

Chapter number	Software required (With version)	Free/Proprietary	If proprietary, can code testing be performed using a trial version	If proprietary, then cost of the software	Download links to the software	Hardware specifications	OS required
1-7	Cygwin	Open Source tool (free)	NA	NA	https://www.cygwin.com/	Laptop or Desktop computer with processor Intel Core i5 or above, 8 GB RAM, 500 GB hard drive, 14" LCD monitor.	Windows 8 or above
8	MySQL Community Server	Open Source Database (free)	NA	NA	https://dev.mysql.com/downloads	Same as above	Same as above

To learn the step-by-step procedure of installing Cygwin, please see Appendix B.

To know how to install the MySQL community server, please see Appendix C.

Even though Cygwin is installed on your machine, you will still not be able to compile your C programs until you set a path for GCC. Please refer to the section given below, “Setting the Path for Using GCC,” to learn how to set the path for Cygwin.

Remember:

- You can run the programs of Chapters 1 till 6 from the command prompt
- Programs of Chapters 7 and 8 can be run from Cygwin terminal that you can invoke by double-clicking on its icon that can be found on your Desktop. The Cygwin terminal will show you \$ prompt where you can compile and run C programs. Remember that for running programs of Chapter 8, you should have MySQL server installed on your machine.

Using Ubuntu

You can also compile your C programs using Ubuntu. Ubuntu is a complete Linux operating system that is freely available on the internet. You will have to the following steps for the given chapters while running programs on Ubuntu:

For Chapter 3, along with GCC, you will need to add the `-lm` option while compiling the programs as shown in the example below:

```
gcc filename.c -o filename -lm
```

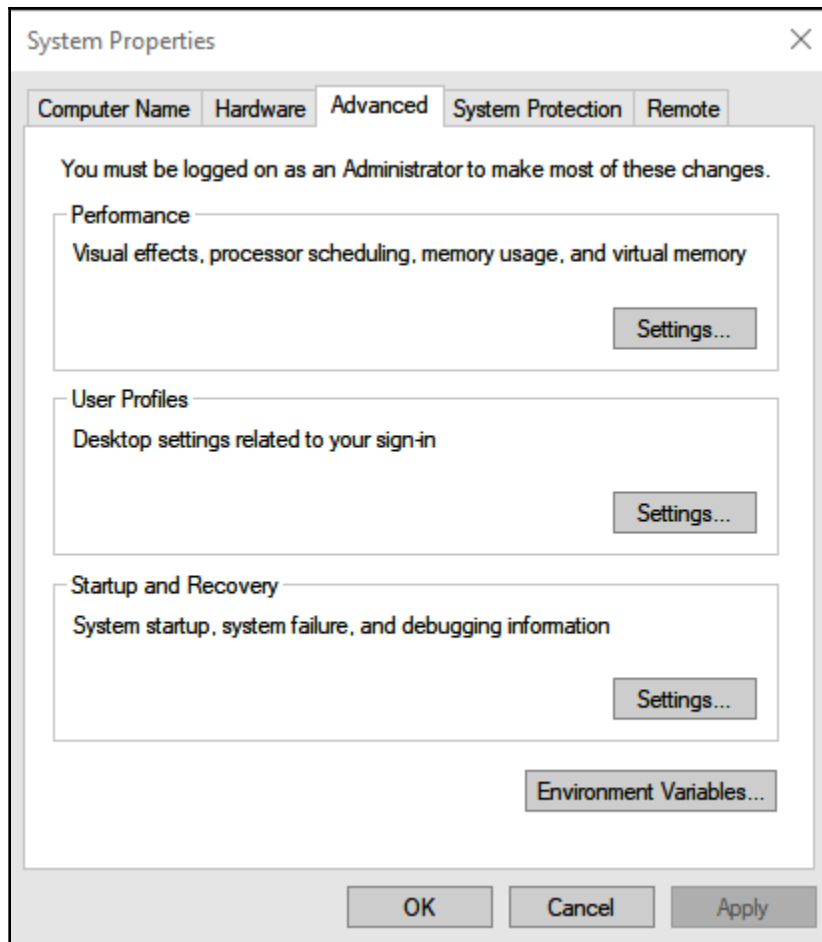
For Chapter 6, along with GCC, you will need to add `-pthread` while compiling the programs as shown in the example below:

```
gcc filename.c -o filename -pthread
```

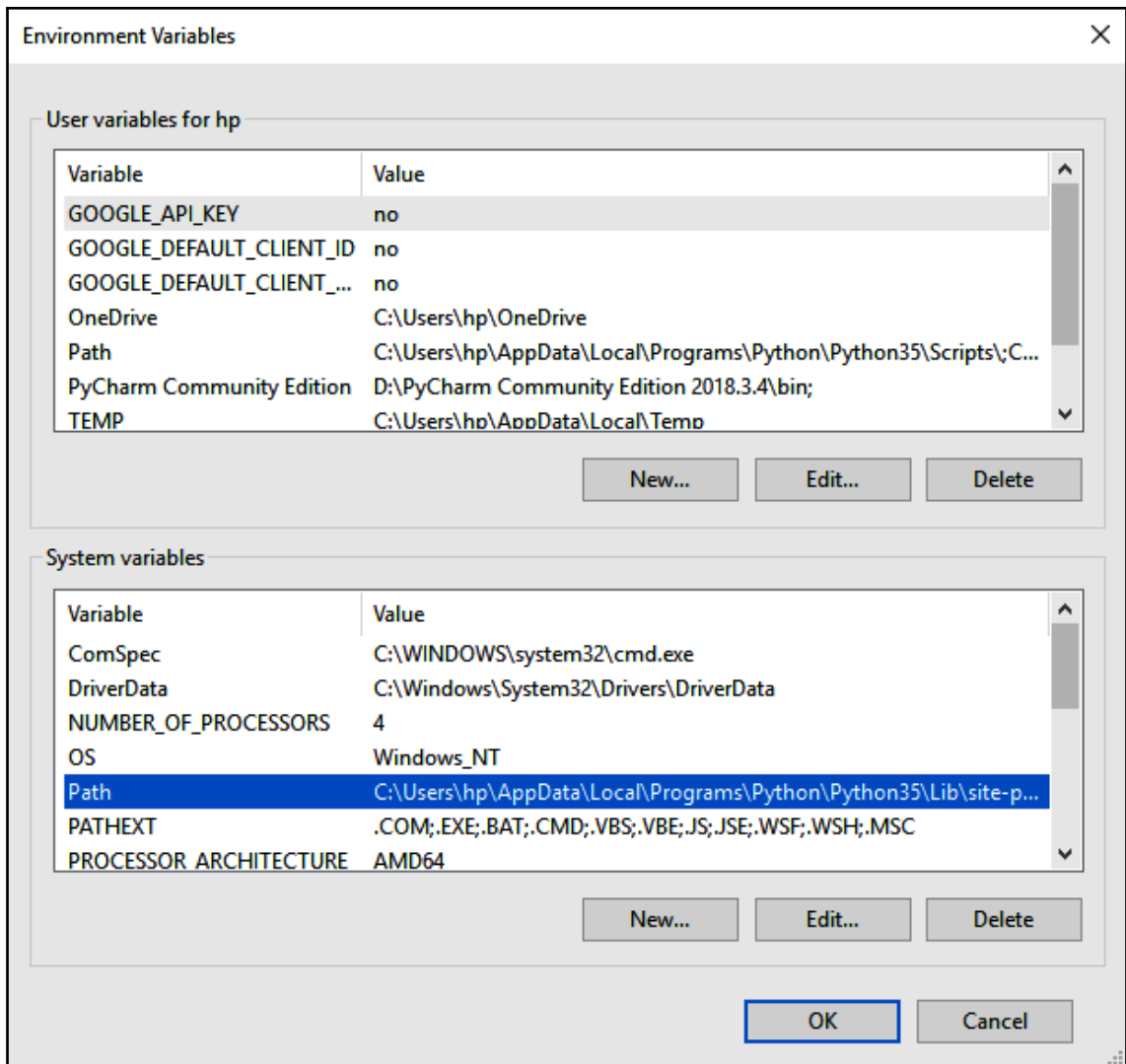
Setting the Path for Using GCC

We will require GCC for compiling our C programs. GCC, which stands for GNU Compiler Collection, is a set of compilers that supports several programming languages. It is bundled with the Cygwin installation and is available at the "bin" subfolder in the Cygwin installation. Because I have installed Cygwin in D:\cygwin64 folder, so my GCC will be found in D:\cygwin64\bin folder. In order to access GCC to compile my C programs from any drive and folder, I need to set a path for the D:\cygwin64\bin on my computer. You can set the path on Windows 10 OS using the following steps:

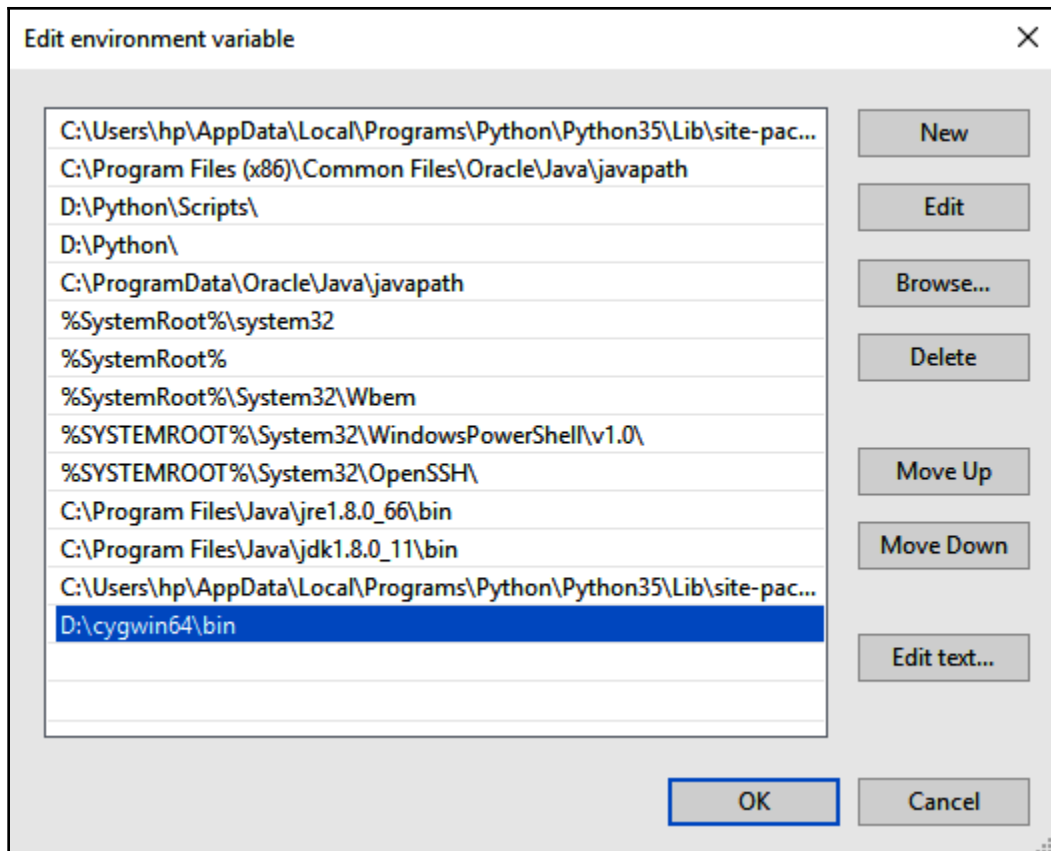
1. Search for This PC desktop app on your machine
2. Right click on This PC and select Properties option
3. Click on Advanced system settings link
4. Click on the Environment Variables button in the dialog box of System Properties that will open up, as shown below:



5. From the System variables pane, select the Path and click Edit:



6. You will get the list of paths, i.e., environment variables, that are already set. Click on New. In the empty box that you get after clicking on New, type D:\cygwin64\bin and press Enter. The path for GCC will be set and will be visible as shown below:



7. Click the OK button thrice to close all the dialog boxes.

Now, you can compile your C programs from the command prompt in any folder.