

HOW TO BUILD AND EXECUTE THE PROGRAM

Most importantly you need a C++ compiler on your system. I suggest using the GNU g++ compiler as it is what most users prefer to use. I have used it as well. Personally, I have built the code using 'Sublime' text editor, and the screenshots of input and output pasted are from there. However, it requires some setting up to do including creating your own C++ build-system file. All that is not necessary since one can run the program directly from terminal to get the same result. You can also run it on any IDE of your choice provided you have a recent version of g++ compiler.

Note: Run the commands I have provided without the first and last double quotes.

HOW TO INSTALL G++ COMPILER?

WINDOWS :

1. Download and install MinGW (minimalist GNU for Windows), and add it to your System Path.

LINUX :

I have tested the code in Ubuntu which is a Debian-based distribution of Linux. For other Linux distributions the commands may slightly differ but the goal is the same, i.e., to install GNU g++ compiler and run the provided code. Following is the guide to install g++ compiler on a Debian-based distribution.

1. Run the following commands in terminal to get your system up-to-date.
 "sudo apt update"
 "sudo apt upgrade"
 It's necessary to update your system since sometimes it may otherwise cause errors during installation of programs/packages.
2. Install g++ compiler using the following command
 "sudo apt install g++"

MacOS:

I have tested it on my friend's MacBook Air. The steps shouldn't vary much on MacBook and MacBook Pro according to my research. However, I haven't been able to test it practically due to lack of access to those line of MacBooks. My friend uses Homebrew which is a software package management system for AppleOS therefore I will provide commands specific to that. One can use Xcode command line tools as well to run the program.

1. Install Homebrew by running the following command in the terminal
`"/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"`
2. Install GCC (GNU Compiler Collection). This includes g++ compiler.
`"brew install gcc"`

Now all that remains is to run the program. The commands to execute it is the same on all three operating systems. First make sure all the 3 files, main.cpp and both the header files are in the same folder. Then navigate to that folder in the terminal and run the following commands.

`"g++ -std=c++14 -o assignment main.cpp -lpthread"`

This creates an executable by the name of 'assignment'. Now run this executable by entering the following command.

`"./assignment"`

This will execute your program and ask for user input. You can either enter the input yourself each time or change the code to hardcode the messages and comment out the `readInput()` function as well.

```
int main(){  
    vector<Envelope> DataBase{  
        {"hello",1,1,0},  
        {"mister/miss",1,1,0},  
        {"how's your day been??",1,1,0}  
    };  
  
    //readInput(DataBase);  
}
```

If user chooses to input by themselves then input must be in the following pattern.

```
[Number of threads<Integer>  
[Message<String>  
[Priority<Integer>] [Sender<Integer>] [Receiver<Integer>  
[Message<String>  
[Prio....
```

and so on..

There are single white spaces between priority, sender and receiver, and every new line represents entering that input in a new line.