Lab-4

Question 1 :

Soll:

class CountryNotValidException extends Exception {

public CountryNotValidException() {

super(" employee should be an Indian citizen for calculating

tax.");

} }

class EmployeeNameInvalidException extends Exception {

public EmployeeNameInvalidException() {

super(" employee name cannot be empty.");

}

}

class TaxNotEligibleException extends Exception {

public TaxNotEligibleException() {

super(" employee does not need to pay tax.");

}

}

class TaxCalculator {

public double calculateTax(String empName, boolean isIndian, doubleempSal) throws CountryNotValidException, EmployeeNameInvalidException,TaxNotEligibleException {

validateEmployee(empName, isIndian);

return calculateTaxAmount(empSal);

}

private void validateEmployee(String empName, boolean isIndian)

throws CountryNotValidException, EmployeeNameInvalidException

{

if (empName == null || empName.trim().isEmpty()) {

throw new EmployeeNameInvalidException();

}

if (!isIndian) {

throw new CountryNotValidException();

}

}

private double calculateTaxAmount(double empSal) throws

TaxNotEligibleException {

if (empSal > 100000) {

return empSal \* 8 / 100;

} else if (empSal >= 50000) {

return empSal \* 6 / 100;

} else if (empSal >= 30000) {

return empSal \* 5 / 100;

} else if (empSal >= 10000) {

return empSal \* 4 / 100;

} else {

throw new TaxNotEligibleException();

}

}

}

public class CalculatorSimulator {

public static void main(String[] args) {

TestCase("Rahul", false, 95000);

TestCase("Sumit", true, 11000);

TestCase("Anshu", false, 85000);

}

private static void TestCase(String empName, boolean isIndian, double

empSal) {

TaxCalculator calculate = new TaxCalculator();

try {

double tax = calculate.calculateTax(empName, isIndian,

empSal);

System.out.println("Tax amount is: " + tax);

} catch (CountryNotValidException | EmployeeNameInvalidException |

TaxNotEligibleException e) {

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

} } }

Output:

employee should be an Indian citizen for calculating tax.

Tax amount is: 440.0

employee should be an Indian citizen for calculating tax.

Question 2: Create a program with a logic that throws the

ArrayIndexOutOfBoundsException while accessing elements in an array.

public class Exception1 {

public static void main(String[] args) {

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

try {

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

System.out.println("Element at " + i + ": " + array[i]);

}

} catch (ArrayIndexOutOfBoundsException e) {

System.out.println("ArrayIndexOutOfBoundsException");

} }

Output :

Element at 0: 1

Element at 1: 2

Element at 2: 3

Element at 3: 4

Element at 4: 5

ArrayIndexOutOfBoundsException