

Project Report

INTRODUCTION

This mail/calendar service is on character-based implementation which give users a functionality to send reply forward an email as well as to set an appointment with another client. The implementation of this service is done in C programming language.

USER GUIDE

Any user can download this application. After installation user needs to have two folders on desktop, first is server and second is client. In terminal you can run this application. To make connection between server and client follow the steps.

To run Server program:

- Open one terminal write a command **gcc server.c -pthread -o s** and hit enter, again write **./s** and hit enter, server will start.

To run Client program:

- After you run server program you need to connect it with client, open another terminal and write a command **gcc client.c -o c -lnsl** and hit enter, write **./c 127.0.0.1 localhost** and again hit enter.

Server and Client are now connected. You will see three options either to login, sign up or exit the service.

If user is using **two** different machines for this service:

To run Server program:

- Open one terminal write a command **gcc server.c -pthread -o s** and hit enter, again write. **./s** and hit enter, server will start.

To run Client program:

- After you run server program you need to connect it with client, open another terminal and write a command **gcc client.c -o c -lnsl** and hit enter, write. **./c IP address** and again hit enter.
- After you write **./c** you need to write the IP address of the machine on which the server program is running.
- To know the IP address of that machine

If user is not registered before, choose corresponding option to sign up and fill the mandatory fields to log in successfully.

Mail Service:-

After user sign up he/she will have options to either choose calendar service or mail service. If user would choose mail service further he will have options:

```
You are in mail/calender service
1)Mail Service
2)Calender Service
3)Exit
[3] New Emails arrived!

Your Option:1
1You are in mail service
1)Inbox
2)Compose an Email
3)Change Service
[3] New Emails arrived!

Your Option:
```

If user selects option 1:

- User will see his inbox and after that he can enter a number of email, he wants to open.
- Furthermore, he will have an option to reply that email, forward it to one or more than one user, delete it and filter it by username, subject or date and time. If that email has an attachment he will see one more option to save that attachment.

```

1You are in mail service
1)Inbox
2)Compose an Email
3)Change Service

Your Option:1
1
Check Mail
*****Inbox*****
1      R      varun      hiiii      05/04/2016-05:00

received - 35
Choose the email number to open:1
1
0
USERNAME: varun
FIRST NAME varun
LAST NAME: kumar
SUBJECT: hiiii
DATE AND TIME: 05/04/2016-05:00
BODY: qqqq

****Choose one of the following options****
R - Reply to this email.
F - Forward this email.
D - Delete this email.
S - Sort emails.
Q - Quit
Option:

```

If user selects option 2:

- User can send an email to one or more than one user by separating the username by coma.
- After you enter username, subject, and email content user need to press CTRL + D to exit from the message content block.
- User will see and option to attach a text file or not. He can attach a txt file if he write yes and send it along with an email.

If user selects option 3:

- This option will take the user to the home page where he could see the choices to select either mail or calendar service.

After user selects option number 3 user can see options to choose mail or calendar service.

Calendar Service:-

If user selects option 2:

- This options will show you four different functionality of calendar services.

```
You are in mail/calender service
1)Mail Service
2)Calender Service
3)Exit
[3] New Emails arrived!

Your Option:2
2You are in Calender Service
1)View Calender
2)Request an appointment
3)modify an appointment
4>Delete an appointment
5)Change Service
Your Option:|
```

If user selects 1:

- User can check his own calendar in which he can see all the appointment he requested or other users who have requested for him.

If user selects 2:

- User can request for an appointment with other user by mentioning valid date, time, and place of the meeting.

```

1)Mail Service
2)Calender Service
3)Exit

Your Option:2
2>You are in Calender Service
1)View Calender
2)Request an appointment
3)modify an appointment
4>Delete an appointment
5)Change Service

Your Option:2
New Appointment creation
Enter usernames involved with shreya in meeting (seperate users using ',')
varun

buffMeetingUsernames: varun
Enter meeting start date(MM/DD/YYYY): 05/06/2016

Enter meeting start time(HH:MM): 05:00

Enter meeting end date(MM/DD/YYYY): 05/06/2016

Enter meeting end time(HH:MM): 06:00

Valid appointment
Enter place of the event

Enter description for the event
AOS Project
current username shreyabufAppointment: 05/06/2016|05:00|05/06/2016|06:00|shreya,varun||AOS Project|
appointment sent
Your Appointment is conformed
1)View Calender
2)Request an appointment
3)modify an appointment
4>Delete an appointment
5)Change Service

Your Option:

```

If user selects 3:

- User can modify the appointment if he wants to change it.

If user selects 4:

- User can delete the appointment by selecting this option. So it will be removed from both sides who has requested it and the other person who is involved in it.

If user selects 5:

- After selecting this option, user would go back to the menu where he will again have an option to choose the services or to exit the menu.

- After exiting the menu user needs to log in by username “admin” and password “admin” to kill the server after you select option number 3.

```
1)Existing User Login
2)Create a new account
3)Exit mail/calender service

Your Option:1

***Existing User Login***

Username:admin
Password:pass123

Succesfully Logged In

You are in mail/calender service
1)Mail Service
2)Calender Service
3)Exit

Your Option:3
3
***WELCOME TO MAIL/CALENDER SERVICE***

***Choose any one of the options below***

1)Existing User Login
2)Create a new account
3)Exit mail/calender service

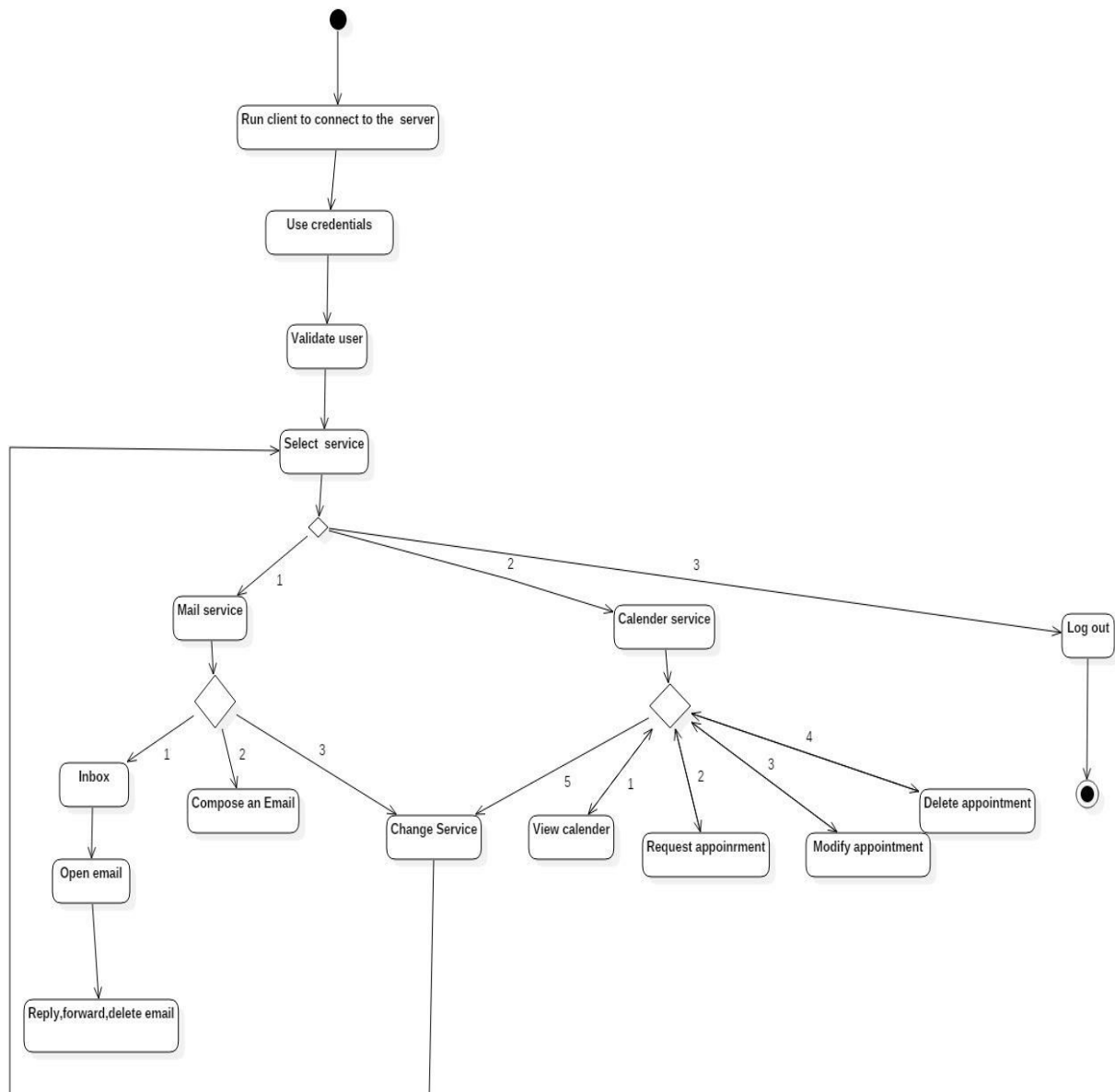
Your Option:3

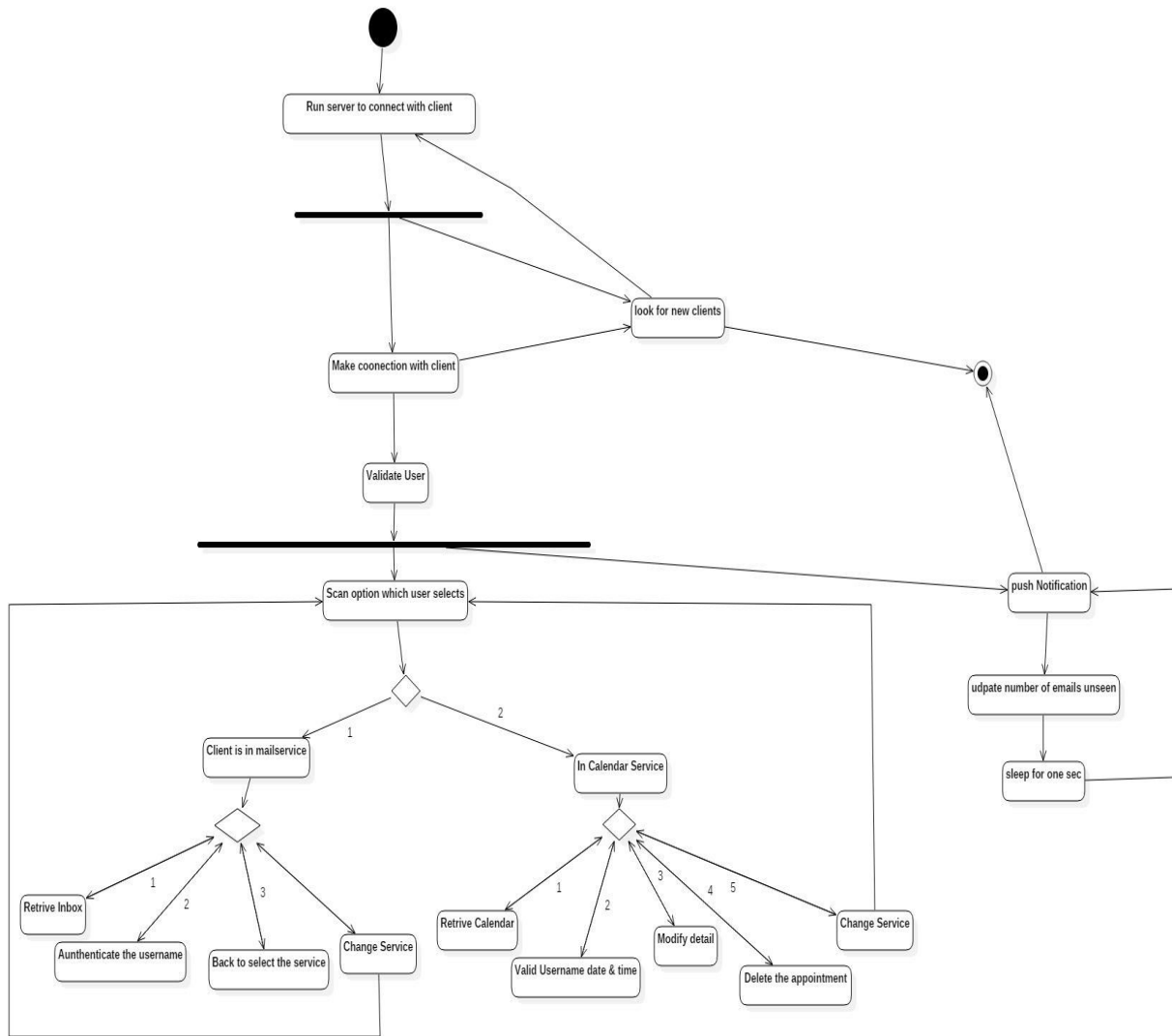
Exit services
naiks2@D158-PC:~/Desktop/Client$
```

DIAGRAM

USE CASE:



ACTIVITY DIAGRAM:**Client Side**

Server Side:

CHALLENGES

In Mail Service:

- If a message content or an attachment is containing multiple lines at that time we were having a problem to write a client's file.

In Calendar Service:

- In calendar service if a user is requesting for an appointment we need to increment the sequence number in client's file.

TECHNICAL SUMMERY

Server – client's connection is established through sockets. Server is concurrent process and client is multithreaded process.

Initially when connection is made between server and client we fork the process so for every new client who is connecting with the server will have a new copy of process. In our mail/calendar service we have used structure for saving all the information of username as well email information and calendar's appointment request as well.

One thread will always run client side to check the new request of email/calendar. Whenever a new request is made it will notify client about the new request. There is a file for each user created as username.txt and this file will be used for each user to get the details of emails/ calendar for each clients. When user sends an email / calendar to other user, details of new email/ calender will be appended to existing file.

Server generally reads a number from a log file. we call this number a sequence number. This number is appended to all the appointments that are received from the client. After ever append the number in the file is also incremented.

If you log in as “admin” with the password “admin” as well it will kill the server after you select an option 3.