**Lab Exercise on Packages**

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**Ayush Kumar - 21MCA1117**

1) Demonstrate any 3 pre-defined exception using Java.

import java.util.\*;

import java.lang.\*;

class ArithmeticExceptions{

void method()

{

Scanner s = new Scanner(System.in);

int a;

a = s.nextInt();

try{

a = a/0;

}

catch(Exception e){

System.out.println("ArithmeticException");

}

}

}

class ArrayExceptions{

void method()

{

int arr[] = {1,2,3,4,5,6};

try{

System.out.println(arr[10]);

}

catch(Exception e){

System.out.println("ArrayIndexOutOfBoundException");

}

}

}

class NullPointerExceptions{

void method()

{

String str = null;

try{

System.out.println(str.charAt(0));

}

catch(Exception e){

System.out.println("NullPointerException");

}

}

}

class Exceptions{

public static void main(String args[]){

ArithmeticExceptions AE = new ArithmeticExceptions();

ArrayExceptions ArE = new ArrayExceptions();

NullPointerExceptions NPE = new NullPointerExceptions();

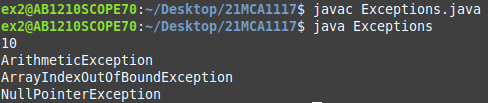
AE.method();

ArE.method();

NPE.method();

}

}



2) Write a program to find the average of ‘n’ natural numbers. Use the input through the keyboard during runtime. The program must read the value of n first. If the input n happens to be Zero or negative a suitable User defined Exceptions should be thrown. If it is not possible to convert the input into an integer then NumberFormat Exception must be thrown. After reading n values successfully, we must read the integer values of the array a[]. Each input string must be converted into integer.

import java.util.\*;

class InvalidSizeException extends Exception {

public InvalidSizeException(String str) {

super(str);

}

}

class userDefinedException {

static void validate(int num) throws InvalidSizeException {

if (num <= 0) {

throw new InvalidSizeException("Size of the array cannot be zero or negative");

}

}

public static void main(String args[]) {

Scanner in = new Scanner(System.in);

int n, i, sum = 0;

double avg;

String val;

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

try {

n = in .nextInt();

validateNo;

int[] arr = new int[n];

for (i = 0; i System.out.print("Enter a number: "); val = in .next();

try {

arr[i] = Integer.parseInt(val);

} catch (NumberFormatException e) {

System.out.println(e);

}

}

for (i = 0; i sum = sum + arr[i];

}

avg = sum / (arr.length);

System.out.println("Average is " + avg);

} catch (InvalidSizeException e) {

System.out.println("Invalid exception size caught");

System.out.println(e);

}

}

}