



SOFE4790 Distributed Systems (Fall 2021 - Dr. H. Singh)

Individual Programming Assignment #1

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Overview

The idea of my assignment is creating a reservation logging system for businesses. The staff can log the reservation information from any computers within their store, and information will be stored to a centralized file on a single server.

Also, staffs are able to retrieve and review the entire reservation information from any computer.

This application can improve the efficiency of the business since it allows staff to work on any computer located within the store seamlessly.

Services

- Any client can update the log file on the server
- Any client can review the entire log file from the server (contains entries from all clients)

Features

- When a client machine is online, the server side will have visual confirmation. Also, server will confirm whenever a client is offline.
- When a client machine made an entry, the system will log the current time
- When a client is online, it can know the status of log file (file existing, or a new file is created)
- The text entry to the log file is padded with space for ease of reading
- Each log entry is marked with client number and system time.

Screenshots with explanations

The server is newly started with a single client (Machine 1). User enters the reservation information on the client side. Once entered, the information is stored in the guest_log.txt file and confirmed on the server side. Server side says “File already exists” because the guest_log.txt is already exist.

```
Assignment1 — java Server — 95x16
((base) Liangjis-MacBook-Pro:Assignment1 jeffchen$ java Server
Server Started ....

>Machine:1 online!
IP address: /127.0.0.1
File already exists.
Port number: 52049

New Entry from Machine-1

Name: Jeff C
Number: 1357924680
Date: Dec 12
Successfully Entered.

Assignment1 — java Client — 95x13
((base) Liangjis-MacBook-Pro:Assignment1 jeffchen$ java Client
Enter Name :
Jeff C
Enter Phone Number :
1357924680
Enter Date :
Dec 12

Reservation confirmed
system time: Sat Oct 16 11:21:38 EDT 2021

Enter Name :

```

The 3rd line is just newly entered:

Name	Number	Date	Machine	Entry_time
Jeff	1234343	oct 16	Machine- 1	Sat Oct 16 11:13:45 EDT 2021
sophie	44234	oct 30	Machine- 2	Sat Oct 16 11:14:15 EDT 2021
Jeff C	1357924680	Dec 12	Machine- 1	Sat Oct 16 11:21:38 EDT 2021

Now a new client is online (Machine 2), it is recognized by the server. A new piece information is entered from it.

```
Assignment1 — java Server — 95x22
New Entry from Machine-1
Name: Jeff C
Number: 1357924680
Date: Dec 12
Successfully Entered.
>Machine:2 online!
IP address: /127.0.0.1
Port number: 52123
File already exists.
New Entry from Machine-2
Name: Alex
Number: 01234
Date: feb 5
Successfully Entered.

Assignment1 — java Client — 95x13
((base) Liangjis-MacBook-Pro:Assignment1 jeffchen$ java Client
Enter Name :
Jeff C
Enter Phone Number :
1357924680
Enter Date :
Dec 12
Reservation confirmed
system time: Sat Oct 16 11:13:45 EDT 2021
Enter Name :

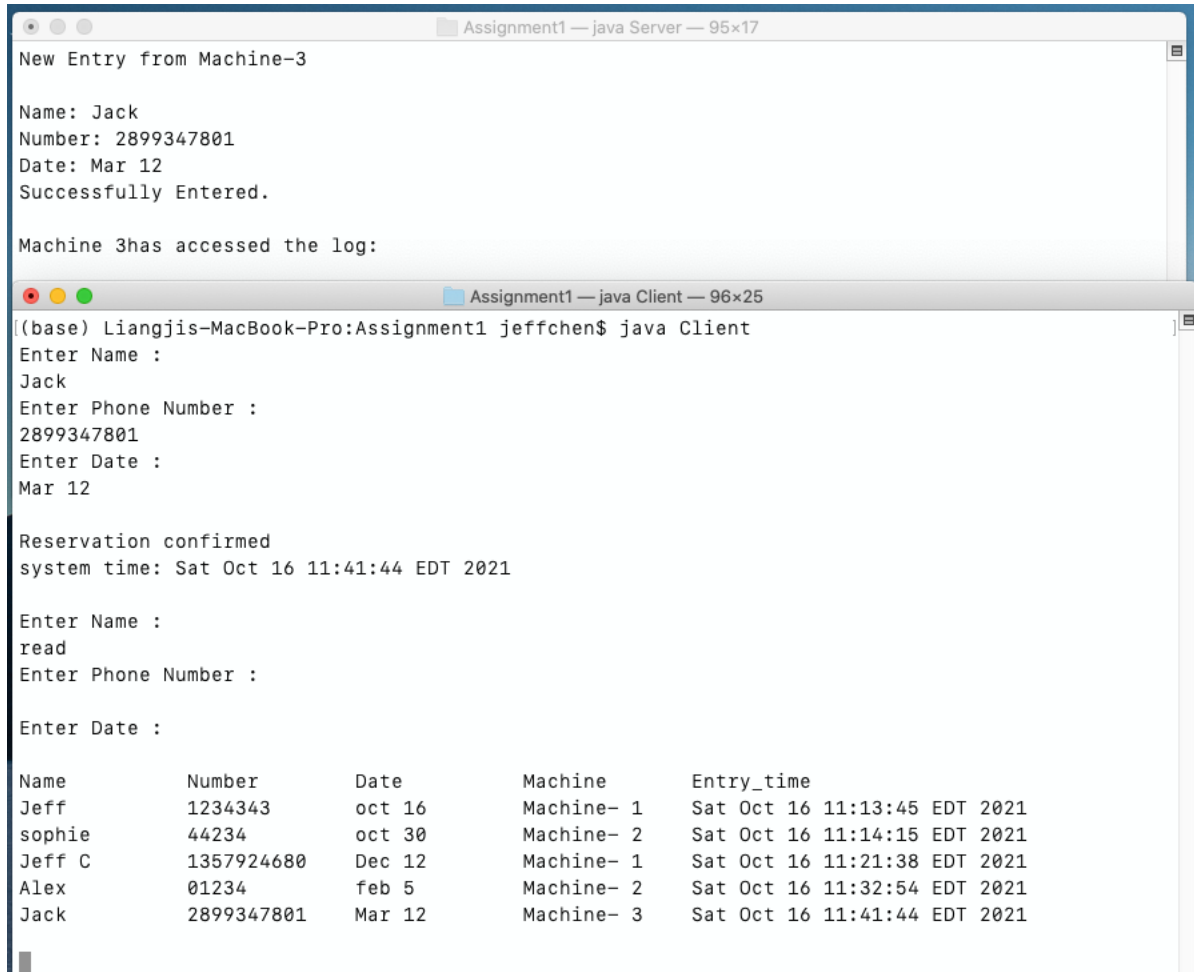
Assignment1 — java Client — 75x10
((base) Liangjis-MacBook-Pro:Assignment1 jeffchen$ java Client
Enter Name :
Alex
Enter Phone Number :
01234
Enter Date :
feb 5
Reservation confirmed
system time: Sat Oct 16 11:32:54 EDT 2021
```

We can confirm guest Alex is entered in the log

Name	Number	Date	Machine	Entry_time
Jeff	1234343	oct 16	Machine- 1	Sat Oct 16 11:13:45 EDT 2021
sophie	44234	oct 30	Machine- 2	Sat Oct 16 11:14:15 EDT 2021
Jeff C	1357924680	Dec 12	Machine- 1	Sat Oct 16 11:21:38 EDT 2021
Alex	01234	feb 5	Machine- 2	Sat Oct 16 11:32:54 EDT 2021

Client Machine 3 is online now. Not only it can enter the reservation info as other clients, it can also read the log file directly from the server. User has to use the keyword “read” in the name field, and leave other two fields empty.

All the information within guest_log.txt is displayed on the client side. On the server side, it knows which client is accessing the guest information.



```
Assignment1 — java Server — 95x17
New Entry from Machine-3

Name: Jack
Number: 2899347801
Date: Mar 12
Successfully Entered.

Machine 3has accessed the log:

Assignment1 — java Client — 96x25
[(base) Liangjis-MacBook-Pro:Assignment1 jeffchen$ java Client
Enter Name :
Jack
Enter Phone Number :
2899347801
Enter Date :
Mar 12


Reservation confirmed
system time: Sat Oct 16 11:41:44 EDT 2021

Enter Name :
read
Enter Phone Number :

Enter Date :

Name      Number      Date      Machine      Entry_time
Jeff      1234343      oct 16     Machine- 1    Sat Oct 16 11:13:45 EDT 2021
sophie    44234        oct 30     Machine- 2    Sat Oct 16 11:14:15 EDT 2021
Jeff C    1357924680   Dec 12     Machine- 1    Sat Oct 16 11:21:38 EDT 2021
Alex      01234        feb 5      Machine- 2    Sat Oct 16 11:32:54 EDT 2021
Jack      2899347801   Mar 12     Machine- 3    Sat Oct 16 11:41:44 EDT 2021
```

Server display information when client is offline (using ctrl-C to end client)



```
Assignment1 — java Server — 95x11

java.io.EOFException
Client -1 exit!!

java.io.EOFException
Client -2 exit!!

java.io.EOFException
Client -3 exit!!
```

Conclusion and Challenges

One imperfection of this project is that user has to enter the keyword “read” in the name field, and leave others blank to access the log on client side. This could be confusing and need some learning curve for the users.

Also, the client machine number is assigned by server based on their online sequence. It is better to assign them a unique identifier based on their IP address or hardware information.

A txt file is used to store and retrieve information. Has to use the “true” keyword to make the file appendable when writing to the file.

GitHub submission link

<https://github.com/UOITEngineering2/assignment1fall2020-jeffclj67>