

PA6 Demo Instructions

1. Make sure to run the server and the client at least in separate logical machines. Some of the acceptable combinations are:
 - a. Client in one VM and server in another VM
 - b. Client in Ubuntu app in windows and server in a VM, or vice versa
 - c. Client in VM and server in OSX terminal
 - d. Client in laptop and server in desktop (**give 5 pts bonus**)
 - e. Client in your machine and server in a friend's machine which has a real IP address exposed via **ngrok** (**give 5 bonus points**)
 - f. Client in home computer and server in Amazon EC2 (**give 5 points bonus**)

If "localhost" or ip "127.0.0.1" is used to refer to the server (i.e., client and server run in the same logical machine), deduct **10 pts**.

To obtain bonus points, students must explain their set up. For example, using a vm client or server requires Bridged Adapter in the VM network setting. In addition, they must verify network reachability using the ping command. Only after that, a client and a server can be run in 2 separate logical machines.

First, start the server by running the following command and then do the following tests:

```
./server -r <port>
```

2. Run command:

```
./client -n 15000 -p 15 -w 500 -b 100 -h <host> -r <port>
```

This should show correct histogram count (i.e., 15K) for each patient. **Deduct 30 pts** otherwise.

3. Download the PA6 PDF handout to the BIMDC directory, make sure that it has permissions if necessary, and then run the following command to request its transfer:

```
./client -h <host> -r <port> -f handout.pdf -w 50
diff BIMDC/handout.pdf received/handout.pdf
```

Deduct 20 pts if the files differ.

4. Make sure that there is no memory leak by enabling address sanitizer. **Deduct 5 pts** if there is any.
5. Open `client.cpp`: it should have a single event polling thread and `p` patient threads. The event polling thread should have the following high-level functionalities. If they are all there, no deduction:
 - a. Priming phase (5 pts)
 - b. State management (10 pts)
 - c. Channel reuse until quit is found (10 pts)
 - d. Proper loop termination (send and received count match) (5 pts)
 - e. Cleaning all heap allocated objects (5 pts)
6. Report should show the runtime comparison with varying `w` against PA5.
 - a. Are you seeing any difference? Why do you think you are seeing a difference? Repeat some experiments on the localhost. Are the runtimes now matching with those of FIFO from PA5? If so why? Deduct 5 pts if this question is not answered.
 - b. The point of diminishing return should be mentioned - **deduct 5 points** otherwise. Compare this point against the same for PA5.
7. **Deduct 20 points** if there is no video demo link and if it has not been demoed to the TA.

8. The video demo must show the network setup of the logical or physical machines hosting the client and the server. That should include showing the ip addresses of the two machines and how the vms are connected using bridged network. **Deduct 10** points if network setup is not shown.
9. If the bonus is attempted, there must be a second video or a part of the first video, possibly from the cell phone, that shows the 2 machines in action when communicating. **Deduct 2 pts** if this video is not given.