Distributed Systems Assignment 1

Deadline : 18th day of August, 2017 (Friday) (Time - 20:55)

Problem Statement (75 marks):
Implement a rudimentary messaging application with the following features.

1. Should be able to send messages (**Half-Duplex** communication, using TCP sockets). (25 mark)
2. Should be able to send **any kind** of file to each other using both Datagram socket based communication (UDP socket) and Stream sockets based communication (TCP socket) (**Half-Duplex**)(50 marks)

Example Output format.

```
$> ./Alice
>> Hello  Bob
>>
>> Sending A.txt UDP
Sending A.txt [==>                ]  10%
Sent file
>>
>>
Bob: Hello Alice
>>
Bob: Sending B.mp3 TCP
Receiving B.mp3 [====>            ] 20%
Received file
>>
```

```
$> ./Bob
>>
Alice: Hello Bob
>>
Alice: Sending A.txt UDP
Receiving A.txt [==>              ] 10%
Received file
>> Hello Alice
>>Sending B.mp3 TCP
Sending B.mp3 [====>              ] 20%
Sent file
>>
```

You can implement it in either C, C++ or Java(preferable)(**NO PYTHON**). Using any external libraries is not allowed. Only the default socket and threading libraries provided by the language are allowed.

Bonus (15 marks):
Show a progress bar and percentage on both the sides while sending the files (like shown above).

Upload format(10 marks):

1. Readable Code : Nicely structured code, with coding standards followed (http://cse.unl.edu/~goddard/Courses/CSCE310J/StandardHandouts/JdeCodingStandardV3.pdf)
2. README : Should include the running directions and the features implemented.
3. Zip : Include all the files (<RollNumber>_Assignment_1.zip)

PS : Plagiarism and copy cases will be awarded a 0 in this assignment.