

# Computer Networks HW2 Report

## Program Execution

- Execution

Use python3 to execute `sender.py`, `agent.py`, and `receiver.py`.

Configure the settings by modifying the following files. Setting files must be put under the same directory with the programs(multiple copies needed if they run on different machines).

- Settings

- SENDER.conf

```
1 [sender's IP]
2 [sender's listening port]
3 [input file name]
4 [timeout] (float in second)
```

- AGENT.conf

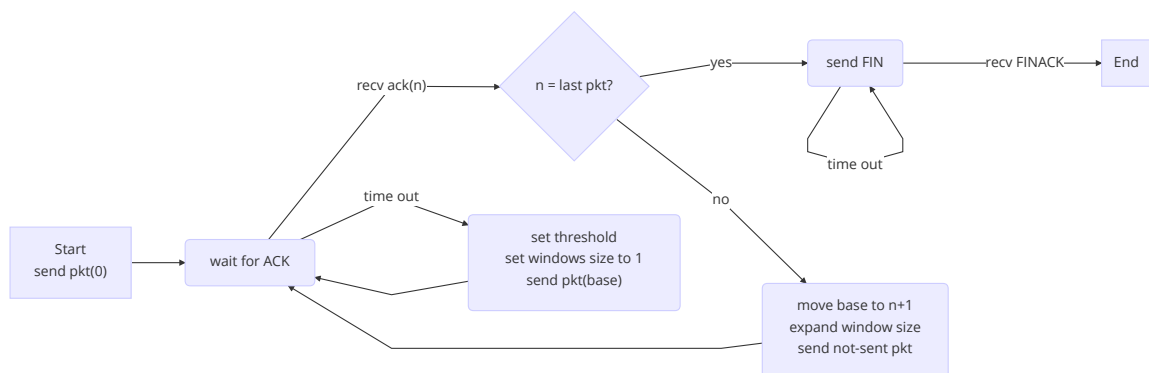
```
1 [agent's IP]
2 [agent's listening port] (for sender)
3 [agent's listening port] (for receiver)
4 [loss rate] (in float)
```

- RECEIVER.conf

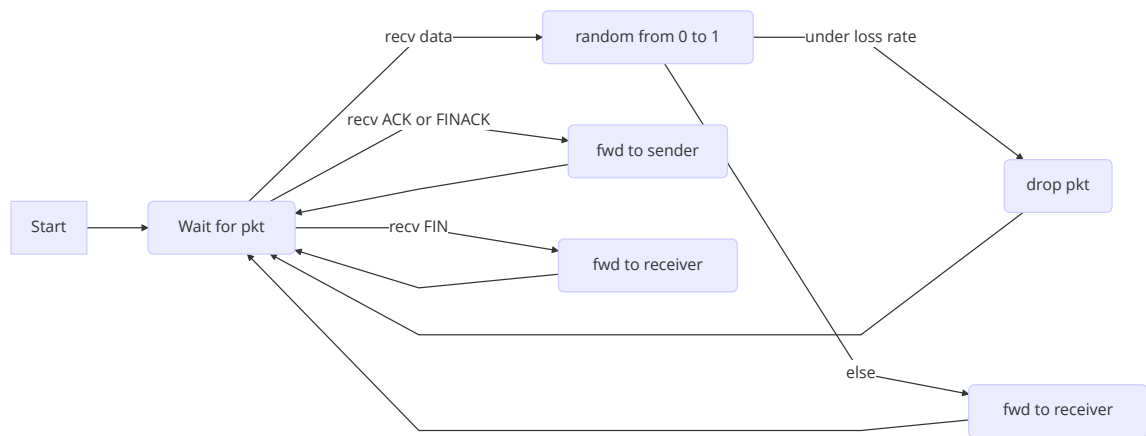
```
1 [receiver's IP]
2 [receiver's listening port]
3 [output file name]
```

## Program Structure

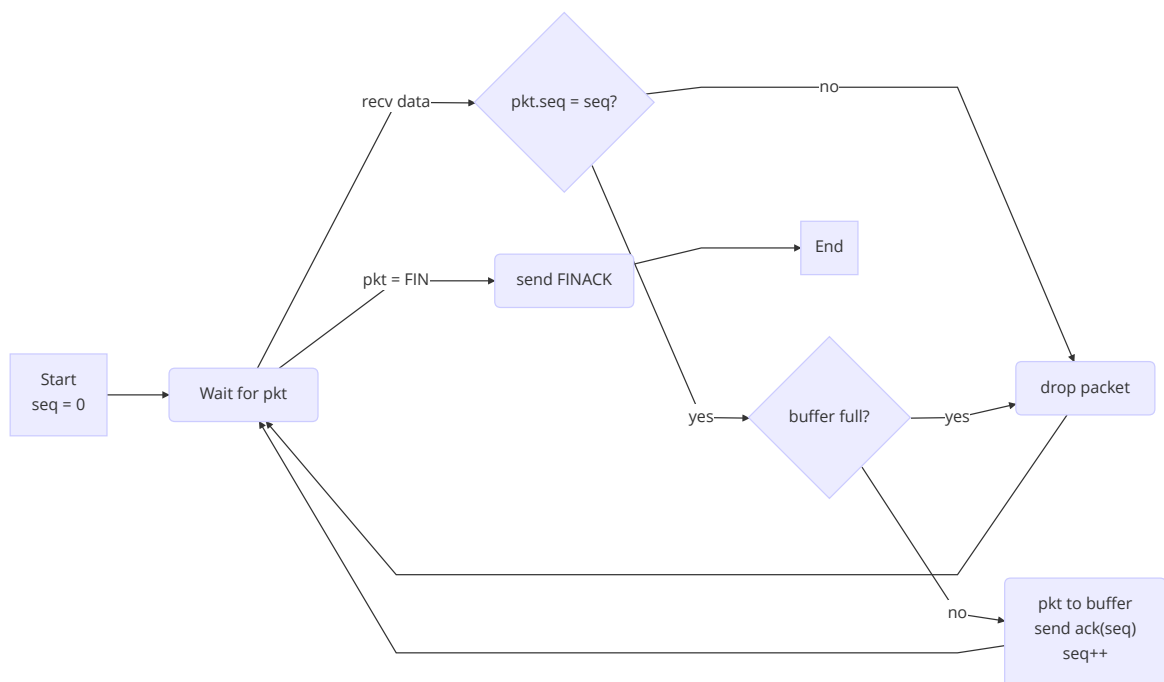
- Sender



- Agent



- Receiver



## Difficulties & Solutions

- Python versions :  
I spent a lot of time debugging sequence number until I found out that `bytes()` in python 2 is just an alias of `str()`.
- Non-blocking socket :  
If I directly set socket as non-blocking, it will raise an error when `recvfrom()` has nothing coming in. I first use `try` and `except` to handle the raised error, and it didn't turn out to be a good method. Later on, I switched back to use blocking IO and `select.select()` to see if there is packet available to be received.