

# DAILY ASSESSMENT FORMAT

|                    |                      |                        |                   |
|--------------------|----------------------|------------------------|-------------------|
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| Course:            | C++ Programming      | USN:                   | 4AL17EC076        |
| Topic:             | Module 8<br>Module 9 | Semester<br>& Section: | 6 SEM & 'B' SEC   |
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## FORENOON SESSION DETAILS

### Image of session

Templates, Exceptions, and Files  
More on Exceptions
XP 226

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#### Exception Handling

Exception handling is particularly useful when dealing with user input. For example, for a program that requests user input of two numbers, and then outputs their division, be sure that you handle division by zero, in case your user enters 0 as the second number.

```
int main() {
    int num1;
    cout << "Enter the first number:";
    cin >> num1;

    int num2;
    cout << "Enter the second number:";
    cin >> num2;

    cout << "Result:" << num1 / num2;
}
```

Try It Yourself

Templates, Exceptions, and Files  
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#### Exception Handling

In the event that the second number is equal to 0, we need to **throw** an **exception**.

```
int main() {
    int num1;
    cout << "Enter the first number:";
    cin >> num1;

    int num2;
    cout << "Enter the second number:";
    cin >> num2;

    if(num2 == 0) {
        throw 0;
    }

    cout << "Result:" << num1 / num2;
}
```

Try It Yourself



## Working with Files

Another useful C++ feature is the ability to read and write to files. That requires the standard C++ library called **fstream**.

Three new data types are defined in **fstream**:

**ofstream**: Output file stream that creates and writes information to files.

**ifstream**: Input file stream that reads information from files.

**fstream**: General file stream, with both **ofstream** and **ifstream** capabilities that allow it to create, read, and write information to files.

To perform file processing in C++, header files **<iostream>** and **<fstream>** must be included in the C++ source file.

```
#include <iostream>
#include <fstream>
```

These classes are derived directly or indirectly from the classes **istream** and **ostream**. We have already used objects whose types were these classes: **cin** is an object of class **istream** and **cout** is an object of class **ostream**.

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## Opening a File

A file must be opened before you can read from it or write to it.

Either the **ofstream** or **fstream** object may be used to open a file for writing.

Let's open a file called **test.txt** and write some content to it:

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

int main() {
    ofstream MyFile;
    MyFile.open("test.txt");

    MyFile << "Some text. \n";
}
```

The above code creates an **ofstream** object called **MyFile**, and uses the **open()** function to open the "test.txt" file on the file system. As you can see, the same stream output operator is used to write into the file.

If the specified file does not exist, the **open** function will create it automatically.

Report – Report can be typed or hand written for up to two pages.

## C++ Programming

up to 6/06/2020 - Friday

### Module 5: How on Exceptions

#### > Exceptions Handling

• Exception Handling is particularly useful when dealing with user input.

• For `cin` if a program requests user input of a number, & the user enters a character, it does that you handle it by saying you can't use that as a number & it's an error.

• In the event that the second number is equal to 0, we need to throw an exception.

• To handle the thrown exception using a `try/catch` block.

try {

    // code

} catch (...) {

    // code to handle exception

}

#### > Working with Files

• Another useful C++ feature is the ability to read & write to files that require the standard C++ library called `fstream`.

Then the `ofstream` was defined in `fstream`.

`ofstream`: Output for stream that creates & writes information to file.

`ifstream`: Input file stream that reads information from file.

`fstream`: General file stream, with both `ofstream` & `ifstream` capabilities that allows it to read & write information to file.

#include <fstream>

#include <fstream>

#### > Working with Files

• `fstream` also provides the path to your file using the `fstream` object's constructor, instead of calling the `open` function.

• Under certain circumstances such as when you don't have file permissions, the `open` function can fail.

• The `is_open()` member function checks whether the file is open & ready to be accessed.