Course: IT114-010-S2025
Assignment: IT114 Module 4 Sockets Part3 Challenge
Student: Chihao T. (ct52)
Status: Submitted | Worksheet Progress: 83%
Potential Grade: 8.72/10.00 (87.20%)
Received Grade: 0.00/10.00 (0.00%)
Grading Link: https://learn.ethereallab.app/assignment/v3/IT114-010-S2025/it114-module-4-sockets-part3-challenge/grading/ct52

Instructions

1. Ensure you read all instructions and objectives before starting.
2. Create a new branch from `main` called `M4-Homework`
    1. `git checkout main` (ensure proper starting branch)
    2. `git pull origin main` (ensure history is up to date)
    3. `git checkout -b M4-Homework` (create and switch to branch)
3. Copy the template code from here: GitHub Repository - M4 Homework
    - It includes Sockets `Part1`, `Part2`, and `Part3`. Put all into an `M4` folder or similar if you don't have them yet (adjust `package` reference at the top if you chose a different folder name).
    - Make a copy of `Part3` and call it `Part3HW`
        - [ ] Fix the `package` and `import` references at the top of each file in this new folder
    - Immediately record to history
        - [ ] `git add .`
        - [ ] `git commit -m "adding M4 HW baseline files"`
        - [ ] `git push origin M4-Homework`
        - [ ] Create a Pull Request from `M4-Homework` to `main` and keep it open
4. Fill out the below worksheet
    - Each Problem requires the following as you work
        - [ ] Ensure there's a comment with your UCID, date, and brief summary of how the problem was solved
        - [ ] Code solution (add/commit periodically as needed)
        - [ ] Hint: Note how `/reverse` is handled
5. Once finished, click "Submit and Export"
6. Locally add the generated PDF to a folder of your choosing inside your repository folder and move it to Github
    1. `git add .`
    2. `git commit -m "adding PDF"`
    3. `git push origin M4-Homework`
    4. On Github merge the pull request from `M4-Homework` to `main`
7. Upload the same PDF to Canvas
8. Sync Local
    1. `git checkout main`
    2. `git pull origin main`

Section #1: (3 pts.) Challenge 1 - Coin Flip

Task #1 (3 pts.) - Implement a Coin Flip Command

Combo Task:

Weight: *100%*
Objective: *Implement a Coin Flip Command*

Details:

- `Client` must capture the user entry and generate a valid command per the lesson details
  - Command format must be `/flip`
- `ServerThread` must receive the data and call the correct method on `Server`
- `Server` must expose a method for the logic and send the result to everyone
  - The message must be in the format of `<who> flipped a coin and got <result>` and be from the Server
- Add code to solve the problem (add/commit as needed)

Image Prompt

Weight: *40%*

Details:
Multiple screenshots are expected

1. Snippet of relevant code showing solution (with ucid/date comment) from `Client`
   - Should only need to edit `processClientCommands()`
2. Snippet of relevant code showing solution (with ucid/date comment) from `ServerThread`
   - Should only need to edit `processCommand()`
3. Snippet of relevant code showing solution (with ucid/date comment) from `Server`
   - Should only need to create a new method and pass the result message to `relay()`
4. Show 5 examples of the command being seen across all terminals (2+ Clients and 1 Server)
   1. This can be captured in one screenshot if you split the terminals side by side

```
} else if ("/flip".equalsIgnoreCase(text.trim())) {
    String[] commandData = {Constants.COMMAND_TRIGGER, "flip"};
    sendToServer(String.join(",", commandData));
    wasCommand = true;
}//ct52 4/22
```

Missing Caption

```
case "flip":
    server.handleCoinFlip(this);
    wasCommand = true;
    break;//ct52 4/22
```

Missing Caption

```
public void handleCoinFlip(ServerThread sender) {
    String result = Math.random() < 0.5 ? "Heads" : "Tails";
    String message = "Coin flip result for client" + sender.getClientId() + ": " + result;
    relay(sender.getClientId(), message);
}//ct52 4/22
```

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Url Prompt

Weight: *20%*

Details:
Direct link to the file in the homework related branch from Github (should end in `.java`)

URL #1
https://github.com/ct52/IT114-010-s2025/tree/M4-Homework/M4/Part3HW

url
https://github.com/ct52/IT114-010

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Text Prompt

Weight: *40%*

Details:

Briefly explain how the code solves the challenge (note: this isn't the same as what the code does)

Your Response:

What was done was to extend and add code to the existing framework. First, it introduces a new /flip command that will integrate seamlessly with the established client-server protocol. By adding a new case of flipping in the ServerThread, the server can recognize and route the command to the method handleCoinFlip located in the server class. This method can broadcast the result.

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Section #2: (3 pts.) Challenge 2 - Private Message

Task #1 (3 pts.) - Implement a Private Message Command

Combo Task:

Weight: *100%*
Objective: *Implement a Private Message Command*

Details:

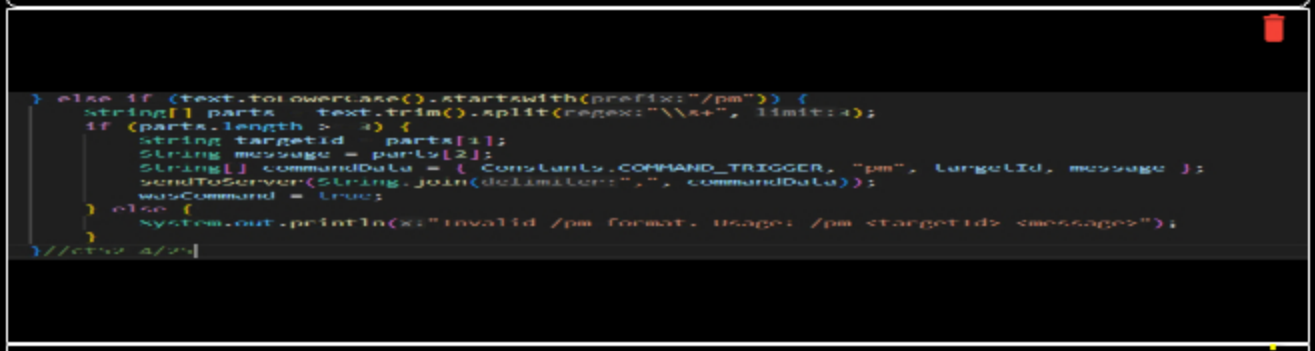
- `Client` must capture the user entry and generate a valid command per the lesson details
  - Command format must be `/pm <target id>`
- `ServerThread` must receive the data and call the correct method on `Server`
- `Server` must expose a method for the logic
  - The message must be in the format of `PM from <who>: <message>` and be from the Server
  - The result must only be sent to the original sender and to the receiver/target
- Add code to solve the problem (add/commit as needed)

Image Prompt

Weight: *40%*

Details:
Multiple screenshots are expected

1. Snippet of relevant code showing solution (with ucid/date comment) from `Client`
    - Should only need to edit `processClientCommands()`
2. Snippet of relevant code showing solution (with ucid/date comment) from `ServerThread`
    - Should only need to edit `processCommand()`
3. Snippet of relevant code showing solution (with ucid/date comment) from `Server`
    - Should only need to create a new method and pass the result message to `relay()`
4. Show 3 examples of the command being seen across all terminals (3+ Clients and 1 Server)
    1. This can be captured in one screenshot if you split the terminals side by side
    2. Note: Only the sender and the receiver should see the private message (show variations across different users)



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Url Prompt

Weight: *20%*

Details:
Direct link to the file in the homework related branch from Github (should end in `.java`)

URL #1
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/Server.java
Url: https://github.com/ct52/IT114-010

URL #2
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/ServerThread.java
Url: https://github.com/ct52/IT114-010

URL #3
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/Client.java
Url: https://github.com/ct52/IT114-010

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Text Prompt

91%

Section #3: (3 pts.) Challenge 3 - Shuffle Message

91%

Task #1 (3 pts.) - Implement a Shuffle Message Command

Combo Task:

Weight: *100%*
Objective: *Implement a Shuffle Message Command*

Details:

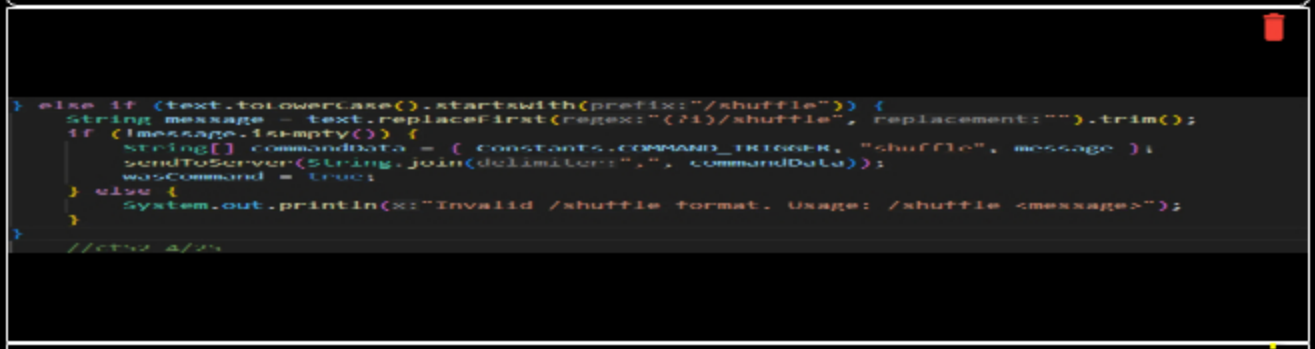
- `Client` must capture the user entry and generate a valid command per the lesson details
  - Command format must be `/shuffle <message>`
- `ServerThread` must receive the data and call the correct method on `Server`
- `Server` must expose a method for the logic and send the result to everyone
  - The message must be in the format of `Shuffled from <who>: <shuffled_message>` and be from the Server
- Add code to solve the problem (add/commit as needed)

Image Prompt

Weight: *40%*

Details:
Multiple screenshots are expected

1. Snippet of relevant code showing solution (with ucid/date comment) from `Client`
   - Should only need to edit `processClientCommands()`
2. Snippet of relevant code showing solution (with ucid/date comment) from `ServerThread`
   - Should only need to edit `processCommand()`
3. Snippet of relevant code showing solution (with ucid/date comment) from `Server`
   - Should only need to create a new method and do similar logic to `relay()`
4. Show 3 examples of the command being seen across all terminals (2+ Clients and 1 Server)
   1. This can be captured in one screenshot if you split the terminals side by side



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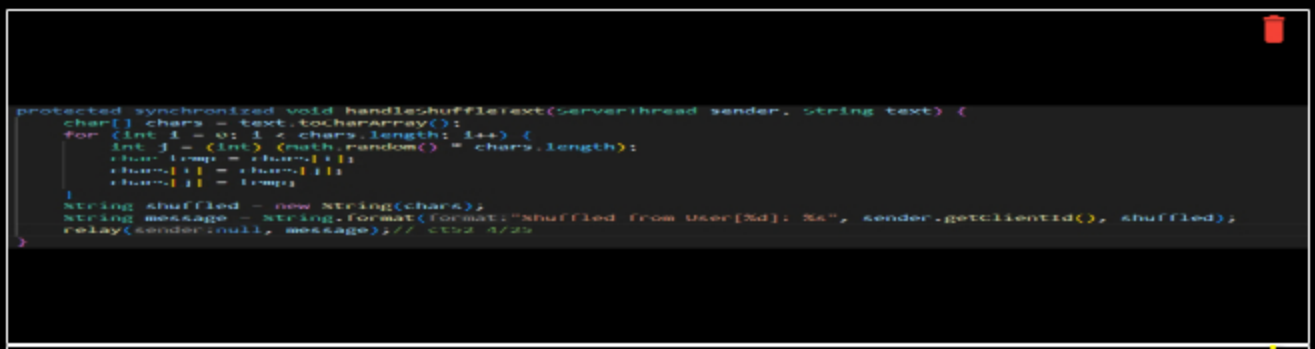

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Url Prompt

Weight: *20%*

Details:
Direct link to the file in the homework related branch from Github (should end in `.java`)

URL #1
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/Server.java
Url: https://github.com/ct52/IT114-010

URL #2
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/Client.java
Url: https://github.com/ct52/IT114-010

URL #3
https://github.com/ct52/IT114-010-s2025/blob/main/M4/Part3HW/ServerThread.java
Url: https://github.com/ct52/IT114-010

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Text Prompt

62%

Section #4: (1 pt.) Misc

87%

Task #1 (0.33 pts.) - Github Details

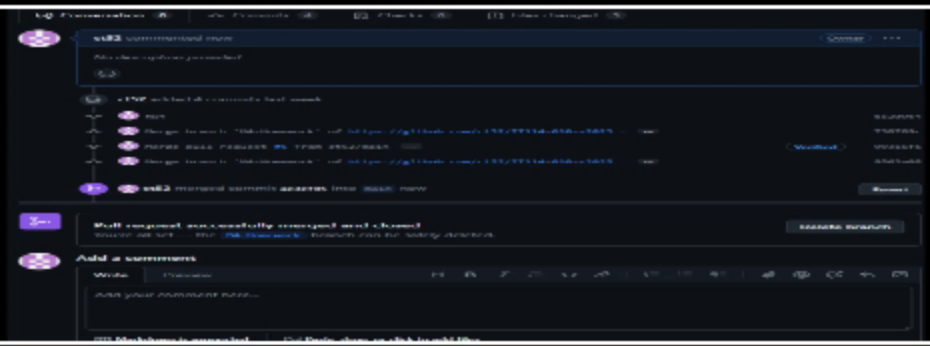
Combo Task:

Weight: *33.33%*
Objective: *Github Details*

Image Prompt

Weight: *60%*

Details:
From the Commits tab of the Pull Request screenshot the commit history Following minimum should be present



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Url Prompt

Weight: *40%*

Details:
Include the link to the Pull Request (should end in `/pull/#`)

URL #1
https://github.com/ct52/IT114-010-s2025/pull/6

Url
https://github.com/ct52/IT114-010

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Task #2 (0.33 pts.) - WakaTime - Activity

Image Prompt

Weight: *33.33%*
Objective: *WakaTime - Activity*

Details:

- Visit the WakaTime.com Dashboard

- Visit the WakaTime.com Dashboard
- Click `Projects` and find your repository
- Capture the overall time at the top that includes the repository name
- Capture the individual time at the bottom that includes the file time
- Note: The duration isn't relevant for the grade and the visual graphs aren't necessary

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100% Task #3 (0.33 pts.) - Reflection

Weight: *33.33%*
Objective: *Reflection*

Sub-Tasks:

100% Task #1 (0.33 pts.) - What did you learn?

Text Prompt

Weight: *33.33%*
Objective: *What did you learn?*

Details:
Briefly answer the question (at least a few decent sentences)

Your Response:

I built a working networked application using sockets, handling input/output streams, and understanding how data flows between multiple clients and a central server for client server communication.

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Task #2 (0.33 pts.) - What was the easiest part of the assignr

Text Prompt

Weight: *33.33%*
Objective: *What was the easiest part of the assignment?*

Details:
Briefly answer the question (at least a few decent sentences)

Your Response:

it was writing the flip method

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Task #3 (0.33 pts.) - What was the hardest part of the assign

Text Prompt

Weight: *33.33%*
Objective: *What was the hardest part of the assignment?*

Details:
Briefly answer the question (at least a few decent sentences)

Your Response:

iso the game login in server class

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