# LAB # 4

## Introduction To Programming And Translation Process

## Objective:

- To understand basics of programming and the C++ environment used in the lab
- To learn, recognize and correct different types of errors
- To learn the basics of an editor and compiler and be able to compile and run existing programs
- To enter code and run a simple program from scratch

## Theory:

### Translation Process:

Computers process binary language called as Low Level Language and user gives instructions to computer in High Level Language. Computer translates High level Language to Low level Language through Compiler and stores it in *.obj* extension as it is now an object code while it stores the high level language code known as source code in *.cpp* extension. Before executing this *.obj* file, computer also links the supporting files attached to the code through Linker from computer Library, so now the file becomes executable which is stored in *.exe* extension. The whole translation process is summarized in figure 4.1

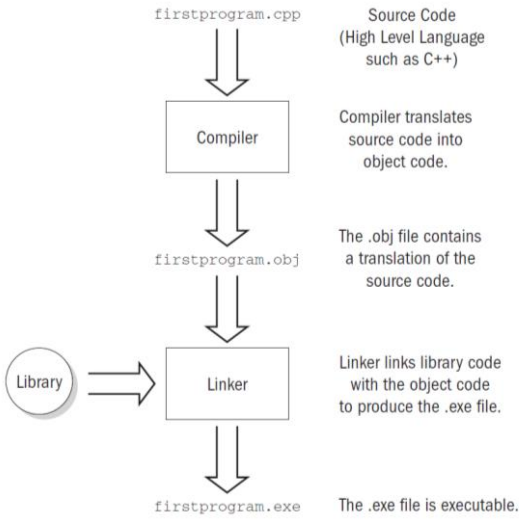


*Figure 4.1: Translation Process*

### Errors:

There are 3 types of Errors.

- Syntax Error

The grammatical error in the code caught by computer before executing is called Syntax Error

- Run Time error
  The error which computer caught during execution and is the thing written in the code which is beyond computer capability is known as Run Time Error.
- Logic Error
  The error which is not detectable but is there when human intension is something else but he/she write something else is the Logic Error.

**Integrated Environments**

An integrated development environment (IDE) is a software package that bundles an editor (used to write programs), a compiler (that translates programs) and a run time component into one system. For example Code Blocks.

## Lab Task:

Do task 4.1, 4.2, 4.3 and 4.4 given in file attached on LMS and attach your source code and output window with this file. And write your observation with lab task.

## Post Lab:

1. Write a program a program that will read in a number that represents the number of kilometers traveled. The output will convert this number to miles. 1 kilometer = 0.621 miles. Call this program kilotomiles.cpp.

2. Compile the program. If you get compile errors, try to fix them and re-compile until your program is free of syntax errors.

3. Run the program. Is your output what you expect from the input you gave? If not, try to find and correct the logic error and run the program again. Continue this process until you have a program that produce the correct result.

## Learning Outcomes:

Upon successful completion of the lab, students will be able to:

LO1: Learn how to write a program in C++.
LO2: Find errors in a program and how to correct them.