Exception Handling

Try, Throw and Catch

What is an exception?

- An exception is a problem that arises during the execution of a program.
- A C++ exception is a response to an exceptional circumstance that arises while a program is running, such as an attempt to divide by zero.
- Exceptions provide a way to transfer control from one part of a program to another.

C++ exception handling is built upon three keywords: try, catch and throw.

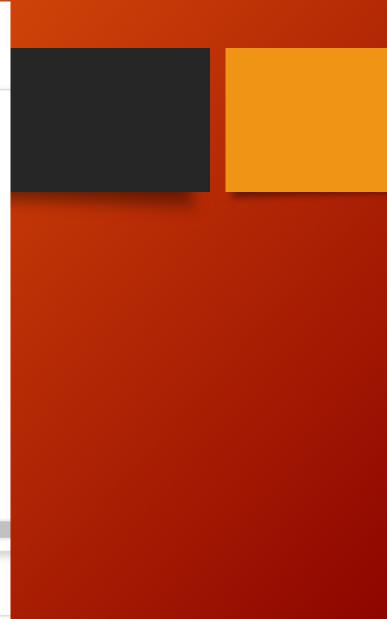
- throw A program throws an exception when a problem shows up. This is done using a throw keyword.
- catch A program catches an exception with an exception handler at the place in a program where you want to handle the problem. The catch keyword indicates the catching of an exception.
- try A try block identifies a block of code for which particular exceptions will be activated. It's followed by one or more catch blocks.

C++ example without try/catch

```
#include <iostream>
using namespace std;
float division(int x, int y) {
  return (x/y);
}
int main () {
 int i = 50;
  int j = 0;
 float k = 0;
    k = division(i, j);
    cout << k << endl;
  return 0;
}
```

Output:

Floating point exception (core dumped)



```
#include <iostream>
using namespace std;
float division(int x, int y) {
 if(y == 0) {
    throw "Attempted to divide by zero!";
  }
 return (x/y);
}
int main () {
 int i = 25;
 int j = 0;
 float k = 0;
 try {
    k = division(i, j);
    cout << k << endl;
  }catch (const char* e) {
    cerr << e << endl;
  }
 return 0;
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```

Attempted to divide by zero!

Output:

C++ try/catch example