = sc.nextInt();

        try{

            double ans = n/m;

            System.out.println(ans);

        }

        catch(ArithmeticException e){

            System.out.print("Second number cannot be 0");

        }

        catch(Exception e){

            System.out.println("Something unexpected happened!");

        }

        sc.close();

    }

}

**Output:**

A computer screen with white text

AI-generated content may be incorrect.

Q2) Write a program in Java to demonstrate throw, throws, finally, multiple try block and multiple catch exception

Ans:

**Program:**

// exp 2

package Exp\_6;

import java.util.Scanner;

public class Second {

    public static void checkAge(int age) throws ArithmeticException{

        if(age<18){

            throw new ArithmeticException("You are ineligible");

        }

        else{

            System.out.println("You are eligible");

        }

    }

    public static void main(String[] args){

        Scanner sc = new Scanner(System.in);

        try{

            int age = Integer.parseInt(args[0]);

            if(age<0){

                throw new ArithmeticException("Negative age not possible");

            }

            checkAge(age);

        }

        catch(NumberFormatException e){

            System.out.println("Enter valid age in integers only.");

        }

        catch(ArithmeticException e){

            System.out.println(e.getMessage());

        }

        catch(Exception e){

            System.out.println("Something unexpected happened!");

        }

        finally{

            sc.close();

            System.out.println("Exiting the program....");

        }

    }

}

**Output:**

A computer screen shot of white text

AI-generated content may be incorrect.

Q3) Write a small application in Java to develop Banking Application in which user deposits the amount Rs 1000.00 and then start withdrawing ofRs 400.00, Rs 300.00 and it throws exception "Not Sufficient Fund" when user withdraws Rs 500 thereafter

Ans:

**Program:**

// exp 3

package Exp\_6;

import java.util.Scanner;

class LowBalance extends Exception{

    LowBalance(){super("Insufficient Balance");}

    LowBalance(String message){super(message);}

}

public class BankAccount {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        try{

System.out.print("Enter amount to deposit: ");

        int amt = sc.nextInt();

            while(true){

                System.out.println("Current Balance: "+amt);

                System.out.print("Enter amount to withdraw(-1 to exit): ");

                int wd = sc.nextInt();

                if(wd == -1){

                    break;

                }

                if(wd > amt){

                    throw new LowBalance("You have insufficent balance");

                }

                amt -= wd;

                System.out.println("Successfully withdrawn\n");

            }

        }

        catch(LowBalance e){

            System.out.println(e.getMessage());

        }

        catch(NumberFormatException e){

            System.out.println("Enter only integral inputs! ");

        }

        catch(Exception e){

            System.out.println("Something unexpected happened!");

        }

        finally{

            System.out.println("Exiting the system. Thank you for coming!");

            sc.close();

        }

    }

}

**Output:**

A computer screen shot of a black screen

AI-generated content may be incorrect.

Q4) Write an application that contains a method named average () has one argument that is an array of strings. It converts these to double values and returns their average. The method generates a NullPointerException,if an array elements is null or a NumberFormatException, if an element is incorrectly formatted. Include throws statement in method declaration.

Ans:

**Program:**

// exp 4

package Exp\_6;

public class AverageMethod {

    public static double average(String[] a) throws NullPointerException, NumberFormatException{

        if(a.length == 0){

            throw new NullPointerException("No numbers entered!");

        }

        int n = a.length;

        double[] result = new double[n];

        for(int i=0;i<n;i++){

            double d = Double.parseDouble(a[i]);

            result[i] = d;

        }

        double sum = 0;

        for (double i : result){

            sum += i;

        }

        double avg = sum/n;

        return avg;

    }

    public static void main(String[] args) {

        try{

            System.out.println(average(args));

        }

        catch(NullPointerException e){

            System.out.println(e.getMessage());

        }

        catch(NumberFormatException e){

            System.out.println("Enter only double values");

        }

        catch(Exception e){

            System.out.println("Something unexpected occured");

        }

        finally{

            System.out.println("Exiting the program..");

        }

    }

}

**Output:**

A computer screen shot of a program code

AI-generated content may be incorrect.

Q5) Write an application that generates custom exception if first argument from command line argument is 0.

Ans:

**Program:**

// exp 5

package Exp\_6;

class ArgumentZero extends Exception{

    ArgumentZero(){super("First argument is zero!!");}

    ArgumentZero(String message){super(message);}

}

public class FirstArgumentZero {

    public static void main(String[] args) {

        try{

            if(args.length==0){

                throw new StringIndexOutOfBoundsException("Insufficient Input");

            }

            int i = Integer.parseInt(args[0]);

            if(i == 0){

                throw new ArgumentZero("You have entered the first argument as 0");

            }

            else{

                System.out.println("Good job! You entered non zero initial value");

            }

        }

        catch(StringIndexOutOfBoundsException e){

            System.out.println(e.getMessage());

        }

        catch(ArgumentZero e){

            System.out.println(e.getMessage());

        }

        catch(Exception e){

            System.out.println(e.getMessage());

        }

        finally{System.out.println("Exiting the program...");}

    }

}

**Output:**

A computer screen shot of a program

AI-generated content may be incorrect.

Q6) A marklist containing reg.no and marks for a subject is given.if the marks are <0,user-defined IllegalMarkException is thrown out and handled with the message "Illegal Mark". For all valid marks, the candidate will be declared as "PASS" if the marks are equal to or greater than 40, otherwise it will be declared as "FAIL".Write a class called IllegalMarkException.

Ans:

**Program:**

// exp 6

package Exp\_6;

import java.util.Scanner;

class IllegalMarksException extends Exception{

    IllegalMarksException(){super("Illegal Marks");}

    IllegalMarksException(String message){super(message);}

}

public class MarkLists{

    public static void checkMarks(int[] regNo, double[] marks) throws IllegalMarksException{

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

            if(marks[i] <0){

                throw new IllegalMarksException();

            }

        }

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

            if(marks[i] >= 40){

                System.out.println(regNo[i] + " : PASS");

            }

            else{

                System.out.println(regNo[i] + " : FAIL");

            }

        }

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter number of entries: ");

        int size = sc.nextInt();

        int[] regNo = new int[size];

        double[] marks = new double[size];

        for(int i=0;i<size;i++){

            System.out.print("Enter Registration Number: ");

            regNo[i] = sc.nextInt();

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

            marks[i] = sc.nextDouble();

        }

        try{

            checkMarks(regNo, marks);

        }

        catch(IllegalMarksException e){

            System.out.println(e.getMessage());

        }

        catch(Exception e){

            System.out.println("Something unexpected happened!");

        }

        finally{

            System.out.println("Exiting the program...");

        }

        sc.close();

    }

}

**Output:**

