

Part 1

```
pi@raspberrypi:~/assignments/ass6.1/src $ ./count
1
2
3
4
5
6
7
8
9
10
11
12
13
14
```

Figure 1: Function of count program

```
pi@raspberrypi:~/assignments/ass6.1/src $ ./count | ./multiply 2
2
4
6
8
10
12
^C
pi@raspberrypi:~/assignments/ass6.1/src $ ps
  PID TTY          TIME CMD
  5193 pts/5        00:00:01 bash
  8292 pts/5        00:00:00 ps
pi@raspberrypi:~/assignments/ass6.1/src $ ./count | ./multiply 3
3
6
9
12
15
18
^C
pi@raspberrypi:~/assignments/ass6.1/src $
```

Figure 2: Count output piped to the multiplier

Part 2

Information is passed between the programs by the shared accessible variable shm_p, it is stored as a file in /dev/shm/demo/shm.


```

pi@raspberrypi:~/assignments/ass6.1/src $ ./sh_mult 2 & ./sh_mult 3 & ./sh_count
[1] 5587
[2] 5588
./sh_count PID=5589
Creating shared memory and setting size=256
./sh_mult PID=5587
./sh_mult PID=5588
1
2
3
2
4
6
3
4
12
8
5
15
10
6
18
12
7
21
14
8
24
16
^C
pi@raspberrypi:~/assignments/ass6.1/src $ p
-bash: p: command not found
pi@raspberrypi:~/assignments/ass6.1/src $ ps
  PID TTY          TIME CMD
  5193 pts/5    00:00:01 bash
   5587 pts/5    00:00:00 sh_mult
   5588 pts/5    00:00:00 sh_mult
   5599 pts/5    00:00:00 ps
pi@raspberrypi:~/assignments/ass6.1/src $ kill 5587
[1]-  Terminated                  ./sh_mult 2
pi@raspberrypi:~/assignments/ass6.1/src $ kill 5588
[2]+  Terminated                  ./sh_mult 3
pi@raspberrypi:~/assignments/ass6.1/src $

```

Figure 4: One program incrementing counter and 2 other multiplying by 2 or 3

Note in figure 3, that the order of the multipliers 2 and 3 isn't deterministic and changes randomly although I didn't think this was something that needed correcting so I left it as is.