YouTube demo: https://youtu.be/cLmRnkkBs34

Based on the video the professor Tanzir provided on the Campuswire, I implemented the FIFO, Message Queue and Shared Memory IPC methods. Although I try my best to implement the n channels functions, I could not have fixed all the bugs until now. So I will just report what I have done until now.

1. Request 1 data point through each kind of IPC methods and show the time it uses:

```
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -t 10.0 -e 1 -i f
buffer capacity is changed to 256 bytes
IPC method is changed to f
Client is connected to the server
Ecg 1 value for patient 10 at time 10 is: -0.48
Time consumption is: 6314 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -t 10.0 -e 1 -i q
Client is connected to the server
buffer capacity is changed to 256 bytes
IPC method is changed to q
Ecg 1 value for patient 10 at time 10 is: -0.48
Time consumption is: 243828 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -t 10.0 -e 1 -i m
Client is connected to the server
buffer capacity is changed to 256 bytes
IPC method is changed to m
Ecg 1 value for patient 10 at time 10 is: -0.48
Time consumption is: 243514 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$
```

2. Request 1000 data points through each kind of IPC methods and show the time it uses:

```
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -e 1 -i f
buffer capacity is changed to 256 bytes
IPC method is changed to f
Client is connected to the server
Time consumption is: 2.76289e+06 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -e 1 -i q
Client is connected to the server
buffer capacity is changed to 256 bytes
IPC method is changed to q
Time consumption is: 3.06843e+06 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$ ./client -p 10 -e 1 -i m
Client is connected to the server
buffer capacity is changed to 256 bytes
IPC method is changed to m
Time consumption is: 3.09827e+06 microseconds
Client-side is done and exited
Server terminated
osboxes@osboxes:~/CSCE313/PA3/solution$
```

3. Some thoughts about the n channels transmission function
   I cannot implement the n channels transmission function, but I have some thoughts about it. If we do not use fork, just in the for or while loop to use different channels to transfer different content one by one. The time consumption will not less than using just one channel, and even larger than using one channel. Since it takes time to create the new channels. If we can use fork and transfer different content in different channels simultaneously, the time consumption will be approximately the time used before divided by the number of channels.