

Computer Networks: Assignment 1 Report

Output to check User ID and Receiver ID Validation:

```
bharath@bharath-Predator-PH315-51: ~/ASSIGNMENT1
bharath@bharath-Predator-PH315-51:~/ASSIGNMENT1$ gcc client.c -o client
bharath@bharath-Predator-PH315-51:~/ASSIGNMENT1$ ./client 127.0.0.1 9999
Main-Prompt> Adduser UA
Server:Registered
Main-Prompt> Adduser Ub
Server:Registered
Main-Prompt> Adduser UB
Server:Registered
Main-Prompt> Adduser UC
Server:Registered
Main-Prompt> SetUser UA
Server:UserId is valid
Server:User has 0 messages
Sub-Prompt- UA>Read
Server:No More Mail
Sub-Prompt- UA>Delete
Server:No More Mail
Sub-Prompt- UA>Send UD
Server:Receiverid is invalid
Sub-Prompt- UA>Done
Main-Prompt> SetUser UD
Server:UserId is invalid
```


Output to check if while reading the last item in the spool file, then mail pointer will go back to first item:

Here UB has 3 messages so after 3 read commands it will read from the first message and so on

A terminal window with a dark purple background. On the left side, there is a vertical column of application icons including a gear, a Firefox logo, a document, a folder, a presentation, a calendar, a shopping bag, an Amazon logo, a wrench and gear, a terminal icon, a red circular arrow, a shopping bag, a notepad, a printer, a document, a printer, and a trash can. The terminal text shows a sequence of commands and server responses. It starts with 'Main-Prompt> SetUser UA', followed by 'Server:Userid is valid' and 'Server:User has 0 messages'. Then 'Sub-Prompt- UA>Send UB' is entered, leading to 'Server:Receiverid is valid' and 'Type Message:hl1###'. This is followed by 'Sub-Prompt- UA>Hl2###' and 'Sub-Prompt- UA>Send Hl2###', which results in 'Server:Receiverid is invalid'. Then 'Sub-Prompt- UA>Send UB' is entered, leading to 'Server:Receiverid is valid' and 'Type Message:hl12 ###'. This is followed by 'Sub-Prompt- UA>Send UB', leading to 'Server:Receiverid is valid' and 'Type Message:hl13 ###'. Then 'Sub-Prompt- UA>Done' is entered. Next, 'Main-Prompt> SetUser UB' is entered, leading to 'Server:Userid is valid' and 'Server:User has 3 messages'. Then 'Sub-Prompt- UB>Read' is entered, leading to 'From: UA', 'To: UB', 'hl1', and '###'. This is followed by 'Sub-Prompt- UB>Read', leading to 'From: UA', 'To: UB', 'hl12', and '###'. Then 'Sub-Prompt- UB>Read', leading to 'From: UA', 'To: UB', 'hl13', and '###'. Next, 'Sub-Prompt- UB>Read' is entered, leading to 'From: UA', 'To: UB', 'hl1', and '###'. Then 'Sub-Prompt- UB>Read', leading to 'From: UA', 'To: UB', 'hl12', and '###'. This is followed by 'Sub-Prompt- UB>Read', leading to 'From: UA', 'To: UB', 'hl13', and '###'. Then 'Sub-Prompt- UB>Read', leading to 'From: UA', 'To: UB', 'hl1', and '###'. Finally, 'Sub-Prompt- UB>Read' is entered, leading to 'From: UA', 'To: UB', 'hl12', and '###'. The last line shows 'Sub-Prompt- UB>Read' followed by 'From: UA'.

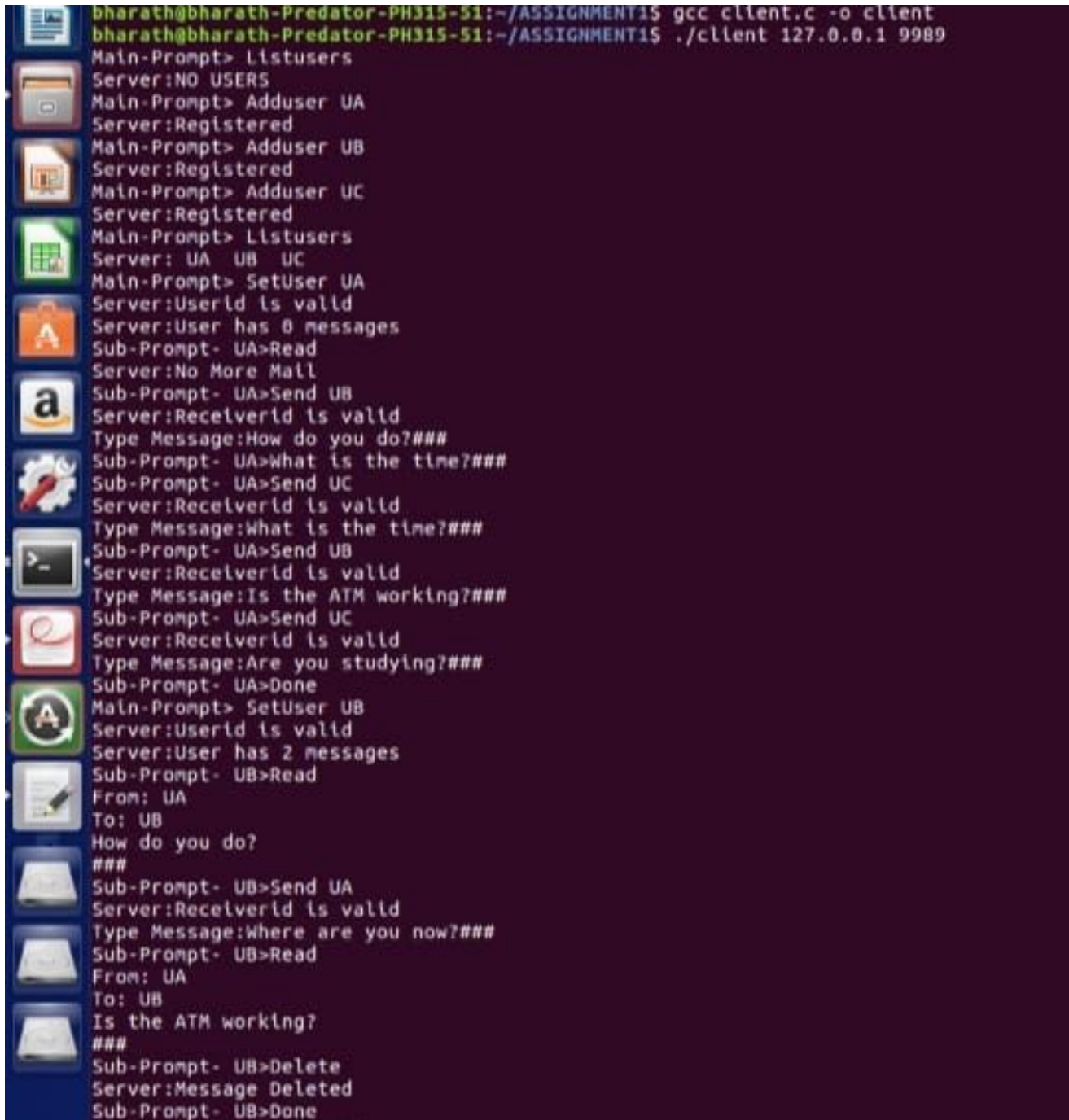
```
Main-Prompt> SetUser UA
Server:Userid is valid
Server:User has 0 messages
Sub-Prompt- UA>Send UB
Server:Receiverid is valid
Type Message:hl1###
Sub-Prompt- UA>Hl2###
Sub-Prompt- UA>Send Hl2###
Server:Receiverid is invalid
Sub-Prompt- UA>Send UB
Server:Receiverid is valid
Type Message:hl12 ###
Sub-Prompt- UA>Send UB
Server:Receiverid is valid
Type Message:hl13 ###
Sub-Prompt- UA>Done
Main-Prompt> SetUser UB
Server:Userid is valid
Server:User has 3 messages
Sub-Prompt- UB>Read
From: UA
To: UB
hl1
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl12
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl13
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl1
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl12
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl13
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl1
###
Sub-Prompt- UB>Read
From: UA
To: UB
hl12
###
Sub-Prompt- UB>Read
From: UA
```

Output to check if Read and Delete gives error if there are no mails for the user:

A terminal window with a dark purple background. On the left side, there is a vertical column of application icons: a red icon, a terminal icon, a red icon, a green icon, a document icon, a white icon, a white icon, a white icon, and a white icon. The terminal text is as follows:

```
Sub-Prompt- UC>Send UA
Server:Receiverid is valid
Type Message:hll whats up dude ###
Sub-Prompt- UC>Done
Main-Prompt> SetUser UA
Server:Userid is valid
Server:User has 1 messages
Sub-Prompt- UA>Read
From: UC
To: UA
hll whats up dude
###
Sub-Prompt- UA>Read
From: UC
To: UA
hll whats up dude
###
Sub-Prompt- UA>Read
From: UC
To: UA
hll whats up dude
###
Sub-Prompt- UA>Delete
Server:Message Deleted
Sub-Prompt- UA>Delete
Server:No More Mail
Sub-Prompt- UA>Read
Server:No More Mail
Sub-Prompt- UA>Done
Main-Prompt> Quit
Server:TCP session closed
bharath@bharath-Predator-PH315-S1:~/ASSIGNMENT1$
```

Output for the sample session in the PDF:

A terminal window with a dark purple background. On the left side, there is a vertical column of application icons including a file explorer, a folder, a document, a calendar, a shopping bag, an Amazon logo, a gear, a terminal icon, a red circle with a white 'e', a green circle with a white 'A', a document with a pencil, and three laptop icons. The terminal text shows a user compiling a client program and then interacting with a server through a series of commands and responses.

```
bharath@bharath-Predator-PH315-51:~/ASSIGNMENT1$ gcc client.c -o client
bharath@bharath-Predator-PH315-51:~/ASSIGNMENT1$ ./client 127.0.0.1 9989

Main-Prompt> Listusers
Server:NO USERS
Main-Prompt> Adduser UA
Server:Registered
Main-Prompt> Adduser UB
Server:Registered
Main-Prompt> Adduser UC
Server:Registered
Main-Prompt> Listusers
Server: UA  UB  UC
Main-Prompt> SetUser UA
Server:Userid is valid
Server:User has 0 messages
Sub-Prompt- UA>Read
Server:No More Mail
Sub-Prompt- UA>Send UB
Server:Receiverid is valid
Type Message:How do you do?###
Sub-Prompt- UA>What is the time?###
Sub-Prompt- UA>Send UC
Server:Receiverid is valid
Type Message:What is the time?###
Sub-Prompt- UA>Send UB
Server:Receiverid is valid
Type Message:Is the ATM working?###
Sub-Prompt- UA>Send UC
Server:Receiverid is valid
Type Message:Are you studying?###
Sub-Prompt- UA>Done
Main-Prompt> SetUser UB
Server:Userid is valid
Server:User has 2 messages
Sub-Prompt- UB>Read
From: UA
To: UB
How do you do?
###
Sub-Prompt- UB>Send UA
Server:Receiverid is valid
Type Message:Where are you now?###
Sub-Prompt- UB>Read
From: UA
To: UB
Is the ATM working?
###
Sub-Prompt- UB>Delete
Server:Message Deleted
Sub-Prompt- UB>Done
```

Summary:

- 1) This experiment made me understand basic socket programming in C, sending and receiving data through sockets, basic usage of Makefile and have a basic understanding of how an email service works.
- 2) I understood the working of Write and Read commands and their implementation so that server and client communicate well.
- 3) I learnt how to set communication between server and client.