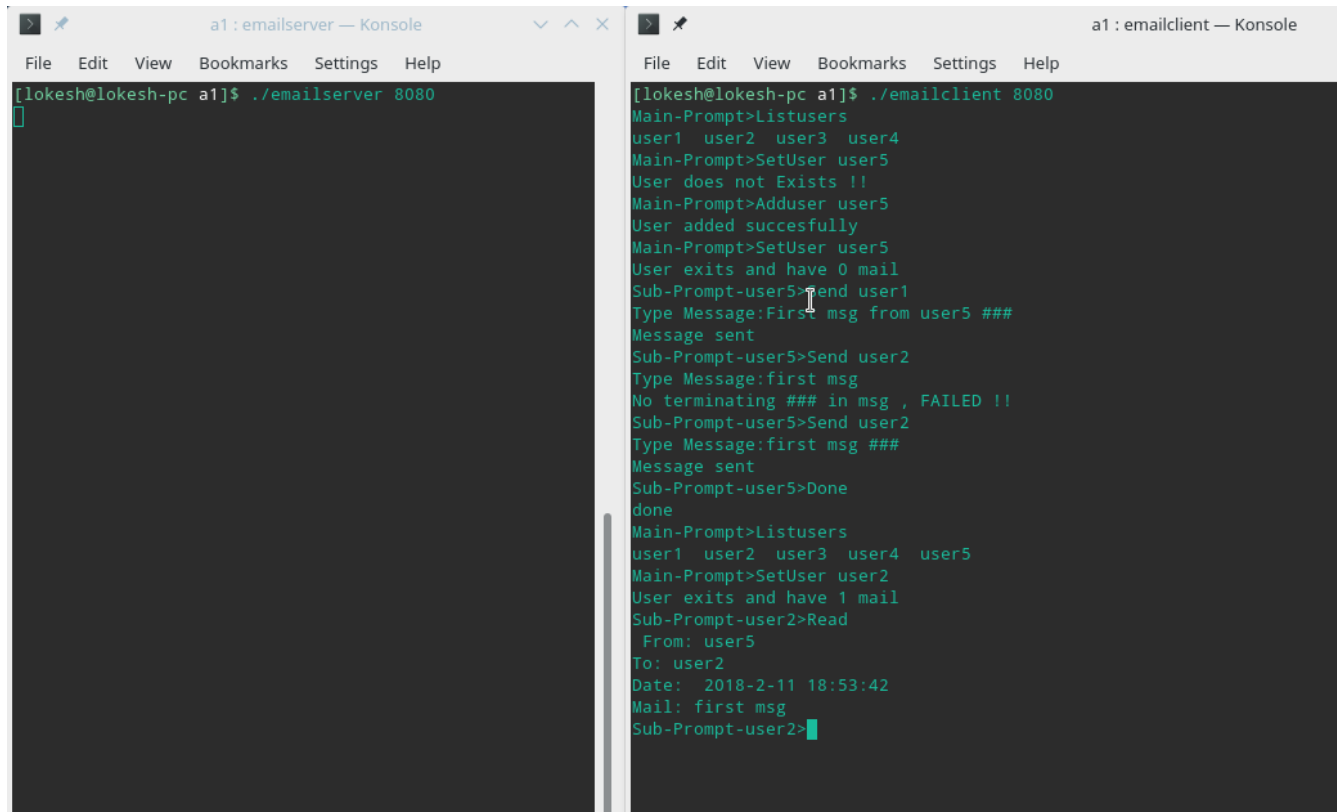


## Snapshots :

### 1. client and server running on same system

shows : adding new user and sending emails and reading emails

also shows the error raised by server on incomplete or invalid commands



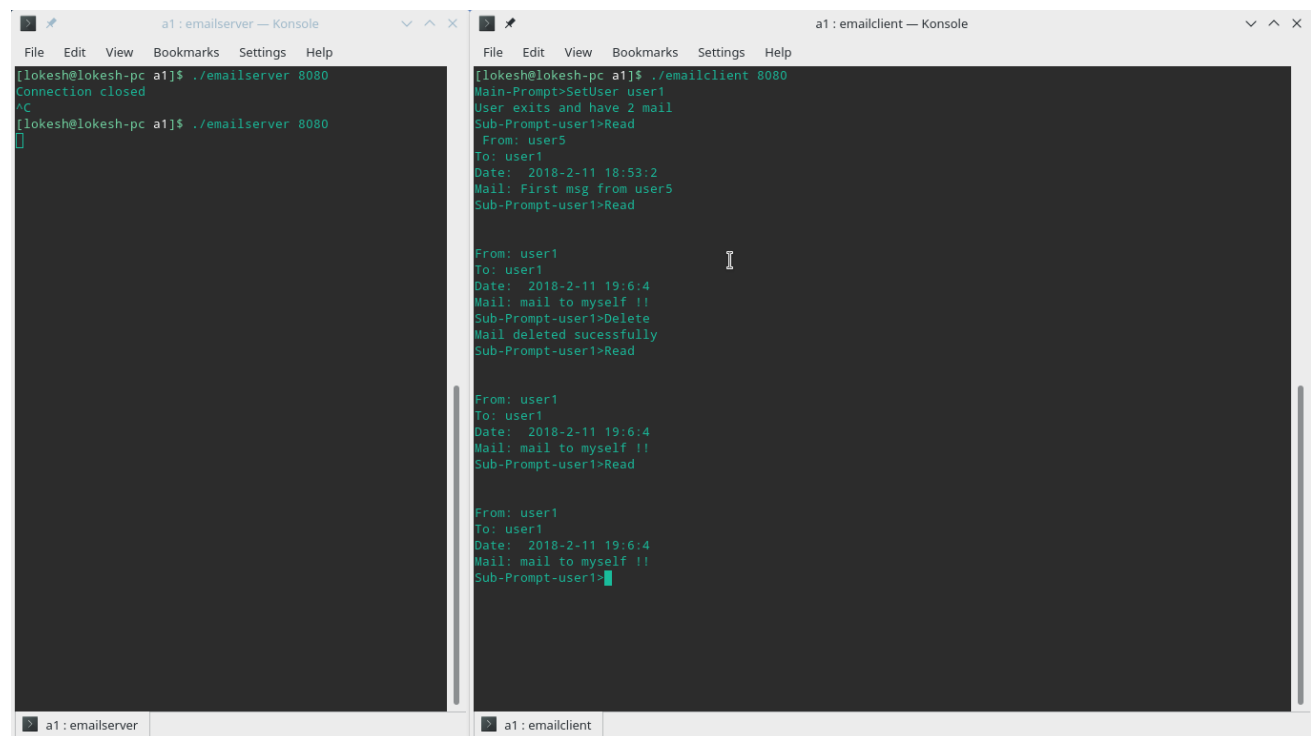
The image shows two terminal windows side-by-side. The left window is titled 'a1 : emailserver — Konsole' and the right window is titled 'a1 : emailclient — Konsole'. Both windows show a user prompt '[lokesh@lokesh-pc a1]\$'.

In the emailserver window, the user has entered the command `./emailserver 8080`. The prompt is now empty.

In the emailclient window, the user has entered the command `./emailclient 8080`. The prompt is now empty. The output of the client shows the following sequence of commands and responses:

```
Main-Prompt>Listusers
user1 user2 user3 user4
Main-Prompt>SetUser user5
User does not Exists !!
Main-Prompt>Adduser user5
User added succesfully
Main-Prompt>SetUser user5
User exists and have 0 mail
Sub-Prompt-user5>send user1
Type Message:First msg from user5 ###
Message sent
Sub-Prompt-user5>Send user2
Type Message:first msg
No terminating ### in msg , FAILED !!
Sub-Prompt-user5>Send user2
Type Message:first msg ###
Message sent
Sub-Prompt-user5>Done
done
Main-Prompt>Listusers
user1 user2 user3 user4 user5
Main-Prompt>SetUser user2
User exists and have 1 mail
Sub-Prompt-user2>Read
From: user5
To: user2
Date: 2018-2-11 18:53:42
Mail: first msg
Sub-Prompt-user2>
```

### 2. Delete mail command



The image shows two terminal windows side-by-side. The left window is titled 'a1 : emailserver — Konsole' and the right window is titled 'a1 : emailclient — Konsole'. Both windows show a user prompt '[lokesh@lokesh-pc a1]\$'.

In the emailserver window, the user has entered the command `./emailserver 8080`. The prompt is now empty. The output of the server shows the following sequence of commands and responses:

```
Connection closed
^C
[lokesh@lokesh-pc a1]$ ./emailserver 8080
```

In the emailclient window, the user has entered the command `./emailclient 8080`. The prompt is now empty. The output of the client shows the following sequence of commands and responses:

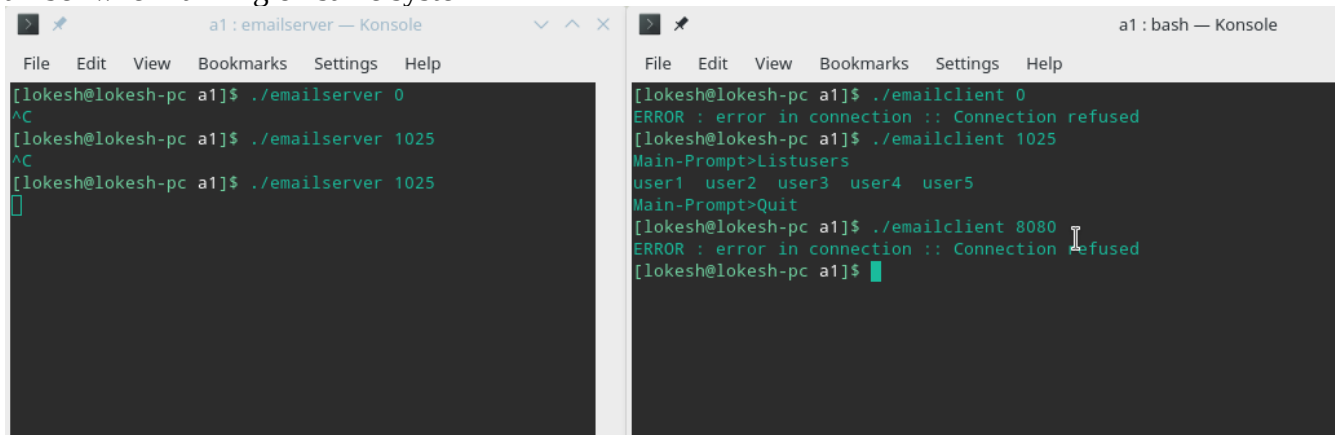
```
Main-Prompt>SetUser user1
User exists and have 2 mail
Sub-Prompt-user1>Read
From: user5
To: user1
Date: 2018-2-11 18:53:2
Mail: First msg from user5
Sub-Prompt-user1>Read

From: user1
To: user1
Date: 2018-2-11 19:6:4
Mail: mail to myself !!
Sub-Prompt-user1>Delete
Mail deleted successfully
Sub-Prompt-user1>Read

From: user1
To: user1
Date: 2018-2-11 19:6:4
Mail: mail to myself !!
Sub-Prompt-user1>Read

From: user1
To: user1
Date: 2018-2-11 19:6:4
Mail: mail to myself !!
Sub-Prompt-user1>
```

3. below snapshot shows that port 0 is system port and the client and serve both should have same port number when running on same system



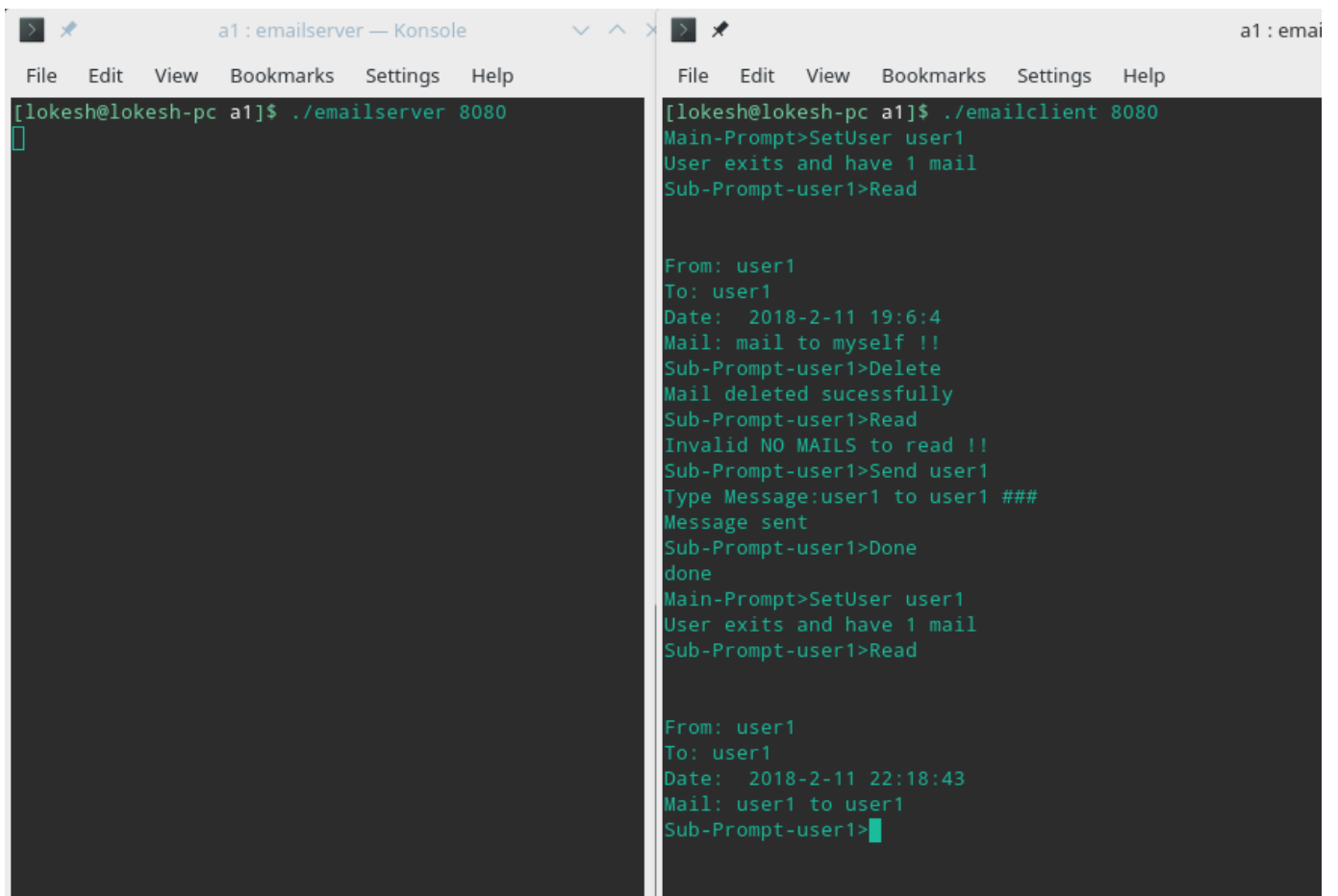
The image shows two terminal windows side-by-side. The left window, titled 'a1: emailserver — Konsole', shows the following commands and output:

```
[lokesh@lokesh-pc a1]$ ./emailserver 0
^C
[lokesh@lokesh-pc a1]$ ./emailserver 1025
^C
[lokesh@lokesh-pc a1]$ ./emailserver 1025
```

The right window, titled 'a1: bash — Konsole', shows the following commands and output:

```
[lokesh@lokesh-pc a1]$ ./emailclient 0
ERROR : error in connection :: Connection refused
[lokesh@lokesh-pc a1]$ ./emailclient 1025
Main-Prompt>Listusers
user1 user2 user3 user4 user5
Main-Prompt>Quit
[lokesh@lokesh-pc a1]$ ./emailclient 8080
ERROR : error in connection :: Connection refused
[lokesh@lokesh-pc a1]$
```

4. Sending self Mails( from user1 to user1 below )



The image shows two terminal windows side-by-side. The left window, titled 'a1: emailserver — Konsole', shows the following command and output:

```
[lokesh@lokesh-pc a1]$ ./emailserver 8080
```

The right window, titled 'a1: emailclient', shows the following commands and output:

```
[lokesh@lokesh-pc a1]$ ./emailclient 8080
Main-Prompt>SetUser user1
User exists and have 1 mail
Sub-Prompt-user1>Read

From: user1
To: user1
Date: 2018-2-11 19:6:4
Mail: mail to myself !!
Sub-Prompt-user1>Delete
Mail deleted successfully
Sub-Prompt-user1>Read
Invalid NO MAILS to read !!
Sub-Prompt-user1>Send user1
Type Message:user1 to user1 ###
Message sent
Sub-Prompt-user1>Done
done
Main-Prompt>SetUser user1
User exists and have 1 mail
Sub-Prompt-user1>Read

From: user1
To: user1
Date: 2018-2-11 22:18:43
Mail: user1 to user1
Sub-Prompt-user1>
```

## Summary :

lessons learnt:

1. how to create TCP sockets , listen to sockets and send , receive messages through them.
2. what are ports ?how and why they are used in networking systems.
3. Ports can be any integer from 1025 to 65535 (0-1024 are system reserved) but mostly port number from 8000 are for html connection.
4. port binding with specific sockets and exceptions raised by system.
5. various step involved while communicating through network systems.
6. revision of system programming in C.

i feel the assignment was pretty helpful for me to totally understand the theory behind sockets and client user interface.