

G. H. Rasoni College Of Engineering And Management, Wagholi Pune

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Assignment no :- 10

Department	<u>CE [SUMMER 2022 (Online)]</u>		
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Subject Name /Code	<u>Object Oriented Programming/ UTIL201/UITP201</u>		
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Assignment No. 10



Aim: Write a program containing a possible exception. Use a try block to throw it and catch block to handle it properly.

Theory: One of the advantages of C++ over C is Exceptions are run-time anomalies or abnormal conditions that a program encounters during its execution. There are two types of exceptions:

- a) Synchronous
- b) Asynchronous

C++ provide ^{mainly} 3 keywords for exception handling.

- try: represent a block of code that can throw an exception.
- catch: represents a block of code that is executed when a particular exception is thrown.
- throw: Used to throw an exception. Also used to list the exceptions that a function throws, but doesn't handle itself.

Advantages of exception handling over traditional error handling.

(i) Separation of Error Handling code from normal code: In traditional error handling codes there are always if else conditions to handle errors. These condⁿ and the code to handle errors get mixed up with the normal flow. This makes the code less readable.

and maintainable

With try catch block, the code for errors + handling becomes separate from the normal flow.

(2) Functions / Methods can handle any exceptions they Choose: A function can ~~through~~ throw many exceptions, but may choose to handle some of them. The other exceptions which are ~~then~~ thrown, but not ~~catch~~ caught can be handled by caller. If the caller chooses not to catch them, then the exceptions are handled by caller of the caller.

A function can specify the exceptions that it ~~shows~~ throws using the throw keyword. The caller of this function must handle the exception in some way.

(3) Grouping of Error Types →

Both basic types and objects can be thrown as exception. We can create a hierarchy of exception objects, group exceptions in namespaces or classes, categorize them according to types.

C++ Exceptions:

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)

• conclusion :-

C++ try and catch :

Exception handling consists of 3 keywords :

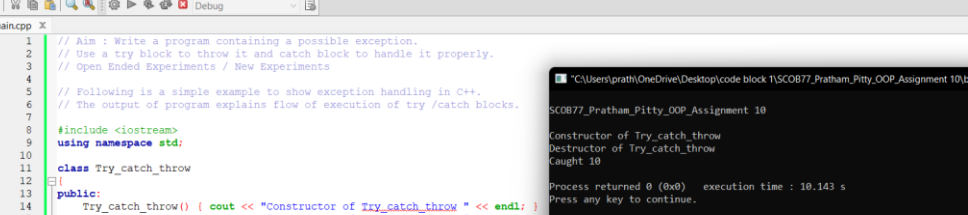
- try. → Allows to test for error in block of code while executing
 - throw → Throws error when problem is detected, all create custom error.
 - Catch → Allows to define a block of code to be executed, if an error occurs in try block.
-

Program code

```
// Aim : Write a program containing a possible exception.  
// Use a try block to throw it and catch block to handle it properly.  
// Open Ended Experiments / New Experiments  
  
// Following is a simple example to show exception handling in C++.  
// The output of program explains flow of execution of try /catch blocks.
```

```
#include <iostream>  
  
using namespace std;  
  
class Try_catch_throw  
{  
public:  
    Try_catch_throw() { cout << "Constructor of Try_catch_throw " << endl; }  
    ~Try_catch_throw() { cout << "Destructor of Try_catch_throw " << endl; }  
};  
  
int main()  
{  
  
    cout << "\nSCOB77_Pratham_Pitty_OOP_Assignment 10\n" << endl;  
  
    try  
    {  
        Try_catch_throw t1;  
        throw 10;  
    }  
    catch (int i)  
    {  
        cout << "Caught " << i << endl;  
    }  
}
```

Output:-



```
main.cpp [SCOB77_Pratham_Pitty_OOP_Assignment 10] - Code-Block
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools > Plugins DoryBlocks Settings Help
Management x
Projects File
Workspace
SCOB77_Pratham_Pitty_OOP_Assignment 10
Sources
main.cpp
main.cpp x
1 // Aim : Write a program containing a possible exception.
2 // Use a try block to throw it and catch block to handle it properly.
3 // Open Ended Experiments / New Experiments
4
5 // Following is a simple example to show exception handling in C++.
6 // The output of program explains flow of execution of try /catch blocks.
7
8 #include <iostream>
9 using namespace std;
10
11 class Try_catch_throw
12 {
13 public:
14     Try_catch_throw() { cout << "Constructor of Try_catch_throw " << endl; }
15     ~Try_catch_throw() { cout << "Destructor of Try_catch_throw " << endl; }
16 };
17
18 int main()
19 {
20     cout << "\nSCOB77_Pratham_Pitty_OOP_Assignment 10\n" << endl;
21     try
22     {
23         Try_catch_throw t1;
24         throw 10;
25     }
26     catch (int i)
27     {
28         cout << "Caught " << i << endl;
29     }
30 }
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