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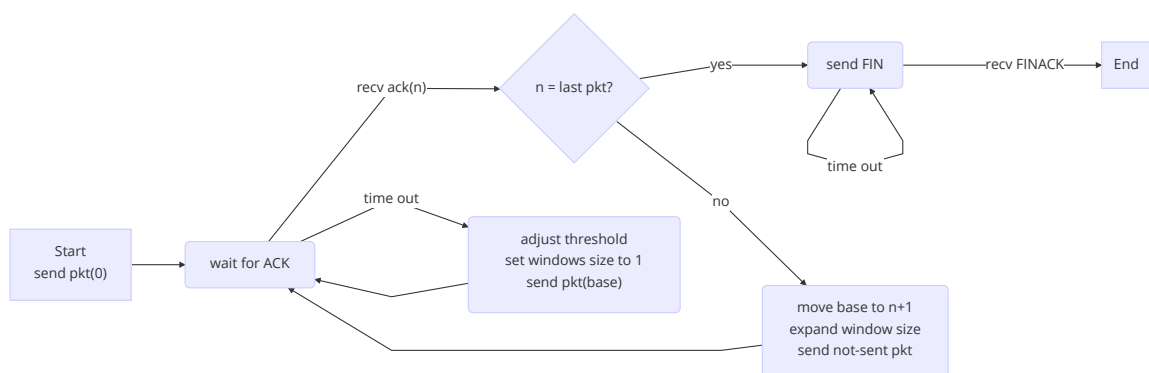
    ```
    1  [agent's IP]
    2  [agent's listening port] (for sender)
    3  [agent's listening port] (for receiver)
    4  [loss rate] (in float)
    ```
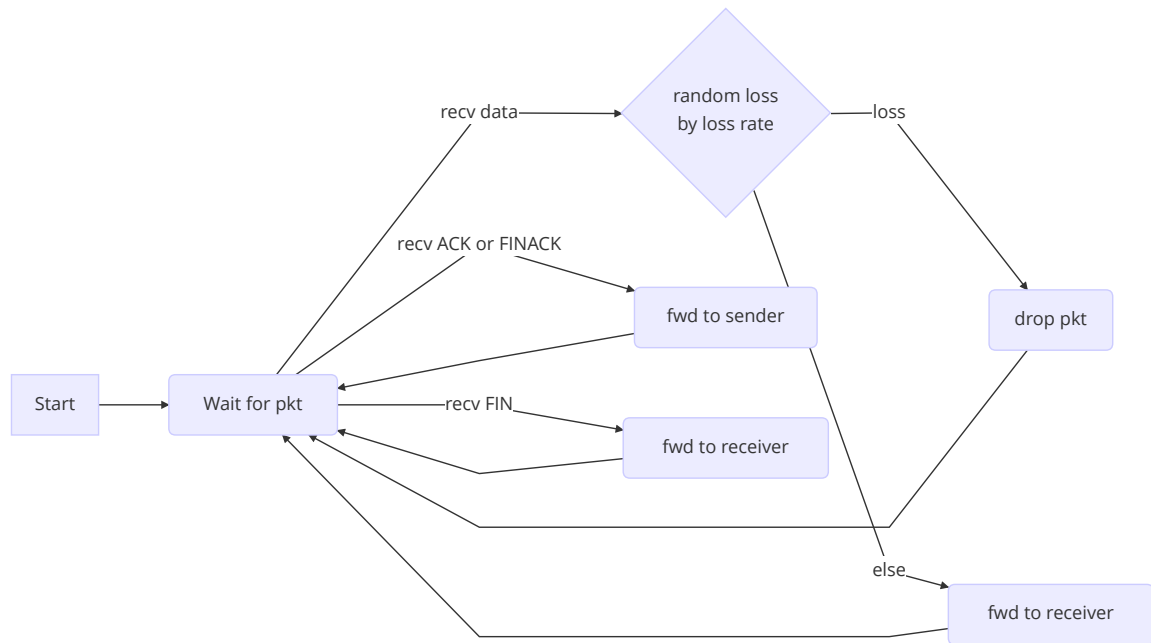
  - **RECEIVER.conf**

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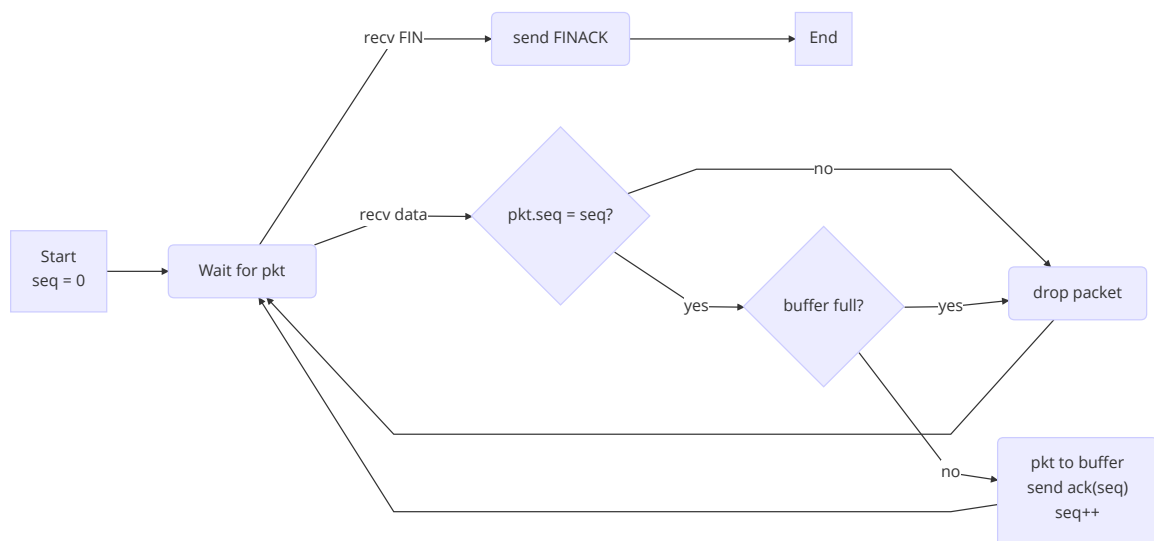
Program Structure

- **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.