Lab Exercise

- **Make queued signal**

  - **Sender** is parent process

  - **Receiver** is child process

  - The program get the number of signals to send by argument (*argv*)

  - Use *SIGUSR1* signal

  - Download skeleton code

    » https://drive.google.com/file/d/16H-XeF5P4TeabKY2xYOpazC-E09tVyMr/view?usp=sharing

Lab Exercise

- **Sender**

  - Sender send signal to receiver
    and receive acknowledge from receiver

  - Sender check the number of sending signal and
    received acknowledge

  - If Sender doesn't receive all acks of sending signal,
    send back the remaining signals after 1 second

    » Do not use *wait* or *sleep* function

    » Hint : Use ***SIGALRM*** signal and ***alarm()*** function

  - If received acks and the number of sending signal is same,
    send ***SIGINT*** to receiver and terminate

Lab Exercise

- **Receiver**

  - Receiver receive signal from sender and send acknowledge to sender

  - If receiver receive **SIGINT**, print how many signal receive and terminate

Exercise running example


```
sw@SW:~/SPL/week7/exercise$ ./ex7 10
sending signal: 10
sender: sending 10 signal
receiver: receive 1 signal and sending acks
sender: sending 9 signal
receiver: receive 2 signal and sending acks
sender: sending 8 signal
receiver: receive 3 signal and sending acks
sender: sending 7 signal
receiver: receive 4 signal and sending acks
sender: sending 6 signal
receiver: receive 5 signal and sending acks
sender: sending 5 signal
receiver: receive 6 signal and sending acks
sender: sending 4 signal
receiver: receive 7 signal and sending acks
sender: sending 3 signal
receiver: receive 8 signal and sending acks
sender: sending 2 signal
receiver: receive 9 signal and sending acks
sender: sending 1 signal
receiver: receive 10 signal and sending acks
all signals are sended
receiver: received 10 signals
```

```
queued_signal$ ./a.out 10
sending signal: 10
sender: sending 10 signal
receiver: receive 1 signal and sending acks
receiver: receive 2 signal and sending acks
receiver: receive 3 signal and sending acks
sender: sending 7 signal
receiver: receive 4 signal and sending acks
receiver: receive 5 signal and sending acks
sender: sending 5 signal
receiver: receive 6 signal and sending acks
receiver: receive 7 signal and sending acks
sender: sending 4 signal
receiver: receive 8 signal and sending acks
receiver: receive 9 signal and sending acks
receiver: receive 10 signal and sending acks
sender: sending 2 signal
all signals are sended
receiver: recving signal: 10
```

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Lab Exercise

- **Submit your lab exercise**
  - via iCampus
  - Collect your **source codes** and **Makefile** into **tar.gz** format

    $ tar cvzf *student_id.tar.gz* all_your_files
  - We'll grade your submission with **make**
    - » If compilation fails, your points for this exercise will be zero

- **Write your questions in the iCampus Q&A board**
- **How to move files between host OS and guest OS**
  - Use **Drag n Drop** or **Shared Clipboard**
  - https://www.tecmint.com/install-virtualbox-guest-additions-in-ubuntu/