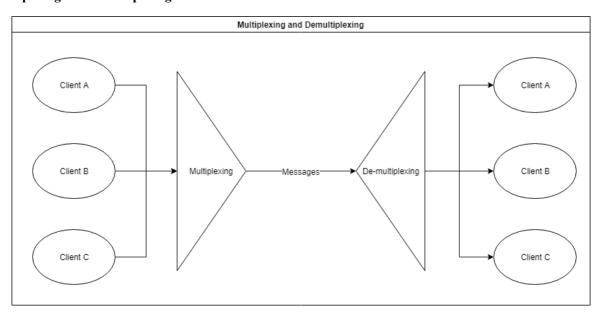
Multiplexing in Python3

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What is Multiplexing and De-multiplexing?



Multiplexing is generally representing a concept of transferring multiple messages by the same road. By merging the slow road to a faster road, can efficiently bring advantage to the usage of the faster road. After the data has proceeded when the messages arrive at the destination server, we need to use De-multiplexing to the different sources. The advantage of multiplexing that includes saving the cost and efficiently use the resources for communication.

Server-side example

```
import socket
import queue
import select
buffer = 1024
available connections = 1000
server = socket.socket()
server.bind(('localhost', 8888))
server.listen(available connections)
server.setblocking(False)
message redirect = {}
inputs = [server, ]
outputs = []
def add readable (readable):
    global buffer
    global inputs
    global outputs
    global server
    global message_redirect
    for r in readable:
        if r is server:
            conn, addr = server.accept()
            inputs.append(conn)
            message_redirect[conn] = queue.Queue()
            data = r.recv(buffer)
            message redirect[r].put(data)
            outputs.append(r)
def add_writable(writeable):
    global outputs
    global message_redirect
    for w in writeable:
        data to client = message redirect[w].get()
        w.send(data to client)
        outputs.remove(w)
```

```
def exception_handler():
    global inputs
    global outputs
    global message_redirect
    for e in exceptional:
        if e in outputs:
            outputs.remove(e)
        inputs.remove(e)
        del message_redirect[e]

while True:
    readable, writeable, exceptional = select.select(inputs, outputs, inputs)
    add_readable(readable)
    add_writable(writeable)
    exception_handler()
```

Client-side example (Test client)

```
import socket
import time
import socket
import sys
buffer = 1024
host = '127.0.0.1'
port = 8888
def send_msg(sock):
    global buffer
    while True:
        sock.send(bytes(str.encode('test')))
        msg = sock.recv(buffer)
        print(msg.decode('utf-8'))
        time.sleep(2)
def main():
    global host
    global port
    with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as sock:
        sock.connect((host, port))
        send_msg(sock)
if __name__ == "__main__":
    main()
```