Object-Oriented Programming Language

Lab 1

Today we have an easy lab. The following are 3 exercises that you will work on.

1. Please create the 3 files as in the Hello World C++ exercise in the lecture note. In other words, please create the hello.h, hello.cpp, and first.cpp in a single folder. Please try out first compiling the executive in one step as in the following:

```
$g++ hello.cpp first.cpp
```

Then execute the output a.out:

```
$./a.out
Hello World!! C++!!!
```

2. Try building the same program, but create the object files for each of the .cpp files first. Then link the separate object files (.o) into an executive file (.out).
We first preprocess and compile the two .cpp files separately into their respective .o files:

```
$g++ -c hello.cpp
$g++ -c first.cpp
```

Then link them together into one executable a.out:

```
$g++ first.o hello.o
```

Then execute the output a.out:

```
$./a.out
Hello World!! C++!!!
```

3. In mathematics, the factorial of a non-negative value n is denoted as $n!$. For example, we say that factorial 5 is:

$$5! = 1 * 2 * 3 * 4 * 5$$

Please ask the user for the n value, and then output the corresponding factorial. In this practice, we do not consider the negative value of n. If such input is given from the user, please just return -1. The following are some example runs of the program.

```
$./a.out
Please input the n number: 5
The factorial of 5 is: 120
$./a.out
Please input the n number: 0
The factorial of 0 is: 1
$./a.out
Please input the n number: -45
The factorial of -45 is: -1
$./a.out
Please input the n number: 10
The factorial of 10 is: 3628800
```