Lesson 2: Lesson 2: BASH, C, Python (Assignment 2)

All Images as I follow along the Course

Command - ls -l (bash, sh,dash)

```
cxr1020@raspberrypi:~ $ man bash
cxr1020@raspberrypi:~ $ ls -l /usr/bin/bash
-rwxr-xr-x 1 root root 1282512 Mar 27  2022 /usr/bin/bash
cxr1020@raspberrypi:~ $ which sh
/usr/bin/sh
cxr1020@raspberrypi:~ $ ls -l /usr/bin/sh
lrwxrwxrwx 1 root root 4 Apr  4  2022 /usr/bin/sh -> dash
cxr1020@raspberrypi:~ $ ls -l /usr/bin/dash
-rwxr-xr-x 1 root root 129544 Dec 10  2020 /usr/bin/dash
cxr1020@raspberrypi:~ $
```

SourceCode - hello-bash-1_sh

```
  GNU nano 5.4                                    hello-bash-1.sh *
#! /bin/bash

echo "Hello Bash!"
echo "My pid: $$"

# S is how we begin a variable name
# $$ is a speial variable name , that says your perticalar process  ID
```

```
File Name to Write: hello-bash-1.sh
^G Help          M-D DOS Format    M-A Append        M-B Backup File
^C Cancel        M-M Mac Format    M-P Prepend       ^T Browse
```

Output - hello-bash-1

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ nano hello-bash-1.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ bash hello-bash-1.sh
Hello Bash!
My pid: 1880
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ chmod +x hello-bash-1.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ./hello-bash-1.sh
Hello Bash!
My pid: 1894
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $
```

SourceCode - hello-bash-2_sh

```
  GNU nano 5.4                                  hello-bash-2.sh
#! /bin/bash

echo "Hello bash!"
echo "My pid: $$"

echo "press ENTER to end"
read ANSWER

```

```
                        [ Read 8 lines ]
^G Help         ^O Write Out    ^W Where Is     ^K Cut          ^T Execute      ^C Location     M-U Undo        M-A Set Mark
^X Exit         ^R Read File    ^\ Replace      ^U Paste        ^J Justify      ^_ Go To Line   M-E Redo        M-6 Copy
```

Output - hello-bash-2

```
cxr1020@raspberrypi:~/Documents/Embe
ddedLinuxRepo/CSR-EmbeddedLinux/Assi
gnment02-Code $ nano hello-bash-2.sh
cxr1020@raspberrypi:~/Documents/Embe
ddedLinuxRepo/CSR-EmbeddedLinux/Assi
gnment02-Code $ bash hello-bash-2.sh
Hello bash!
My pid: 1960
press ENTER to end
Terminated
cxr1020@raspberrypi:~/Documents/Embe
ddedLinuxRepo/CSR-EmbeddedLinux/Assi
gnment02-Code $
```

```
cxr1020@raspberrypi:~ $ ps aux | head -1
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
cxr1020@raspberrypi:~ $ ps aux | grep hello
cxr1020     1960  0.0  0.0   6552   976 pts/0    S+   13:21   0:00 bash hello-bash-2.sh
cxr1020     1977  0.0  0.0   6040   748 pts/1    R+   13:22   0:00 grep --color=auto hello
cxr1020@raspberrypi:~ $ kill 1960
cxr1020@raspberrypi:~ $
```

Command - kill -l

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ kill -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $
```

SourceCode - hello-bash-3_sh

```
  GNU nano 5.4                                    hello-bash-3.sh
#! /bin/bash

echo "Hello Bash!"
echo "My pid: $$"

COUNT=1
while true; do
        COUNT=$((COUNT+1))
        echo "COUNT: $COUNT"
        sleep 15
done
```

```
^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^_ Go To Line    M-E Redo         M-6 Copy
```

Output - hello-bash-3 (foreground process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ nano hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ls -l
total 12
-rwxr-xr-x 1 cxr1020 cxr1020 159 Nov 22 13:09 hello-bash-1.sh
-rw-r--r-- 1 cxr1020 cxr1020  91 Nov 22 13:13 hello-bash-2.sh
-rw-r--r-- 1 cxr1020 cxr1020 133 Nov 22 13:31 hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ chmod +x hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ls -l
total 12
-rwxr-xr-x 1 cxr1020 cxr1020 159 Nov 22 13:09 hello-bash-1.sh
-rw-r--r-- 1 cxr1020 cxr1020  91 Nov 22 13:13 hello-bash-2.sh
-rwxr-xr-x 1 cxr1020 cxr1020 133 Nov 22 13:31 hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ./hello-bash-3.sh
Hello Bash!
My pid: 2041
COUNT: 2
COUNT: 3
COUNT: 4
COUNT: 5
COUNT: 6
COUNT: 7
Terminated
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $
```

```
cxr1020@raspberrypi:~ $ kill 2041
cxr1020@raspberrypi:~ $
```

Output - hello-bash-3 (background process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ./hello-bash-3.sh &
[1] 2257
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ Hello Bash!
My pid: 2257
COUNT: 2
COUNT: 3
ps aux | grep hello
cxr1020     2257  0.0  0.0   6684  3180 pts/0    S    13:56   0:00 /bin/bash ./hello-bash-3.sh
cxr1020     2261  0.0  0.0   5908   644 pts/0    S+   13:57   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ COUNT: 4
kill 2257
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ps aux | grep hello
cxr1020     2275  0.0  0.0   5908   652 pts/0    S+   13:57   0:00 grep --color=auto hello
[1]+  Terminated              ./hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ./hello-bash-3.sh
Hello Bash!
My pid: 2276
COUNT: 2
^Z
[1]+  Stopped                 ./hello-bash-3.sh
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ps aux | grep hello
cxr1020     2276  0.0  0.0   6552  2888 pts/0    T    13:57   0:00 /bin/bash ./hello-bash-3.sh
cxr1020     2279  0.0  0.0   5908   664 pts/0    S+   13:58   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ kill 2276
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ ps aux | grep hello
cxr1020     2276  0.0  0.0   6552  2888 pts/0    T    13:57   0:00 /bin/bash ./hello-bash-3.sh
cxr1020     2282  0.0  0.0   5908   676 pts/0    S+   13:58   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $ fg -
./hello-bash-3.sh
Terminated
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code $
```

SourceCode - hello-c-1_c

```
 GNU nano 5.4                                    hello-c-1.c
#include <stdio.h>
#include <unistd.h>

int main(int argc, char *argv[])
{
        printf("Hello C!\n");
        printf("My PID: %d\n", getpid());
        return 0;
}
```

```
                        [ Read 9 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut       ^T Execute   ^C Location  M-U Undo    M-A Set Mark
^X Exit      ^R Read File  ^\ Replace    ^U Paste     ^J Justify   ^_ Go To Line M-E Redo    M-6 Copy
```

Output - hello-c-1 (Foreground process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ nano hello-c-1.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ gcc -Wall -o hello-c-1 hello-c-1.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ file hello-c-1
hello-c-1: ELF 64-bit LSB pie executable, ARM aarch64, version 1 (SYSV), dynamically linked, interpreter /lib/ld-linux-aarch64.so.
1, BuildID[sha1]=45b7115884b91d52f21710179f9b2ec43eba5ee2, for GNU/Linux 3.7.0, not stripped
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ./hello-c-1
Hello C!
My PID: 2412
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ echo $?
0
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $
```

SourceCode - hello-c-3_c

```
 GNU nano 5.4                                    hello-c-3.c
#include <stdio.h>
#include <unistd.h>

int main(int argc, char *argv[])
{
        printf("Hello C!\n");
        printf("My PID: %d\n", getpid());

        int count = 0;
        while(1)
        {
                count++;
                printf("count: %d\n", count);
                sleep(15);
        }
        return 0;
}
```

```
                [ Read 17 lines ]
^G Help      ^O Write Out  ^W Where Is  ^K Cut        ^T Execute   ^C Location  M-U Undo    M-A Set Mark
^X Exit      ^R Read File  ^\ Replace   ^U Paste      ^J Justify   ^_ Go To Line M-E Redo    M-6 Copy
```

Output - hello-c-3 (foreground process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ls
hello-c-1  hello-c-1.c  hello-c-2  hello-c-2.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ cp hello-c-2.c hello-c-3.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ nano hello-c-3.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ gcc -Wall -o hello-c-3 hello-c-3.c
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ./hello-c-3
Hello C!
My PID: 2808
count: 1
count: 2
```

Output - hello-c-3 (background process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ./hello-c-3 &
[1] 2834
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ Hello C!
My PID: 2834
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ps aux | grep hello
cxr1020     2834  0.0  0.0   1932   460 pts/0    S    14:52   0:00 ./hello-c-3
cxr1020     2836  0.0  0.0   5908   660 pts/0    S+   14:52   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ count: 2
ps aux | grep hello
cxr1020     2838  0.0  0.0   5908   664 pts/0    S+   14:52   0:00 grep --color=auto hello
[1]+  Terminated              ./hello-c-3
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $
```

```
cxr1020@raspberrypi:~ $ kill 2834
cxr1020@raspberrypi:~ $
```

SourceCode - hello-c-4_c

```
  GNU nano 5.4                                  hello-c-4.c
#include <stdio.h>
#include <unistd.h>

int main(int argc, char *argv[])
{
        printf("Calling daemon()\n");

        int rc = daemon(0, 0); // root , close stdin/stdout

        if(rc < 0)
        {
                perror("daemon");
                return 1;
        }

        printf("Hello C!\n");
        printf("My PID: %d\n", getpid());

        int count = 0;
        while(1)
        {
                count++;
                printf("count: %d\n", count);
                sleep(15);
        }
        return 0;
}
```

```
                [ Read 27 lines ]
^G Help      ^O Write Out  ^W Where Is  ^K Cut        ^T Execute   ^C Location  M-U Undo      M-A Set Mark
^X Exit      ^R Read File  ^\ Replace   ^U Paste      ^J Justify   ^_ Go To Line M-E Redo      M-6 Copy
```

Output - hello-c-4 (daemon process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $ ./hello-c-4
Calling daemon()
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/C $
```

```
cxr1020@raspberrypi:~ $ ps aux | head -1
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
cxr1020@raspberrypi:~ $ ps aux | grep hello
cxr1020     2962  0.0  0.0   1932    80 ?        Ss   15:05   0:00 ./hello-c-4
cxr1020     2969  0.0  0.0   5908   660 pts/1    S+   15:06   0:00 grep --color=auto
 hello
cxr1020@raspberrypi:~ $ kill 2962
cxr1020@raspberrypi:~ $ ps aux | grep hello
cxr1020     2971  0.0  0.0   5908   748 pts/1    S+   15:06   0:00 grep --color=auto
 hello
cxr1020@raspberrypi:~ $
```

SourceCode - hello-python-1_py

```
  GNU nano 5.4                                hello-python-1.py
#!/usr/bin/python

import os
import sys

def main():
        print("Hello Python")
        print("My PID: " + str(os.getpid()))
        sys.exit(0)

if __name__ == "__main__":
        main()
```

```
                        [ Read 12 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location  M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line M-E Redo     M-6 Copy
```

Output - hello-python-1 (foreground process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ nano hello-python-1.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ python hello-python-1.py
Hello Python
My PID: 3027
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $
```

SourceCode - hello-python-2_py

```
  GNU nano 5.4                                    hello-python-2.py
#!/usr/bin/python

import os
import sys

def main():
        print("Hello Python")
        print("My PID: " + str(os.getpid()))
        answer = input("press ENTER to end");
        sys.exit(0)

if __name__ == "__main__":
        main()

                        [ Read 13 lines ]
^G Help         ^O Write Out    ^W Where Is     ^K Cut          ^T Execute      ^C Location     M-U Undo        M-A Set Mark
^X Exit         ^R Read File    ^\ Replace      ^U Paste        ^J Justify      ^_ Go To Line   M-E Redo        M-6 Copy
```

Output - hello-python-2 (foreground process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLi
nux/Assignment02-Code/python $ nano hello-python-2.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLi
nux/Assignment02-Code/python $ python hello-python-2.py
Hello Python
My PID: 3097
press ENTER to endTerminated
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLi
nux/Assignment02-Code/python $
```

```
cxr1020@raspberrypi:~ $ ps aux | grep hello
cxr1020     3097  0.3  0.1  15088  8508 pts/0    S+   15:21   0:
00 python hello-python-2.py
cxr1020     3100  0.0  0.0   5908   664 pts/1    S+   15:21   0:
00 grep --color=auto hello
cxr1020@raspberrypi:~ $ kill 3097
cxr1020@raspberrypi:~ $
```

SourceCode - hello-python-3_py

```
  GNU nano 5.4                                  hello-python-3.py
#!/usr/bin/python

import os
import sys
import time

from daemonize import Daemonize

def main():
        print("Hello Python")
        print("My PID: " + str(os.getpid()))

        count = 0
        while True:
                count += 1
                print("count: " + str(count))
                time.sleep(15
)
        sys.exit(0)

if __name__ == "__main__":
        main()
        daemon = Daemonize(app="hello-python-3", pid="/tmp/my_daemon.pid", action=main)
        daemon.start()
```

```
                        [ Read 24 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo    M-A Set Mark
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo    M-6 Copy
```

Output - hello-python-3 (failed daemon process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ nano hello-python-3.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ chmod +x hello-python-3.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ ./hello-python-3.py
Traceback (most recent call last):
  File "/home/cxr1020/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python/./hello-python-3.py", line 7, in <mod
ule>
    from daemonize import Daemonize
ModuleNotFoundError: No module named 'daemonize'
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ pip install daemonize
Looking in indexes: https://pypi.org/simple, https://www.piwheels.org/simple
Collecting daemonize
  Downloading https://www.piwheels.org/simple/daemonize/daemonize-2.5.0-py2.py3-none-any.whl (5.2 kB)
Installing collected packages: daemonize
Successfully installed daemonize-2.5.0
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ ./hello-python-3.py
Hello Python
My PID: 3173
count: 1
ps aux count: 2
count: 3
```

SourceCode - hello-python-4_py

```
  GNU nano 5.4                                          hello-python-4.py
#!/usr/bin/python

import os
import sys
import time

from daemonize import Daemonize

def daemonize():
        # Fork the process
        pid = os.fork()

        if pid > 0:
                sys.exit()      #exit from parent process
                                #are we basically creating an orphon process?

        os.chdir("/")
        os.umask(0)
        os.setsid()             #detach from controlling terminal

        # Close standard file descriptors
        sys.stdout.close()
        sys.stderr.close()
        sys.stdin.close()

        # Redirect standard file descriptors to /dev/null
        sys.stdout = open("/dev/null", "a+")
        sys.stderr = open("/dev/null", "a+")
        sys.stdin = open("/dev/null", "r")

def main():
        print("Hello Python")
        print("My PID: " + str(os.getpid()))

^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^_ Go To Line    M-E Redo         M-6 Copy
```

Output - hello-python-4 (daemon process)

```
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ nano hello-python-4.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ chmod +x hello-python-4.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ ./hello-python-4.py
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ ps aux | grep hello
cxr1020     3292  0.0  0.1  16832  9328 ?        Ss   15:53   0:00 /usr/bin/python ./hello-python-4.py
cxr1020     3294  0.0  0.0   5908   640 pts/0    S+   15:53   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ kill 3292
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $ ps aux | grep hello
cxr1020     3296  0.0  0.0   5908   676 pts/0    S+   15:53   0:00 grep --color=auto hello
cxr1020@raspberrypi:~/Documents/EmbeddedLinuxRepo/CSR-EmbeddedLinux/Assignment02-Code/python $
```