

## Compilation

master.c : gcc master.c -o master

slave.py : Does not require any compiling, just one execution line

## Execution

master.c : ./master portNumber

Example: ./master 10010

slave.py : python slave.py masterHostName portNumber

Example: python slave.py tux054.eng.auburn.edu 10010

I have tested the code numerous times, and I do believe it works 100%. If there are no errors, master.c will continue to run, listening for any slave nodes which might be added. After the slave has been successfully added, in slave.py the user will be asked to input '0' to exit. Then, slave.py can be run again and a new slave can be added

## Problems

1. My group originally was myself and Brittain Poehler, but unfortunately Brittain ended up dropping the class so I had to unexpectedly work on this project alone
2. The one problem with the lab I have found is that when compiling the master.c there is a warning which I was not able to solve.

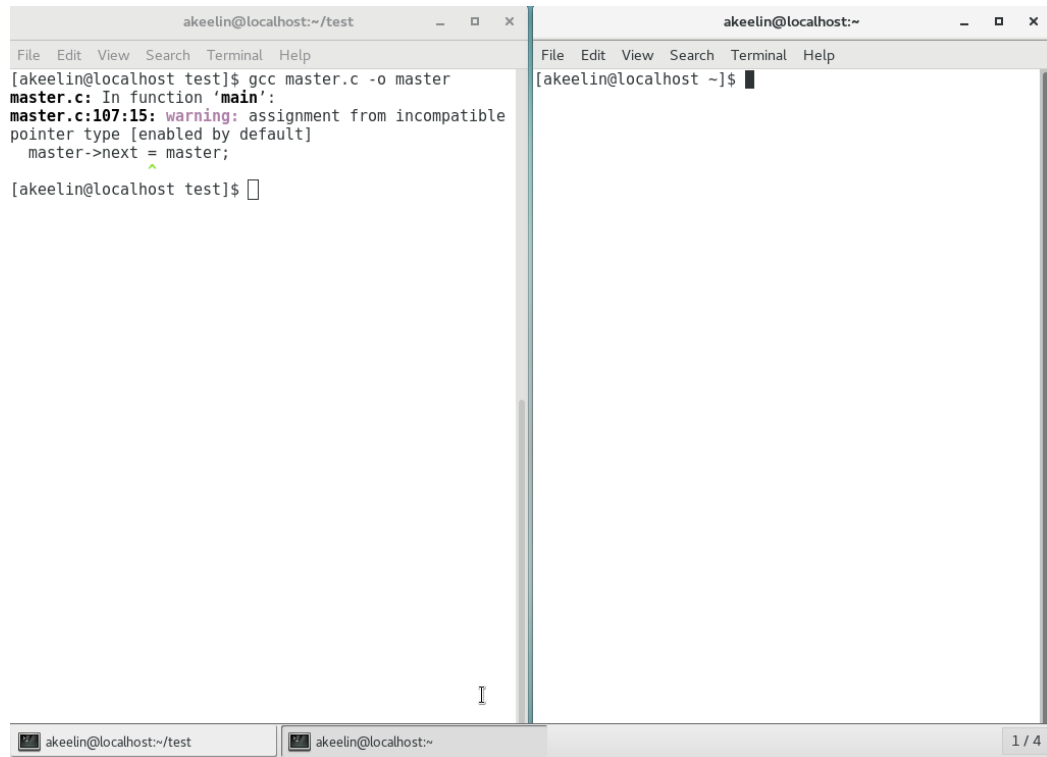
```
[akeelin@localhost test]$ gcc master.c -o master
master.c: In function 'main':
master.c:107:15: warning: assignment from incompatible pointer
type [enabled by default]
    master->next = master;
                  ^
```

This is only a warning though, and has no effect on execution

## Example Runs

Both running locally, on Linux in VirtualBox:

Compilation:

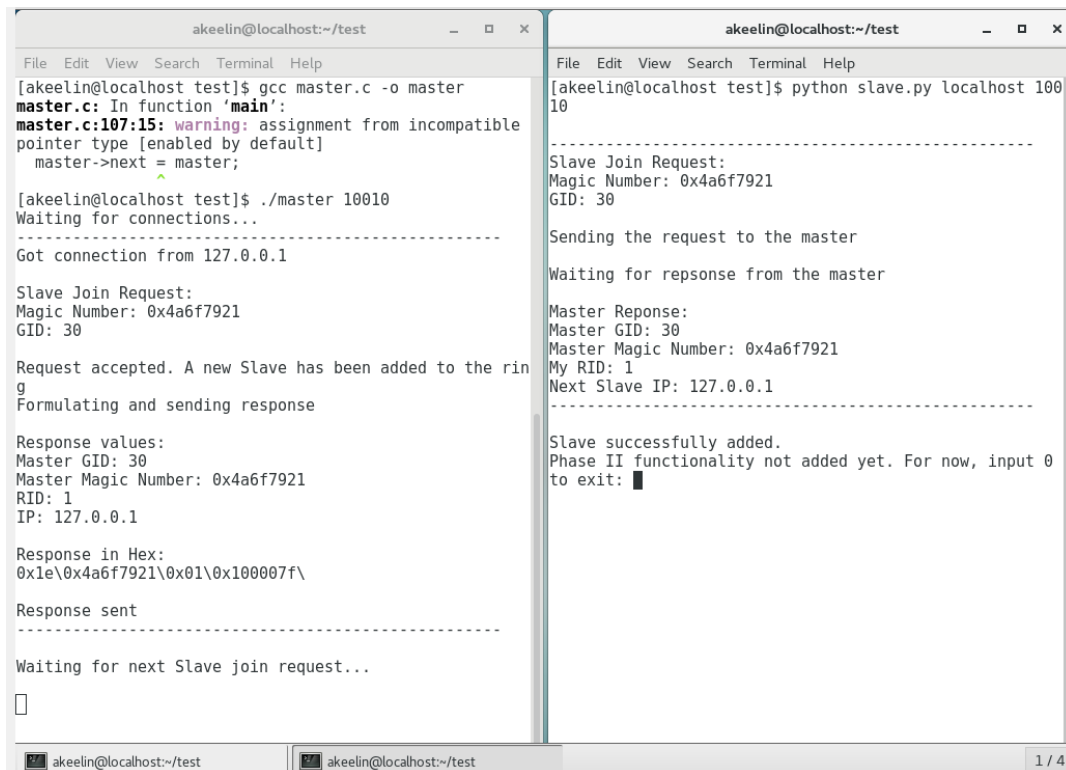


The image shows two terminal windows side-by-side. The left window, titled 'akeelin@localhost:~/test', shows the compilation of 'master.c' into 'master' using 'gcc'. It displays a warning about an incompatible pointer type and the successful execution of the compilation command. The right window, titled 'akeelin@localhost:~', shows the prompt 'akeelin@localhost ~]\$'.

```
akeelin@localhost:~/test
File Edit View Search Terminal Help
[akeelin@localhost test]$ gcc master.c -o master
master.c: In function 'main':
master.c:107:15: warning: assignment from incompatible
pointer type [enabled by default]
    master->next = master;
                  ^
[akeelin@localhost test]$
```

```
akeelin@localhost:~
File Edit View Search Terminal Help
[akeelin@localhost ~]$
```

Execution / 1<sup>st</sup> Slave Added:



The image shows two terminal windows side-by-side. The left window, titled 'akeelin@localhost:~/test', shows the execution of 'master' with the command './master 10010'. It displays the process of waiting for connections, receiving a connection from 127.0.0.1, and successfully adding a new slave. The right window, titled 'akeelin@localhost:~/test', shows the execution of 'python slave.py localhost 10010'. It displays the slave's join request, the master's response, and the successful addition of the slave.

```
akeelin@localhost:~/test
File Edit View Search Terminal Help
[akeelin@localhost test]$ gcc master.c -o master
master.c: In function 'main':
master.c:107:15: warning: assignment from incompatible
pointer type [enabled by default]
    master->next = master;
                  ^
[akeelin@localhost test]$ ./master 10010
Waiting for connections...
-----
Got connection from 127.0.0.1

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Request accepted. A new Slave has been added to the ring
Formulating and sending response

Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 1
IP: 127.0.0.1

Response in Hex:
0x1e\0x4a6f7921\0x01\0x100007f\

Response sent
-----
Waiting for next Slave join request...

```

```
akeelin@localhost:~/test
File Edit View Search Terminal Help
[akeelin@localhost test]$ python slave.py localhost 10010
-----
Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

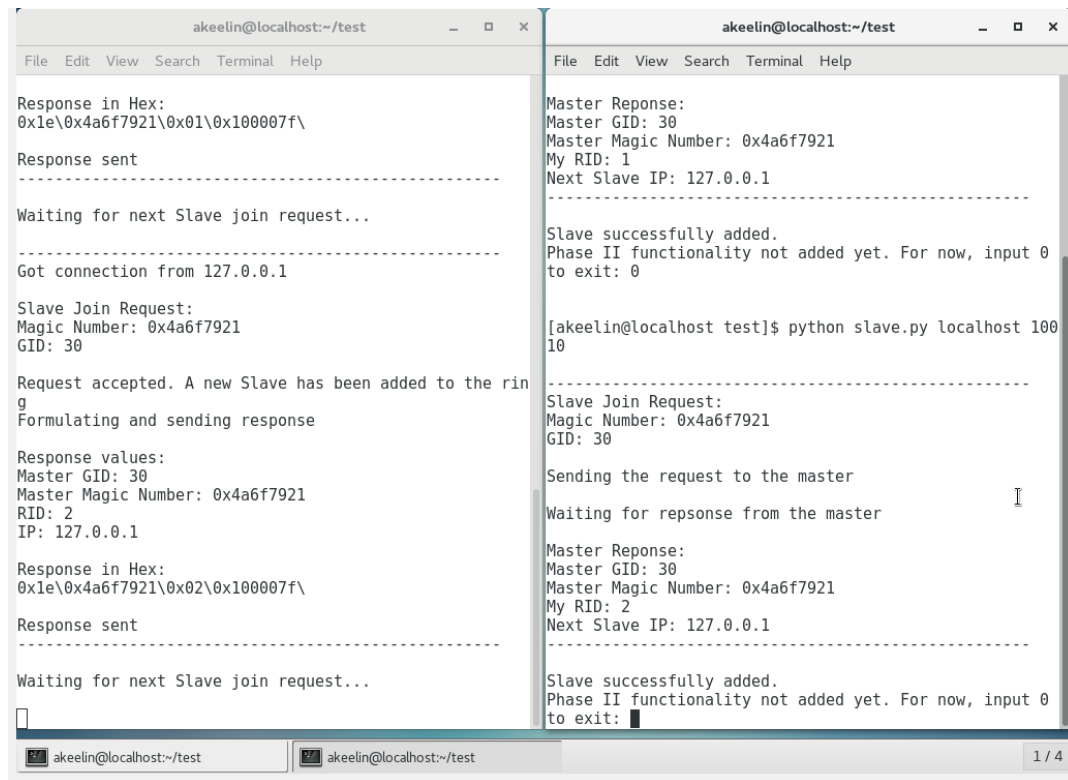
Sending the request to the master

Waiting for response from the master

Master Response:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 1
Next Slave IP: 127.0.0.1
-----
Slave successfully added.
Phase II functionality not added yet. For now, input 0
to exit:

```

## 2<sup>nd</sup> Slave Added:



```
akeelin@localhost:~/test
File Edit View Search Terminal Help

Response in Hex:
0x1e\0x4a6f7921\0x01\0x100007f\

Response sent
-----

Waiting for next Slave join request...

-----

Got connection from 127.0.0.1

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Request accepted. A new Slave has been added to the ring
Formulating and sending response

Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 2
IP: 127.0.0.1

Response in Hex:
0x1e\0x4a6f7921\0x02\0x100007f\

Response sent
-----

Waiting for next Slave join request...
█

akeelin@localhost:~/test
```

```
akeelin@localhost:~/test
File Edit View Search Terminal Help

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 1
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0
to exit: 0

[akeelin@localhost test]$ python slave.py localhost 100
10
-----

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Sending the request to the master

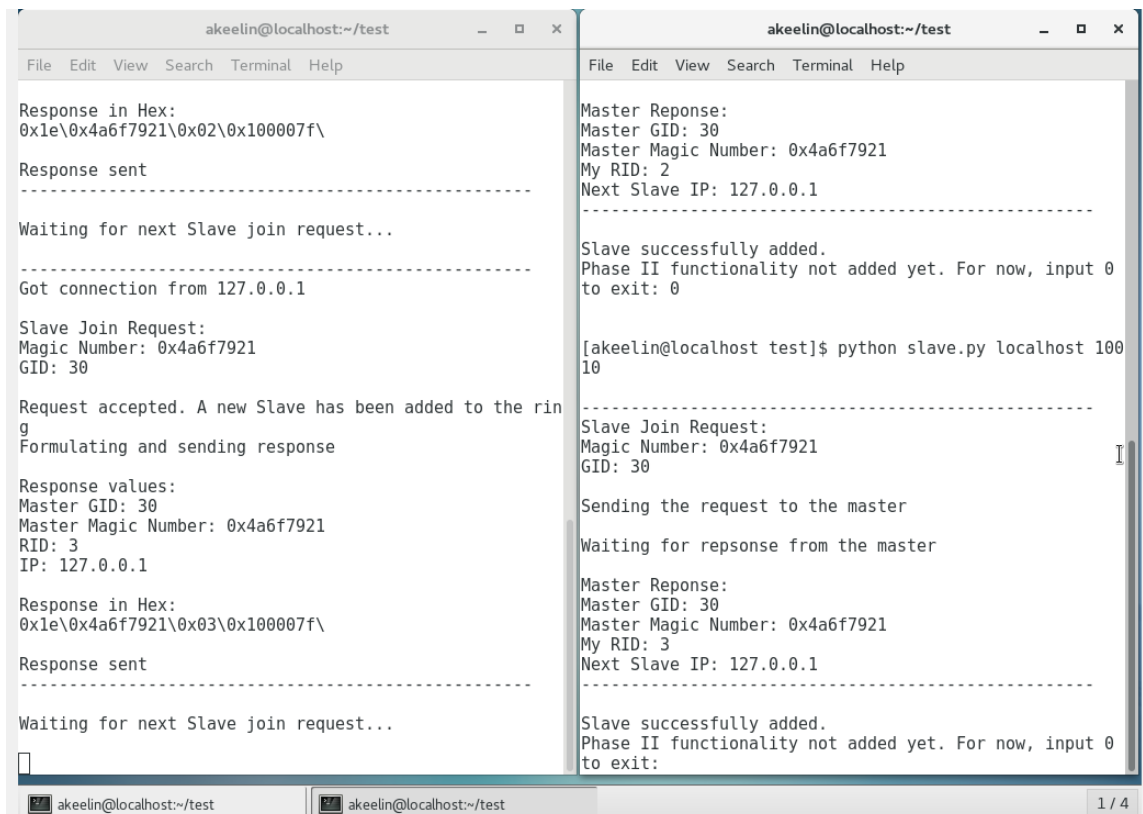
Waiting for repsonse from the master

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 2
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0
to exit: █

akeelin@localhost:~/test 1 / 4
```

## 3<sup>rd</sup> Slave Added:



```
akeelin@localhost:~/test
File Edit View Search Terminal Help

Response in Hex:
0x1e\0x4a6f7921\0x02\0x100007f\

Response sent
-----

Waiting for next Slave join request...

-----

Got connection from 127.0.0.1

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Request accepted. A new Slave has been added to the ring
Formulating and sending response

Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 3
IP: 127.0.0.1

Response in Hex:
0x1e\0x4a6f7921\0x03\0x100007f\

Response sent
-----

Waiting for next Slave join request...
█

akeelin@localhost:~/test
```

```
akeelin@localhost:~/test
File Edit View Search Terminal Help

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 2
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0
to exit: 0

[akeelin@localhost test]$ python slave.py localhost 100
10
-----

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Sending the request to the master

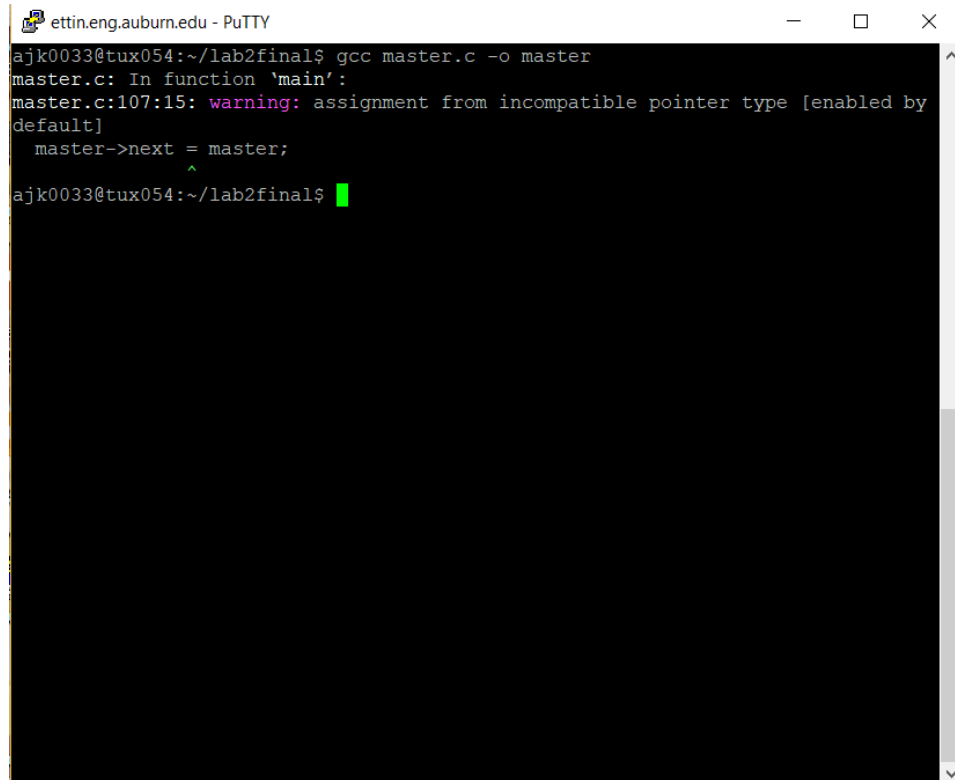
Waiting for repsonse from the master

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 3
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0
to exit: █

akeelin@localhost:~/test 1 / 4
```

Running both through the tux machines:  
Compilation:



```
ettin.eng.auburn.edu - PuTTY
ajk0033@tux054:~/lab2final$ gcc master.c -o master
master.c: In function 'main':
master.c:107:15: warning: assignment from incompatible pointer type [enabled by
default]
    master->next = master;
                  ^
ajk0033@tux054:~/lab2final$
```

And then slave.py does not need to be compiled

## Execution / 1<sup>st</sup> Slave Added:

```
ettin.eng.auburn.edu - PuTTY
master.c: In function 'main':
master.c:107:15: warning: assignment from incompatible pointer type [enabled by
default]
    master->next = master;
                  ^
ajk0033@tux054:~/lab2final$ ./master 10010
Waiting for connections...
-----
Got connection from 131.204.14.61

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Request accepted. A new Slave has been added to the ring
Formulating and sending response

Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 1
IP: 131.204.14.61

Response in Hex:
0x1e\0x4a6f7921\0x01\0x100007f\

Response sent
-----

Waiting for next Slave join request...
█
```

```
ettin.eng.auburn.edu - PuTTY
ajk0033@tux061:~/lab2final$ python slave.py tux054.eng.auburn.edu 10010
-----
Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Sending the request to the master

Waiting for repsonse from the master

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 1
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0 to exit: █
```

## 2<sup>nd</sup> Slave Added:

```
ettin.eng.auburn.edu - PuTTY
0x1e\0x4a6f7921\0x01\0x100007f\
Response sent
-----
Waiting for next Slave join request...
-----
Got connection from 131.204.14.61

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Request accepted. A new Slave has been added to the ring
Formulating and sending response

Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 2
IP: 131.204.14.61

Response in Hex:
0x1e\0x4a6f7921\0x02\0x3d0ecc83\
Response sent
-----
Waiting for next Slave join request...
█
```

```
ettin.eng.auburn.edu - PuTTY

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 1
Next Slave IP: 127.0.0.1
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0 to exit: 0

ajk0033@tux061:~/lab2final$ python slave.py tux054.eng.auburn.edu 10010
-----

Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30

Sending the request to the master

Waiting for repsonse from the master

Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 2
Next Slave IP: 131.204.14.61
-----

Slave successfully added.
Phase II functionality not added yet. For now, input 0 to exit: █
```

### 3<sup>rd</sup> Slave Added:

```
ettin.eng.auburn.edu - PuTTY
0x1e\0x4a6f7921\0x02\0x3d0ecc83\
Response sent
-----
Waiting for next Slave join request...
-----
Got connection from 131.204.14.61
Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30
Request accepted. A new Slave has been added to the ring
Formulating and sending response
Response values:
Master GID: 30
Master Magic Number: 0x4a6f7921
RID: 3
IP: 131.204.14.61
Response in Hex:
0x1e\0x4a6f7921\0x03\0x3d0ecc83\
Response sent
-----
Waiting for next Slave join request...
```

```
ettin.eng.auburn.edu - PuTTY
Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 2
Next Slave IP: 131.204.14.61
-----
Slave successfully added.
Phase II functionality not added yet. For now, input 0 to exit: 0

ajk0033@tux061:~/lab2final$ python slave.py tux054.eng.auburn.edu 10010
-----
Slave Join Request:
Magic Number: 0x4a6f7921
GID: 30
Sending the request to the master
Waiting for repsonse from the master
Master Reponse:
Master GID: 30
Master Magic Number: 0x4a6f7921
My RID: 3
Next Slave IP: 131.204.14.61
-----
Slave successfully added.
Phase II functionality not added yet. For now, input 0 to exit: █
```