System programming lab manual

First, let's start by setting up an environment for our C program:

- How to install GCC compiler
- How to Check C compiler version
- How to Compile basic C program from source code
- How to run C program

Step 1

Install C compiler by installation of the development package **build-essential**:

```
$ sudo apt install build-essential
```

Or

```
$ sudo apt-get install gcc
```

Step 2

Check C compiler version:

```
$ gcc --version
gcc (Ubuntu 9.2.1-17ubuntu1) 9.2.1 20191102
```

Step 3 Create a basic C code source. For example, let's create hello world C program. Save the following code as **hello.c** text file:

```c
#include <stdio.h>
int main()
{
    printf("Hello, World!");
    return 0;
}
```

Step 4 Compile and execute the **hello.c** C code:

```
$ gcc -o hello hello.c
$ ./hello
Hello, World!
```

Then, the next part is to debug the c program for UNIX file IO system calls by cross-checking the theoretical session of Chapter 3 lecture notes.