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How to compile and run in either windows powershell or linux bash

Pay attention that there are 4 types of ACKS

ACK0, ACK1 – Standard ACKS

ACK2 – Dropped packet

ACK3 – Corrupted packet

Get all 6 files – 5 .java files – 1 .txt file and compile

Javac network.java

Javac sender.java

Javac receiver.java

Run all three binary files in order

NETWORK -> SENDER -> RECIEVER

Java network 8080

- 8080 can be replaced by any valid port

Java sender 127.0.0.1 8080 file.txt

- Localhost/127.0.0.1 can be replaced by any valid static/dhcp IPv4 address
- 8080 can be replaced by any valid port
- File.txt can be replaced by any valid document file name

Java receiver 127.0.0.1 8080

- 8080 can be replaced by any valid port
- Localhost/127.0.0.1 can be replaced by any valid static/dhcp IPv4 address

Network code structure

2 Threads & 2 Pipes

- Thread ClientWorkerReciever
    - Has an in pipe and an out pipe
- Thread ClientWorkerSender
    - Has an in pipe and an out pipe

1 main method for execution

Sender Code Structure

1 main method for execution

Parse arguments for IP, Port, and document name

Try to establish a socket to the server at IP and Port

- Creates a PrinterWriter Object – prints the code to the output stream socket
- Creates a BufferedReader Object – allows to read from the input stream on the socket

Main while loop – pools for user input

- 1 main loop
    - Sends packets to the Network
    - Polls for response then acts on it

Receiver Code Structure

1 main method for execution

Parse arguments for IP and Port

Try to establish a socket to the server at IP and Port

- Creates a PrinterWriter Object – prints the code to the output stream socket
- Creates a BufferedReader Object – allows to read from the input stream on the socket

Main while loop – pools for user input

- 1 main loop
    - Polls for packets then acts on it
    - Sends acks to messages depending on the structure of the packets

Example Network

```
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2> javac
network.java sender.java reciever.java
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2> java network 8080
Received: Packet0, 1, PASS
Received: ACK0, PASS
Received: Packet1, 2, DROP
Received: Packet1, 2, CORRUPT
Received: Packet1, 2, PASS
Received: ACK1, PASS
Received: Packet0, 3, PASS
Received: ACK0, PASS
Received: Packet1, 4, PASS
Received: ACK1, PASS
Received: Packet0, 5, CORRUPT
Received: Packet0, 5, PASS
Received: ACK0, DROP
Received: ACK0, DROP
Received: ACK0, DROP
Received: ACK0, PASS
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2>
```

Example Sender

```
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2> java sender 127.0.0.1 8080 file.txt
Waiting ACK0, 2, ACK0, send Packet1
Waiting ACK1, 3, DROP, resend Packet1
Waiting ACK1, 4, CORRUPT, resend Packet1
Waiting ACK1, 5, ACK1, send Packet0
Waiting ACK0, 6, ACK0, send Packet1
Waiting ACK1, 7, ACK1, send Packet0
Waiting ACK0, 8, CORRUPT, resend Packet0
Waiting ACK0, 9, ACK0, no more packets to send
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2>
```

Example Receiver

```
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2> java reciever 127.0.0.1 8080
Waiting 0, 1, 0 1 440 this, ACK0
Waiting 0, 2, 1 3 221 is, ACK3
Waiting 1, 3, 1 4 220 is, ACK1
Waiting 0, 4, 0 5 97 a, ACK0
Waiting 1, 5, 1 6 322 few, ACK1
Waiting 1, 6, 0 7 606 words., ACK3
Waiting 0, 7, 0 8 605 words., ACK0
this is a few words.
Waiting 0, 8, ACK2, ACK0
Waiting 0, 9, ACK2, ACK0
Waiting 0, 10, ACK2, ACK0
PS C:\Users\shawn\Desktop\CNT4007 Network Fundamentals\PA2>
```

As seen above the network will always get the message to the receiver, however the outputs were basically left to my own interpretation…

Bug, errors, limitations

The code is has quite a few complications, pipes are tough to visualize especially when in regards to threads

The LIMITED specifications/example output made putting together this assignment basically a stab in the DARK. I had almost nooooooooo idea what you wanted to see in the output statements on network, sender, and receiver.

I don't know how to spell receiver…

Additional Comments

None