Setting up Environment for C/C++ (Windows)

Installation

Download the mingw toolchain from here.

Unpacking

Extract the source files from the zipped/compressed files.
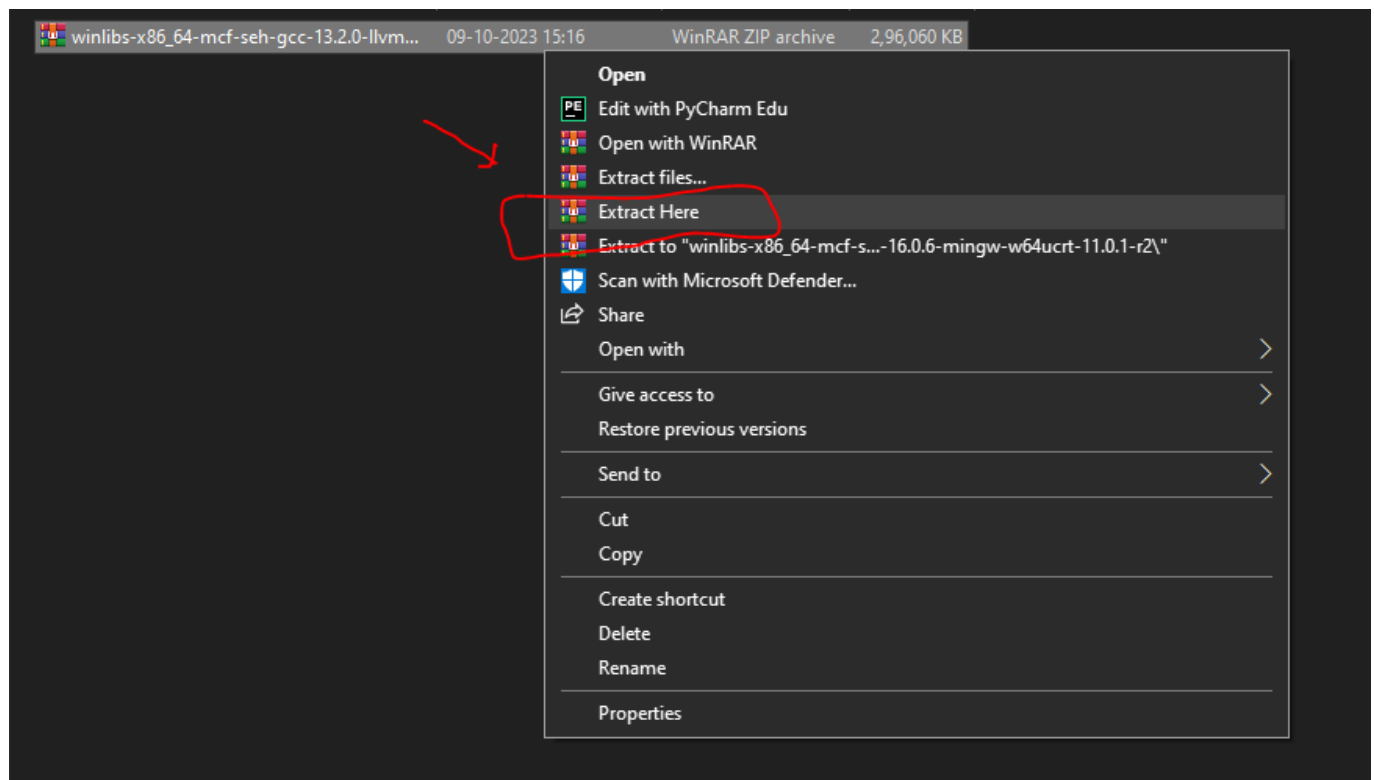
Copy the folder named `mingw64` or `mingw32` depending on your installation.

Paste this folder into your user directory which resides in the `C:` drive.

> An example of such a path is `C:/Users/<USER_NAME>`. Here `USER_NAME` is the name of the user.

Getting PATH

Once you finish pasting the folder into your user directory navigate inside the folder (`mingw64` or `mingw32`).

You should be able to see the following directory structure:

Now navigate to the `bin` folder and copy the path so final path would be of the following format `C:/Users/<USER_NAME>/[mingw64 or mingw32]/bin`.

Adding to System Path

Navigate to search bar in the taskbar and type along the lines of `edit environment variables` and you should see the following setting:
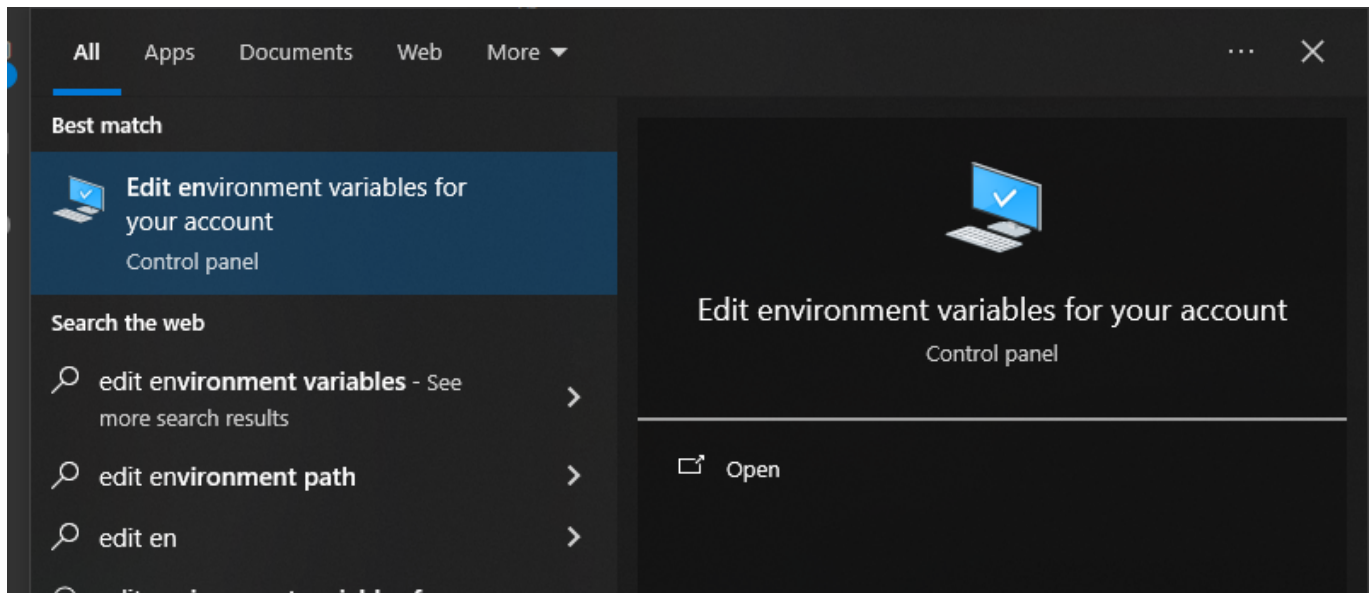
On clicking a popup window should open, click the button labeled `Environment Variables`.
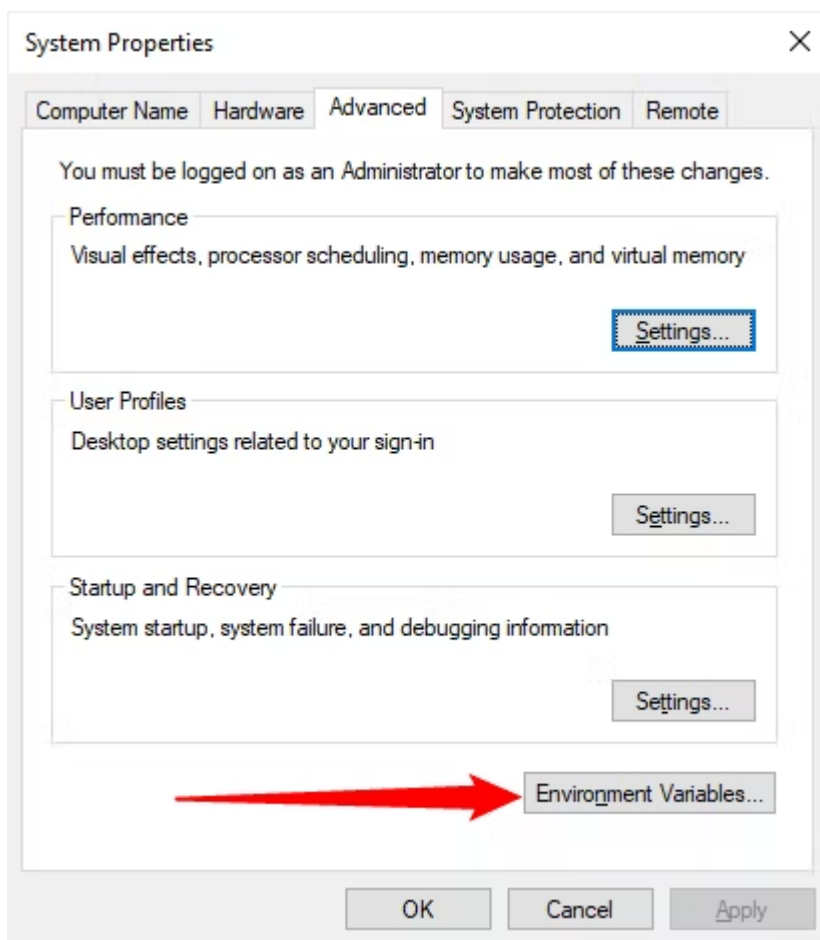
Now on the bottom half of the window you should see a section named `System Variables` that contains a list of entries. Double click on the entry named `PATH`.
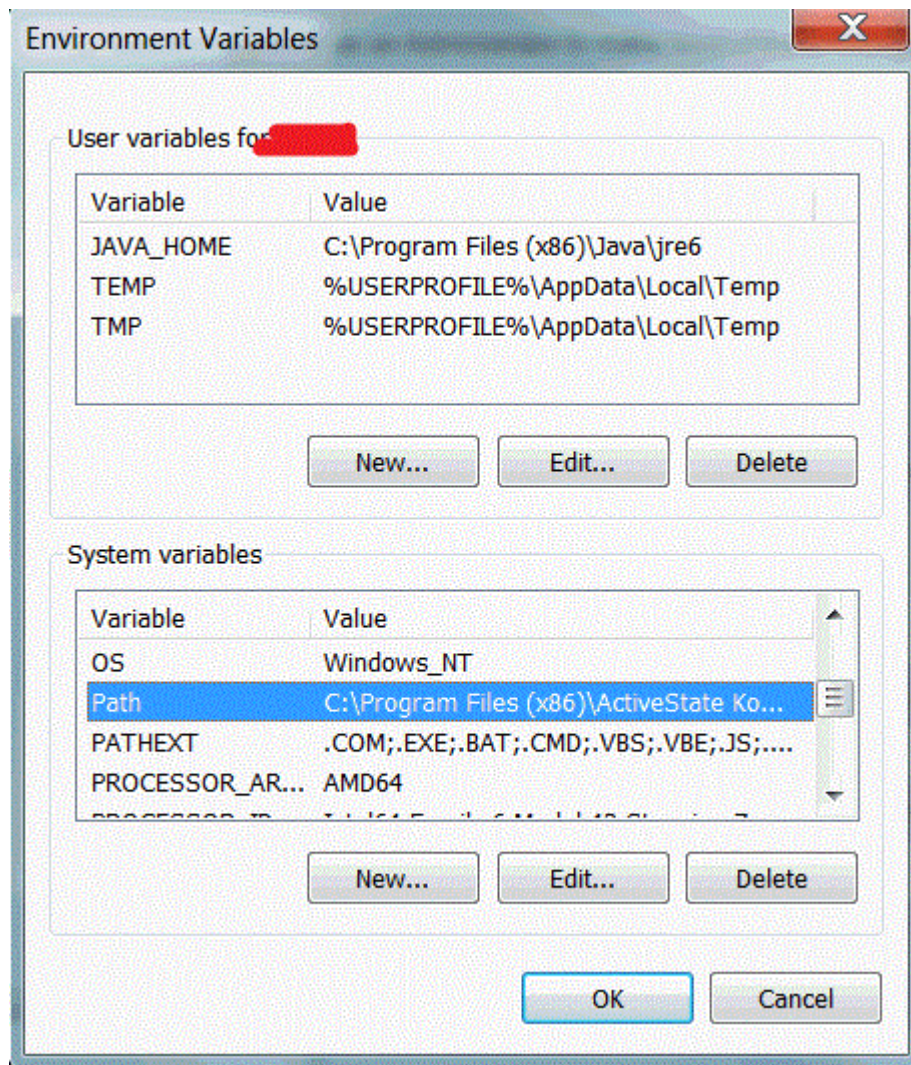
You should now be able to add the path copied before as a new entry.

Once the path is added save all your changes and we are done! 🐢

Verifying

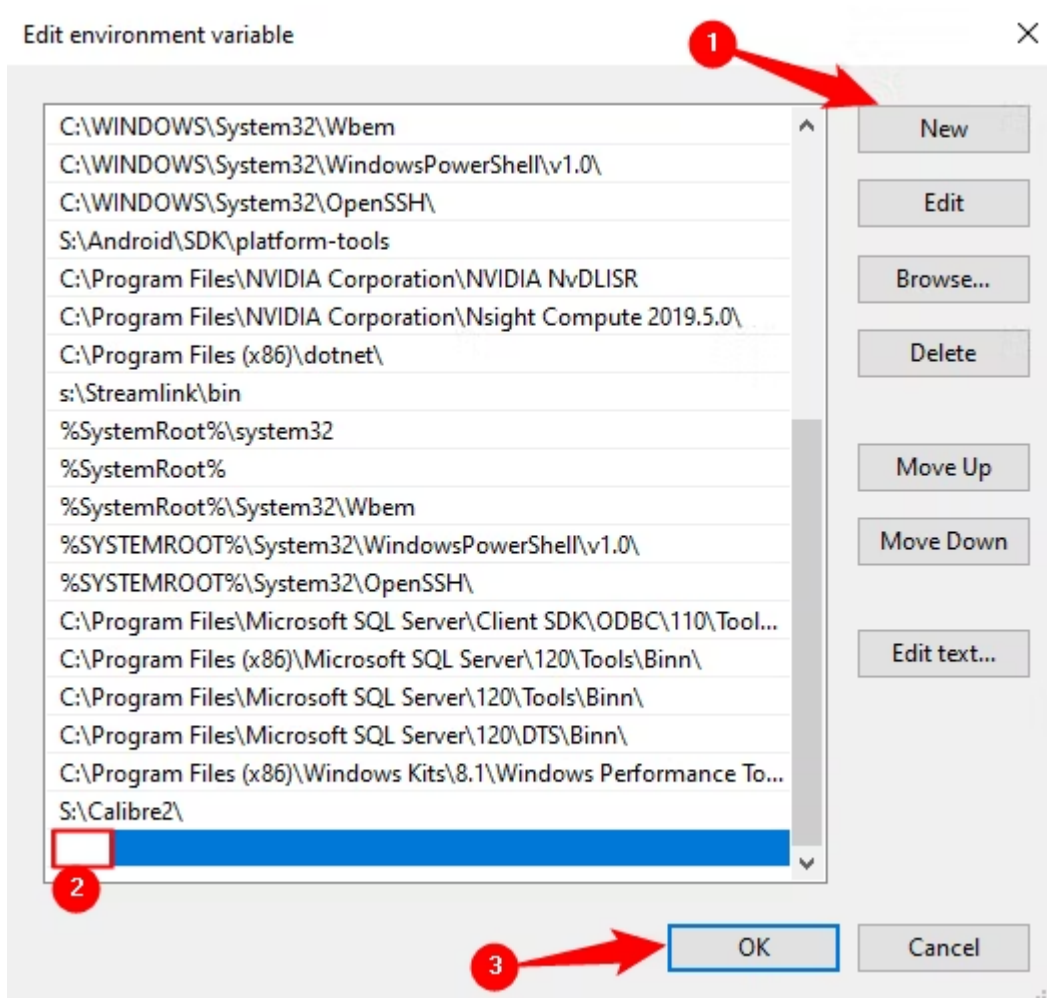Open a terminal and enter the following command `gcc --version` you should be able to see the following
output.

```
C:\Users\          \mingw64\bin>gcc --version
gcc (MinGW-W64 x86_64-ucrt-mcf-seh, built by Brecht Sanders) 13.2.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

Running a Programme Barebones

Here is a simple `C` program that prints `Hello, World!` to the terminal.

```c
#include <stdio.h>

int main() {
    printf("Hello, World!");
    return 0;
}
```

Now create a `main.c` file and paste the above into it. Now open a terminal in same directory as the `main.c` file.

> **Note**
>
> You can use `cd` to navigate between folders.

Once you are sure you are in the same directory run the following command `gcc main.c && .\a.exe`. Your terminal should display the following:

```
C:\Users\student.MIT-ICT-LAB5-01>mingw64\bin\gcc main.c && .\a.exe
Hello, World!
C:\Users\student.MIT-ICT-LAB5-01>
```

> **Note** To compile `C++` files you would use the following command `g++ main.c && .\a.exe`.