# Standard exceptions

All standard exception classes derive ultimately from the class **exception**, defined in the header **<exception>**. The two main derived classes are **logic_error** and **runtime_error**, which are found in **<stdexcept>** (which itself includes **<exception>**). The class **logic_error** represents errors in programming logic, such as passing an invalid argument. Runtime errors are those that occur as the result of unforeseen forces such as hardware failure or memory exhaustion. Both **runtime_error** and **logic_error** provide a constructor that takes a **std::string** argument so that you can store a message in the exception object and extract it later with **exception::what( )** , as the following program illustrates:

```cpp
// Derives an exception class from std::runtime_error.
#include <stdexcept>
#include <iostream>
using namespace std;
class MyError : public runtime_error {
public:
MyError(const string& msg = "") : runtime_error(msg) {}
};

int main() {
try {
throw MyError("my message");
} catch(MyError& x) {
cout << x.what() << endl;
}
}
```