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Catch block and type conversion in C++

Difficulty Level : Medium   ●   Last Updated : 12 Nov, 2021

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Predict the output of following C++ program.

C++

```cpp
#include <iostream>
using namespace std;

int main()
{
    try
    {
        throw 'x';
    }
    catch(int x)
    {
        cout << " Caught int " << x;
    }
    catch(...)
    {
        cout << "Default catch block";
    }
}
```

Output:

```
Default catch block
```

In the above program, a character 'x' is thrown and there is a catch block to catch an int. One might think that the int catch block could be matched by considering ASCII value of 'x'. But

such conversions are not performed for catch blocks. Consider the following program as another example where conversion constructor is not called for thrown object.

C++

```cpp
#include <iostream>
using namespace std;

class MyExcept1 {};

class MyExcept2
{
public:

    // Conversion constructor
    MyExcept2 (const MyExcept1 &e )
    {
        cout << "Conversion constructor called";
    }
};

int main()
{
    try
    {
        MyExcept1 myexp1;
        throw myexp1;
    }
    catch(MyExcept2 e2)
    {
        cout << "Caught MyExcept2 " << endl;
    }
    catch(...)
    {
        cout << " Default catch block " << endl;
    }
    return 0;
}
```

Output:

```
Default catch block
```

As a side note, the derived type objects are converted to base type when a derived object is thrown and there is a catch block to catch base type. See this GFact for more details. Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.

23

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