Intro. to Network Programming 2020 Spring

Homework 2 - Bulletin Board System: Part 2

Description

Continuing the first part, you are asking to implement the functions of the Bulletin Board System (BBS) server.

Requirement

The service accepts the following commands and **at least 10 clients**:

When client enter command incompletely E.g., missing parameters, the server should show **command format** for client.

Command format	Description	Result	
create-board <name> name	Create a board which named <name>. <name> must **be unique.** If Board's name is already used, show failed message, otherwise it is success. Must be logged in when creating board's name	Success	Create board successfully.
		Fail (1)	Board already exist.
		Fail (2)	Please login first.
create-post <board-name> --title <title> --content <content> (command is in the same line)	Create a post which title is <title> and content is <content>. Use --title and --content to separate titles and content. <tilte> <mark>can have space but only in one line</mark>. <content> <mark>can have space, and key in ** ** to indicate a new line.</mark>	Success	Create post successfully.
		Fail (1)	Board does not exist.
		Fail (2)	Please login first.
list-board ##<key> list	List all boards in BBS. <key> is a keyword, use **## <key>** to do advanced query.	Index Name Moderator <Index1> <Name1> <Moderator1>	
list-post <board-name> ##<key> key	List all posts in a board named <board-name> <key> is a keyword, use **## <key>** to do advanced query.	Success	
		ID Title Author Date <ID1> <Title1> <Author1> <Date1>	
		Fail	Board does not exist.
read <post-id> post-id board	Show the post which ID is <post-id>.	Success	Author :<Author1> Title :<Title1> Date :<Date1> -- <content> -- <User1> : <Comment1>
		Fail	Post does not exist.
delete-post <post-id> comment	Delete the post which ID is <post-id>. Only the post owner can delete the post. If the user is not the post owner, show failed message, otherwise it is success.	Success	Delete successfully.
		Fail (1)	Please login first.
		Fail (2)	Post does not exist.
		Fail (3)	Not the post owner.

update-post <post-id> --title/content <new>	Update the post which ID is <post-id>. Use -- to decide which to modify, title or content, and replaced by <new>. Only the post owner can update the post. If the user is not the post owner, show failed message, otherwise it is success.	Success	Update successfully.
		Fail (1)	Please login first.
		Fail (2)	Post does not exist.
		Fail (3)	Not the post owner.
comment <post-id> <comment> comment	Leave a comment < comment > at the post which ID is <post-id>	Success	Comment successfully.
		Fail (1)	Please login first.
		Fail (2)	Post does not exist.
exit	Close connection.		

Scenario

```
bash$ telnet 127.0.0.1 7890
********************************
** Welcome to the BBS server. **
................................................................................
% create-board NP_HW
Please login first.
% register Bob bob@qwer.asdf 123456
Register successfully.
% register Sam sam@qwer.com 654321
Register successfully.
% login Bob 123456
Welcome, Bob.
% create-board NP_HW
Create board successfully.
% create-board NP_HW
Board already exist.
% create-board OS_HW
Create board successfully.
% create-board FF
Create board successfully.
% list-board
    Index        Name         Moderator
    1            NP_HW        Bob
    2            OS_HW        Bob
    3            FF           Bob
% list-board ##HW
    Index        Name         Moderator
    1            NP_HW        Bob
    2            OS_HW        Bob
```

```
% create-post NCTU --title About NP HW_2 --content Help!<br>I have some problem!
Board does not exist.
% create-post NP_HW --title About NP HW_2 --content Help!<br>I have some problem!
Create post successfully.
% create-post NP_HW --title HW_3 --content Ask!<br>Is NP HW_3 Released?
Create post successfully.
% list-post NP
Board does not exist.
% list-post NP_HW

   ID              Title            Author        Date
   1               About NP HW_2    Bob           03/31
   2               HW_3             Bob           03/31

% list-post NP_HW ##HW_2

   ID              Title            Author        Date
   1               About NP HW_2    Bob           03/31

% read 888
Post does not exist.
% read 1

   Author    :Bob

   Title     :About NP HW_2

   Date      :2020-03-31

   --

    Help!

    I have some problem!

    --
% update-post 888 --title NP HW_2
Post does not exist.
% update-post 1 --title NP HW_2
Update successfully.
% read 1

   Author    :Bob

   Title     :NP HW_2

   Date      :2020-03-31

   --

    Help!

    I have some problem!

    --
% logout
Bye, Bob.
% login Sam 654321
Welcome, Sam.
```

```
% update-post 1 --content Ha!<br>ha!<br>ha!
Not the post owner.
% delete-post 1
Not the post owner.
% comment 888 Ha! ha! ha!
Post does not exist.
% comment 1 Ha! ha! ha!
Comment successfully.
% read 1
    Author    :Bob
    Title     :NP HW_2
    Date      :2020-03-31
    --
    Help!
    I have some problem!
    --
    Sam: Ha! ha! ha!
% create-board Hello
Create board successfully.
% list-board
    Index        Name         Moderator
    1            NP_HW        Bob
    2            OS_HW        Bob
    3            FF           Bob
    4            Hello        Sam
% logout
Bye, Sam.
% login Bob 123456
Welcome, Bob.
% delete-post 1
Delete successfully.
% read 1
Post does not exist.
% logout
Bye, Bob.
% exit
```

Grade (100%)

- **create-board** command. - (10%)
- **create-post** command. - (20%)
- **list-board** command. - (15%)
- **list-post** command. - (15%)
- **read** command. - (10%)
- **delete-post** command. - (10%)
- **update-post** command. - (10%)
- **comment** command. - (10%)

Submission

Please upload a zip file called "hw2_{$student_id}.zip" that includes your source code. Submission that don't follow the rule will **get 20% punishment** on the grade.

You will get **0 points** on this project for **plagiarism**. Please don't copy-paste any code!

Note

You will be asked to use AWS resources in projects 3 and 4, so we suggest you use **AWS SDK supported languages** to implement this project.

Reference

1. [C/C++ Socket](#)
2. [SQLite C/C++ Interface](#)
3. [Linux socket SELECT](#)
4. [AWS SDK supported languages](#)