•Problem Statement : Define a class Employee consisting following :

!~tab

•Data members :

!~tab

!~s1Employee ID

!~s1Name of Employee

!~s1Age

!~s1Income

!~s1City

!~s1Vehicle

tab~!

•Member Functions :

!~tab

•To assign initial values.

•To display.

tab~!

tab~!

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.

!~tab

•Employee age between 18 and 55

•Employee income between Rs. 50,000 - Rs. 1,00,000 per month

•Employee staying in Pune/ Mumbai/ Bangalore / Chennai

•Employee having 4-wheeler

tab~!

•Objectives :

!~s2To learn the concepts of Exception handling in C++.

!~s2To learn and use exception handling mechanism using try catch block

•Theory :

When executing C++ code, different errors can occur : coding errors made by the programmer, errors due to wrong input, or other unforeseeable things.

When an error occurs, C++ will normally stop and generate an error message. The technical term for this is : C++ will throw an exception (throw an error).

Exception handling is the process of handling errors and exceptions in such a way that they do not hinder normal execution of the system.

Exception handling in C++ consist of three keywords : try, throw and catch :

The try statement allows you to define a block of code to be tested for errors while it is being executed.

The throw keyword throws an exception when a problem is detected, which lets us create a custom error.

The catch statement allows you to define a block of code to be executed, if an error occurs in the try block.

If you do not know the throw type used in the try block, you can use the "three dots" syntax (...) inside the catch block, which will handle any type of exception

If a catch block cannot handle the particular exception it has caught, you can rethrow the exception. The rethrow expression causes the originally thrown object to be rethrown.

•Algorithm :

!~s3 Initialise.

!~s3 Take input from user.

!~s3 Verify Integrity of Input using the given rules and Exception Handling.

!~s3 Provide Results accordingly.

•Platform :

!~tab

•64-bit Open source Linux or its derivatives.

•Open Source C++ Programming tool like G++/Eclipse Editor.

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•Input : Employee ID, Name, Age, Income, City and Vehicle of an Employee.

•Output : Employee Information if no exception or Exception Messages if there is an Exception.

•Conclusion : Thus, use the exception handling mechanism to display information of an Employee.

•FAQs :

!~s4Why do we use Exception Handling mechanism?

.>Exception handling is the process of handling errors and exceptions in such a way that they do not hinder normal execution of the system.

!~s4Is it possible to use multiple catch for single throw? Explain?

.>A single try statement can have multiple catch statements. Execution of particular catch block depends on the type of exception thrown by the throw keyword. If throw keyword send exception of integer type, catch block with integer parameter will get execute.

!~s4What is Exception Specification?

.>Exception specifications are a C++ language feature that indicate the programmer's intent about the exception types that can be propagated by a function. You can specify that a function may or may not exit by an exception by using an exception specification.

!~s4What is Re-throwing Exception?

.>If a catch block cannot handle the particular exception it has caught, you can rethrow the exception. The rethrow expression causes the originally thrown object to be rethrown.

!~s4What is stack unwinding?

.>In C++, when an exception occurs, the function call stack is linearly searched for the exception handler, and all the entries before the function with exception handler are removed from the function call stack.