THE SUPERIOR UNIVERSITY LAHORE

Week 2 – Programming Fundamentals Lab
(Fall 2022)

Name: **Roll no:** **Section:**
Subject: Programing fundamentals
Instructor: Ms. Sanya Abdullah

Task 1: Recite Darood Shareef. Sit straight and confident. Give me a sweet Smile ☺

Task 2: Concepts Revision from Theory Class:

- **Book Name:** _____ **Book Author:** _____
- A compiler goes through your source code to accomplish two important tasks: first, it checks that your code follows the C++ **language rules;** second, it translates your code into an **object file**. Some well-known compilers are **GCC**
- We use **C++ IDE** to write programs**. An IDE is a one-stop-shop for C++ programming. It includes a text editor, linker, compiler, and libraries.** We will use _____.
- **Let's search on Google:** What is Dev C++:
  _____
- **Let's write Basic structure of Program.** *1st write on your rough papers then replicate it on your editor screen. And raise your hand and say "I did it".*
- *Find the Book chapter and page number for it ☺* : _____

TASK3: IDE INSTALLATION GUIDE

TASK 4: LABEL ACTIVITY ☺ :

```
#include <iostream>
using namespace std;
int main()
{
    // hello world program
    cout << "Hello, world!";
    cout << "Hello, world 2" <<endl;
    /* This is a
    hello world program */
    return 0;
}
```

TASK 5:

LET'S BREAK THE CODE:

What is syntax? My Definition: _____ ☺

Syntax is like the grammar of a programming language. These are the rules that define how you write and understand C++ code.

```cpp
#include <iostream> //header file library
using namespace std; //using standard library

int main() { //main function
  cout << "Hello World \n"; // first object
  cout << "Learn C++ \n\n"; //second object with blank line
  cout << "Educative Team"; //third object
  return 0; //no other output or return
} //end of code to exectute
```

The syntax explained:

#include <iostream>

_____

using namespace std

_____

int main ( )

_____

{ } _____

cout _____

Explore and Answer: The character **\n** makes the text _____

Explore and Answer: Including two **\n\n** creates a blank space. _____

return 0, _____

BOOK FINDING ACTIVITY ☺ : << operator _____.

The semi colon **;** functions like a _____

TASK 6: HAVE YOU EVER HEAR ABOUT DATA TYPES? MARK THEM ☺

Data types are the classifications for different kinds of data you can use in a program.

integer, character, boolean, floating point, double floating point, void, and wide character

TASK 7: HAVE YOU EVER HEAR ABOUT STRINGS?

Strings are objects in C++. They are a set of characters within ” “ quotes, like our ”Hello World” string.

TASK 8 ACTIVITY:

Let us start our first C++ program that prints a string “Welcome to Programming in C++” on the screen.

TASK 9: ERRORS ARE FUN ☺. LET’S EXPLORE

“Errors are simply unavoidable when you develop a program, yet the final program must be free of errors.”

There are many ways of classifying errors. For example:

- **Compile-time errors:** Errors found by the compiler. We can further classify compile-time errors based on which language rules they violate, for example:
  - Syntax errors
  - Type errors
- **Link-time errors:** Errors found by the linker when it is trying to combine object files into an executable program.
- **Run-time errors:** Errors found by checks in a running program. We can further classify run-time errors.
- **Logic errors:** Errors found by the programmer looking for the causes of erroneous results.

Write your definition of Errors:

_____

TASK 10: LET’S GETS OUR HANDS ON SYSTEM ☺

CODE:

```
// C++ program to demonstrate
// a syntax error
#include <iostream>
using namespace std;

int main() {
  cout << "Geeks for geeks!" // missing semicolon
  return 0;
}
```

OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```
#include <iostream>

int main()
{
     std::cout < "Hi there";
       return 0
}
```

OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```cpp
#include <iostream>

int main()
{
    return 0; // function returns here

    std::cout << "Hello, world!"; // so this never executes
}
```

OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```cpp
#include <iostream>

int main()
{
    std::cout << "Hello, world!";
    return 0;
```

OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```cpp
#include <iostream>

int main()
{
    std::cout << "Hello, world!";
    return 0
}
```

OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```cpp
#include <iostream>

Int main()
{
    std::cout << "Hello, world!";
    return 0
}
```

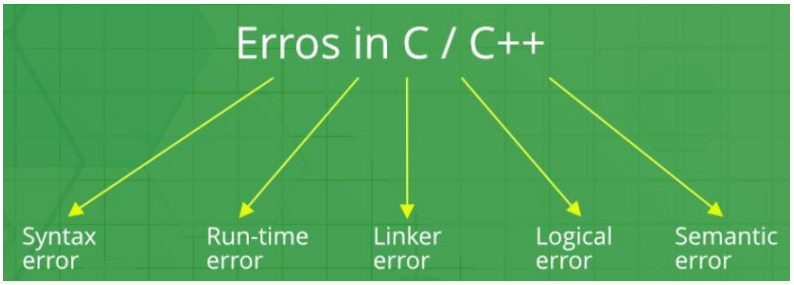
OUTPUT:
ERROR:
THESE ARE ALSO REFERRED TO AS:
CORRECT THEM WITH MARKER.

```cpp
// C++ program to demonstrate
// a linker error
#include <iostream>
using namespace std;

int Main() {

    cout << "Hello WORLD";
    return 0;
}
```

Explanation: When the program is successfully compiled and attempting to link the different object files with the main object file, errors will occur. When this error occurs, the executable is not generated.

Run-time errors:
If your program has no compile-time errors and no link-time errors, it'll *run*. This is where the fun really starts.

TASK 11 ACTIVITY: Tick those errors you get to know about.



ERRORS ARE FUN ☺. LET'S EXPLORE WHO FINDS WHO ACTIVITY:

- **Compile-time errors:** Errors found by the _____.
- **Syntax errors:** Errors found by the _____.
- **Link-time errors:** Errors found by the _____ when it is trying to combine object files into an executable program.
- **Run-time errors:** Errors found by _____.
- **Logic errors:** Errors found by the _____.

CONGRAGULATIONS ON LEARNING. CLAP FOR YOURSELF ☺