ASSIGNMENT NO: 4

Problem Statement A: Implement using C++

Define a class Employee consisting following:

Data members:

a. Employee ID
b. Name of Employee
c. Age
d. Income
e. City
f. Vehicle

Member Functions:

a. To assign initial values.
b. To display.

Accept Employee ID, Name, Age, Income, City and Vehicle from the user. Create an exception to check the following conditions and throw an exception if the condition does not meet.

1. Employee age between 18 and 55
2. Employee income between Rs. 50,000 – Rs. 1,00,000 per month
3. Employee staying in Pune/ Mumbai/ Bangalore / Chennai
4. Employee having 4-wheeler

Problem Statement B: Implement using Java

Implement the program to handle the arithmetic exception, ArrayIndexOutofBounds . The user enters the two numbers: n1, n2. The division of n1 and n2 is displayed. If n1, n2 are not integers then program will throw number format exception. If n2 is zero the program will throw Arithmetic exception.

Problem Statement C: Implement using Java

Validate the employee record with custom exception

Create a class employee with attributes eid, name, age and department.

Initialize values through parameterized constructor. If age of employee is not in between 25 and 60 then generate user-defined exception "AgeNotWithinRangeException". If name contains numbers or special symbols raise exception "NameNotValidException". Define the two exception classes.

Problem Statement D: Implement using Java

Write a menu-driven program for banking system which accept the personal data for Customer(cid, cname, amount).

Implement the user-defined/standard exceptions, wherever required to handle the following situations:

- ✓ Account should be created with minimum amount of 1000 rs..
- ✓ For withdrawal of amount, if wth_amt>amount.
- ✓ cid should be in the specific range of 1 to 20.
- ✓ Entered amount should be positive.

Objectives:

1. To learn the concepts of Exception handling in C++.
2. To learn and use exception handling mechanism using try catch block

Theory:

Exception Handling
Try-throw catch block
Catch all
Rethrowing exception

Algorithm / Class Diagram / Implementation:

1. START.
2. Create an Employee class.
3. Define accept and display member functions of class.
4. Accept Employee Information (Employee ID, Name, Age, Income, City Vehicle).
5. Check the age of an Employee is in between 18 to 55, if not caught an Exception.
6. Check the income of an Employee is in between 50,000 to 1,00,000/-, if not caught an Exception.
7. Check the City of an Employee is Pune/ Mumbai/ Bangalore / Chennai, if not caught an Exception.
8. Check the vehicle of an Employee is 4 wheeler, if not caught an Exception.
9. If none of the exception occurs then display an Employee Information.

10. Else display the corresponding exception caught messages.
11. STOP

Platform:

- 64-bit Open source Linux or its derivatives.
- Open Source C++ Programming tool like G++/Eclipse Editor.

Input:

Students should write input as per problem statement

Output:

Students should write output incase no exception or Exception Messages if there is an Exception.

Conclusion:

Thus, understood the use of exception handling mechanism and implemented the solutions of the given problem statements using C++ and Java

FAQs:

1) Why do we use Exception Handling mechanism?
2) Is it possible to use multiple catch for single throw? Explain?
3) What is Exception Specification?
4) What is Re-throwing Exception?
5) Explain use of finally keyword in java.