

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

**Lab#3 – Developing Distributed Applications with ZeroMQ**

**Honour code**: By submitting this lab report, I (name and banner ID# below) affirm this is my own work, and I have not asked any of my fellow students or others for their source code or solutions to complete this lab, and I have not offered my source code or solutions for this lab to any of my fellow students.

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Note: please adjust the number of tasks for each lab as needed.

**Task #1:** (20%) Establish the Connection

1. **Briefly explain how you accomplished the task**

This worked with no problems as I was using the jar file in the same directory as my java files.

1. I compiled server first, using jar
2. Compiled the client using jar
3. Ran both the class files.

The code from the Server had while statement for the connection inside a try statement. The client file had a for loop to display the message once, this can be changed to display as many times.

1. **Results**

Server:

Text

Description automatically generated

Client:

Text

Description automatically generated

1. **Challenges and solutions** (if you did not face any challenges, just write so)

I did not have any challenges

**Task #2:** Fibonacci Numbers

1. **Briefly explain how you accomplished the task**

This task was accomplished by using a for loop for fib series in the server side. This was then followed by concatenation of all the ints as one string.

1. **Results**

Client:

Text

Description automatically generated

Server:

Text

Description automatically generated

1. **Challenges and solutions**

I had multiple issues, at first the fib series was only implemented on the server side. To return the string of integers, I had to concatenate it and was not sure how to accomplish this. After lots of stack overflow I found a for loop that concatenates “N” variables from int to string back to client.

**Task #3:** Repeated Inputs from Client

1. **Briefly explain how you accomplished the task**

This had a lot of steps accomplish this task. After sending the value to the server, I checked if the letter is upper or lower case. Through the isUpperCase() function and isLowerCase() function, it allowed for checking the if its upper or lower case. Next to parse through each character in the string was very hard to figure out. However, charat() helped.

1. **Results**

Client:

Text

Description automatically generated

Text

Description automatically generated

Server:

Text

Description automatically generated

When you send close from client, server also closes

1. **Challenges and solutions**

I kept getting char cannot be dereferenced error, after a while of googling. I had to follow a specific format which was Character. Function©. This has to be followed every time.

**Task #4:** Publish- Subscribe Application

1. **Briefly explain how you accomplished the task**

This task was not as hard as I thought. I asked for user input on the client side to choose the postal code printed on the server side. I called the random number generator on the server end for the postal code to be chosen from. This for loop iterated and created the random number that are 4 digits longs. The rest of the code was the same as the skeleton code.

1. **Results**

Client 1:

Text

Description automatically generated

Client 2:

Text

Description automatically generated

Client 3:

Text

Description automatically generated

Server:

Text

Description automatically generated

1. **Challenges and solutions**

No problems