

```

Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [2159 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [331 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/main amd64 Packages [1808 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1135 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1408 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [117 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [2269 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1760 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1918 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [45.2 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Packages [48.8 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [35.6 kB]
Fetched 33.1 MB in 3s (12.8 MB/s)
@camcleve3 → /workspaces/c375-fa25-lab3 (main) $ sudo apt install -y build-essential cmake gdb pkg-config
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package build
E: Unable to locate package essential
@camcleve3 → /workspaces/c375-fa25-lab3 (main) $ sudo apt install -y build-essential cmake gdb pkg-config
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
build-essential is already the newest version (12.10ubuntu1).
cmake is already the newest version (3.28.3-1build7).
gdb is already the newest version (15.0.50.20240403-0ubuntu1).
pkg-config is already the newest version (1.8.1-2build1).
0 upgraded, 0 newly installed, 0 to remove and 58 not upgraded.
@camcleve3 → /workspaces/c375-fa25-lab3 (main) $ mkdir ~/os-lab
@camcleve3 → /workspaces/c375-fa25-lab3 (main) $ git init
Reinitialized existing Git repository in /workspaces/c375-fa25-lab3/.git/
@camcleve3 → /workspaces/c375-fa25-lab3 (main) $ sudo apt install -y imagemagick scrot
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript
  hicolor-icon-theme imagemagick-6-common imagemagick-6.q16 libaom3

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spaces: bookish space halibut | 2 main ↩ ⊗ 0 ▲ 0 % 0

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● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ mkdir -p build && cd build
⊗ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake ..
-- The C compiler identification is GNU 13.3.0
-- Detecting C compiler ABI info
-- Detecting C compiler ABI info - done
-- Check for working C compiler: /usr/bin/cc - skipped
-- Detecting C compile features
-- Detecting C compile features - done
-- Configuring done (0.2s)
CMake Error at CMakeLists.txt:15 (add_executable):
  Cannot find source file:

    src/exec_demo.c

Tried extensions .c .C .c++ .cc .cpp .cxx .cu .mpp .m .M .mm .ixx .cppm
.ccm .cxxm .c++m .h .hh .h++ .hm .hpp .hxx .in .txx .f .F .for .f77 .f90
.f95 .f03 .hip .ispc

CMake Error at CMakeLists.txt:15 (add_executable):
  No SOURCES given to target: exec_demo

CMake Generate step failed.  Build files cannot be regenerated correctly.
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake ..
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
⊗ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 10%] Building C object CMakeFiles/fork_demo.dir/src/fork_demo.c.o
[ 20%] Linking C executable fork_demo
/usr/bin/ld: /usr/lib/gcc/x86_64-linux-gnu/13/../../../../x86_64-linux-gnu/Scrt1
.o: in function `_start':
(.text+0x1b): undefined reference to `main'
collect2: error: ld returned 1 exit status
gmake[2]: *** [CMakeFiles/fork_demo.dir/build.make:97: fork_demo] Error 1
gmake[1]: *** [CMakeFiles/Makefile2:91: CMakeFiles/fork_demo.dir/all] Error 2
gmake: *** [Makefile:91: all] Error 2
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake ..
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 10%] Building C object CMakeFiles/fork_demo.dir/src/fork_demo.c.o
[ 20%] Linking C executable fork_demo
[ 20%] Built target fork_demo
[ 30%] Building C object CMakeFiles/exec_demo.dir/src/exec_demo.c.o
[ 40%] Linking C executable exec_demo
[ 40%] Built target exec_demo
[ 50%] Building C object CMakeFiles/pipe_demo.dir/src/pipe_demo.c.o
[ 60%] Linking C executable pipe_demo
[ 60%] Built target pipe_demo
[ 70%] Building C object CMakeFiles/pipeline_demo.dir/src/pipeline_demo.c.o
[ 80%] Linking C executable pipeline_demo
[ 80%] Built target pipeline_demo
[ 90%] Building C object CMakeFiles/zombie_demo.dir/src/zombie_demo.c.o
[100%] Linking C executable zombie_demo
[100%] Built target zombie_demo
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake ..
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 10%] Building C object CMakeFiles/fork_demo.dir/src/fork_demo.c.o
[ 20%] Linking C executable fork_demo
[ 20%] Built target fork_demo
[ 30%] Building C object CMakeFiles/exec_demo.dir/src/exec_demo.c.o
[ 40%] Linking C executable exec_demo
[ 40%] Built target exec_demo
[ 60%] Built target pipe_demo
[ 80%] Built target pipeline_demo
[100%] Built target zombie_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./fork_demo
[parent] created child PID=53864
[child] PID=53864, PPID=53863
[child] exiting with code 42
[parent] child 53864 exited with status 42
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 20%] Built target fork_demo
[ 30%] Building C object CMakeFiles/exec_demo.dir/src/exec_demo.c.o
[ 40%] Linking C executable exec_demo
[ 40%] Built target exec_demo
[ 60%] Built target pipe_demo
[ 80%] Built target pipeline_demo
[100%] Built target zombie_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./exec_demo
[child] about to exec ls -l
total 116
-rw-rw-rw- 1 codespace codespace 12463 Sep  9 01:37 CMakeCache.txt
drwxrwxrwx+ 9 codespace codespace  4096 Sep  9 02:37 CMakeFiles
-rw-rw-rw- 1 codespace codespace 10683 Sep  9 02:26 Makefile
-rw-rw-rw- 1 codespace codespace  1628 Sep  9 01:37 cmake_install.cmake
-rwxrwxrwx 1 codespace codespace 16200 Sep  9 02:37 exec_demo
-rwxrwxrwx 1 codespace codespace 16360 Sep  9 02:26 fork_demo
-rwxrwxrwx 1 codespace codespace 15784 Sep  9 01:48 pipe_demo
-rwxrwxrwx 1 codespace codespace 15784 Sep  9 01:48 pipeline_demo
-rwxrwxrwx 1 codespace codespace 15784 Sep  9 01:48 zombie_demo
[parent] child finished exec
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 20%] Built target fork_demo
[ 40%] Built target exec_demo
[ 50%] Building C object CMakeFiles/pipe_demo.dir/src/pipe_demo.c.o
[ 60%] Linking C executable pipe_demo
[ 60%] Built target pipe_demo
[ 80%] Built target pipeline_demo
[100%] Built target zombie_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./pipe_demo
5
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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@camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 20%] Built target fork_demo
[ 40%] Built target exec_demo
[ 60%] Built target pipe_demo
[ 70%] Building C object CMakeFiles/pipeline_demo.dir/src/pipeline_demo.c.o
[ 80%] Linking C executable pipeline_demo
[ 80%] Built target pipeline_demo
[100%] Built target zombie_demo
@camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./pipeline_demo
CMakeCache.txt
cmake_install.cmake
exec_demo
@camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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0
[ 80%] Linking C executable pipeline_demo
[ 80%] Built target pipeline_demo
[100%] Built target zombie_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./pipeline_demo
CMakeCache.txt
cmake_install.cmake
exec_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 20%] Built target fork_demo
[ 40%] Built target exec_demo
[ 60%] Built target pipe_demo
[ 80%] Built target pipeline_demo
[ 90%] Building C object CMakeFiles/zombie_demo.dir/src/zombie_demo.c.o
[100%] Linking C executable zombie_demo
[100%] Built target zombie_demo
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./
[parent] sleeping, child should be zombie
[child] exiting
[parent] collected child
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ps -l
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD
4 S 1000 65863 2348 0 80 0 - 3984 do_wai pts/1 00:00:00 bash
0 R 1000 67027 65863 0 80 0 - 2872 - pts/1 00:00:00 ps
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ mkdir -p challenges
⊗ @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd chaallenges
bash: cd: chaallenges: No such file or directory
● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd challenges
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ touch ch1_single_fork.c
⊗ @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cmake --build .
Error: could not load cache
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cd ../
● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
[ 16%] Built target fork_demo
[ 33%] Built target exec_demo
[ 50%] Built target pipe_demo
[ 66%] Built target pipeline_demo
[ 83%] Built target zombie_demo
[ 91%] Building C object CMakeFiles/ch1_single_fork.dir/challenges/ch1_single_fork.c.o
[100%] Linking C executable ch1_single_fork
[100%] Built target ch1_single_fork
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch1_single_fork
Hello from child (PID=80729, PPID=80728)
Parent: child exited with status 42
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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gmake: *** [Makefile:384: cmake_check_build_system] Error 1
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
[ 14%] Built target fork_demo
[ 28%] Built target exec_demo
[ 42%] Built target pipe_demo
[ 57%] Built target pipeline_demo
[ 71%] Built target zombie_demo
[ 85%] Built target ch1_single_fork
[ 92%] Building C object CMakeFiles/ch2_multi_fork.dir/challenges/ch2_multi_fork.c.o
[100%] Linking C executable ch2_multi_fork
[100%] Built target ch2_multi_fork
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch2_multi_fork 5
Child 0 (PID=83982) running
Child 1 (PID=83983) running
Child 2 (PID=83984) running
Child 3 (PID=83985) running
Child 4 (PID=83986) running
Parent: child 0 (PID=83982) exited with status 10
Parent: child 1 (PID=83983) exited with status 11
Parent: child 2 (PID=83984) exited with status 12
Parent: child 3 (PID=83985) exited with status 13
Parent: child 4 (PID=83986) exited with status 14
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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[100%] Built target ch2_multi_fork
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
-- Configuring done (0.0s)
-- Generating done (0.0s)
-- Build files have been written to: /workspaces/c375-fa25-lab3/build
[ 12%] Built target fork_demo
[ 25%] Built target exec_demo
[ 37%] Built target pipe_demo
[ 50%] Built target pipeline_demo
[ 62%] Built target zombie_demo
[ 75%] Built target ch1_single_fork
[ 87%] Built target ch2_multi_fork
[ 93%] Building C object CMakeFiles/ch3_exec_ls.dir/challenges/ch3_exec_ls.c.o
[100%] Linking C executable ch3_exec_ls
[100%] Built target ch3_exec_ls
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch3_exec_ls
[child] running ls -la
total 184
drwxrwxrwx+  3 codespace codespace  4096 Sep  9 03:40 .
drwxrwxrwx+  6 codespace root       4096 Sep  9 03:16 ..
-rw-rw-rw-   1 codespace codespace 12463 Sep  9 01:37 CMakeCache.txt
drwxrwxrwx+ 12 codespace codespace  4096 Sep  9 03:40 CMakeFiles
-rw-rw-rw-   1 codespace codespace 15447 Sep  9 03:40 Makefile
-rwxrwxrwx   1 codespace codespace 16344 Sep  9 03:22 ch1_single_fork
-rwxrwxrwx   1 codespace codespace 16408 Sep  9 03:28 ch2_multi_fork
-rwxrwxrwx   1 codespace codespace 16200 Sep  9 03:40 ch3_exec_ls
-rw-rw-rw-   1 codespace codespace  1628 Sep  9 01:37 cmake_install.cmake
-rwxrwxrwx   1 codespace codespace 16200 Sep  9 02:37 exec_demo
-rwxrwxrwx   1 codespace codespace 16360 Sep  9 02:26 fork_demo
-rwxrwxrwx   1 codespace codespace 16448 Sep  9 02:41 pipe_demo
-rwxrwxrwx   1 codespace codespace 16336 Sep  9 02:47 pipeline_demo
-rwxrwxrwx   1 codespace codespace 16200 Sep  9 02:57 zombie_demo
[parent] child finished

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cp: cannot stat 'build/worker': No such file or directory
@camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ ./worker
worker: argc=1
worker: argv[0]=./worker
worker: MYVAR=(not set)
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● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch4_exec_worker
worker: argc=3
worker: argv[0]=./worker
worker: argv[1]=foo
worker: argv[2]=bar
worker: MYVAR=hello
[parent] child finished
```

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✧ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $
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● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 4%] Building C object CMakeFiles/fork_demo.dir/src/fork_demo.c.o
[ 9%] Linking C executable fork_demo
[ 9%] Built target fork_demo
[13%] Building C object CMakeFiles/exec_demo.dir/src/exec_demo.c.o
[18%] Linking C executable exec_demo
[18%] Built target exec_demo
[22%] Building C object CMakeFiles/pipe_demo.dir/src/pipe_demo.c.o
[27%] Linking C executable pipe_demo
[27%] Built target pipe_demo
[31%] Building C object CMakeFiles/pipeline_demo.dir/src/pipeline_demo.c.o
[36%] Linking C executable pipeline_demo
[36%] Built target pipeline_demo
[40%] Building C object CMakeFiles/zombie_demo.dir/src/zombie_demo.c.o
[45%] Linking C executable zombie_demo
[45%] Built target zombie_demo
[50%] Building C object CMakeFiles/ch1_single_fork.dir/challenges/ch1_single_fork.c.o
[54%] Linking C executable ch1_single_fork
[54%] Built target ch1_single_fork
[59%] Building C object CMakeFiles/ch2_multi_fork.dir/challenges/ch2_multi_fork.c.o
[63%] Linking C executable ch2_multi_fork
[63%] Built target ch2_multi_fork
[68%] Building C object CMakeFiles/ch3_exec_ls.dir/challenges/ch3_exec_ls.c.o
[72%] Linking C executable ch3_exec_ls
[72%] Built target ch3_exec_ls
[77%] Building C object CMakeFiles/worker.dir/challenges/worker.c.o
[81%] Linking C executable worker
[81%] Built target worker
[86%] Building C object CMakeFiles/ch4_exec_worker.dir/challenges/ch4_exec_worker.c.o
[90%] Linking C executable ch4_exec_worker
[90%] Built target ch4_exec_worker
[95%] Building C object CMakeFiles/ch5_exec_examples.dir/challenges/ch5_exec_examples.c.o
[100%] Linking C executable ch5_exec_examples
[100%] Built target ch5_exec_examples
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch5_exec_examples
one
one
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● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ touch ch6_pipe_sum.c
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cd ../
● @camcleve3 → /workspaces/c375-fa25-lab3 (main) $ cd build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 8%] Built target fork_demo
[ 16%] Built target exec_demo
[ 25%] Built target pipe_demo
[ 33%] Built target pipeline_demo
[ 41%] Built target zombie_demo
[ 50%] Built target ch1_single_fork
[ 58%] Built target ch2_multi_fork
[ 66%] Built target ch3_exec_ls
[ 75%] Built target worker
[ 83%] Built target ch4_exec_worker
[ 91%] Built target ch5_exec_examples
[ 95%] Building C object CMakeFiles/ch6_pipe_sum.dir/challenges/ch6_pipe_sum.c.o
[100%] Linking C executable ch6_pipe_sum
[100%] Built target ch6_pipe_sum
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch6_pipe_sum
Child: sum = 55
❖ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch7_pipeline "\.c$"
exec_demo.c
fork_demo.c
pipe_demo.c
pipeline_demo.c
zombie_demo.c

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● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ touch ch8_wait_nonblock.c
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cd ../challenges
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cd ../build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 7%] Built target fork_demo
[ 14%] Built target exec_demo
[ 21%] Built target pipe_demo
[ 28%] Built target pipeline_demo
[ 35%] Built target zombie_demo
[ 42%] Built target ch1_single_fork
[ 50%] Built target ch2_multi_fork
[ 57%] Built target ch3_exec_ls
[ 64%] Built target worker
[ 71%] Built target ch4_exec_worker
[ 78%] Built target ch5_exec_examples
[ 85%] Built target ch6_pipe_sum
[ 92%] Built target ch7_pipeline
[ 96%] Building C object CMakeFiles/ch8_wait_nonblock.dir/challenges/ch8_wait_nonblock.c.o
[100%] Linking C executable ch8_wait_nonblock
[100%] Built target ch8_wait_nonblock
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch8_wait_nonblock
[child 0] done
[parent] child 0 (PID=20874) exited with status 10
[child 1] done
[parent] child 1 (PID=20875) exited with status 11
[child 2] done
[parent] child 2 (PID=20876) exited with status 12
❖ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ █

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● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 6%] Built target fork_demo
[ 13%] Built target exec_demo
[ 20%] Built target pipe_demo
[ 26%] Built target pipeline_demo
[ 33%] Built target zombie_demo
[ 40%] Built target ch1_single_fork
[ 46%] Built target ch2_multi_fork
[ 53%] Built target ch3_exec_ls
[ 60%] Built target worker
[ 66%] Built target ch4_exec_worker
[ 73%] Built target ch5_exec_examples
[ 80%] Built target ch6_pipe_sum
[ 86%] Built target ch7_pipeline
[ 93%] Built target ch8_wait_nonblock
[ 96%] Building C object CMakeFiles/ch9_zombie.dir/challenges/ch9_zombie.c.o
[100%] Linking C executable ch9_zombie
[100%] Built target ch9_zombie
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch9_zombie
[parent] sleeping, child should be zombie (check with 'ps aux | grep Z')
[child] exiting immediately
[parent] collected child
❖ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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△ 0 (A) 0 ⚙ Build ⚙ ▶

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● @camcleve3 → /workspaces/c375-fa25-lab3/build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch9_zombie
  [parent] sleeping, child should be zombie (check with 'ps aux | grep Z')
  [child] exiting immediately
  [parent] collected child
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ps aux | grep Z
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
codespa+ 30493  0.0  0.0      0     0 pts/0    Z+   16:39   0:00 [ch9_zombie] <defunct>
codespa+ 30515  0.0  0.0   7080  2304 pts/1    S+   16:39   0:00 grep --color=auto Z

● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ps aux | grep Z
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
codespa+ 30650  0.0  0.0   7080  2176 pts/1    S+   16:39   0:00 grep --color=auto Z
○ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

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● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ touch ch10_pool.c
● @camcleve3 → /workspaces/c375-fa25-lab3/challenges (main) $ cd ../build
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ cmake --build .
[ 6%] Built target fork_demo
[ 12%] Built target exec_demo
[ 18%] Built target pipe_demo
[ 25%] Built target pipeline_demo
[ 31%] Built target zombie_demo
[ 37%] Built target ch1_single_fork
[ 43%] Built target ch2_multi_fork
[ 50%] Built target ch3_exec_ls
[ 56%] Built target worker
[ 62%] Built target ch4_exec_worker
[ 68%] Built target ch5_exec_examples
[ 75%] Built target ch6_pipe_sum
[ 81%] Built target ch7_pipeline
[ 87%] Built target ch8_wait_nonblock
[ 93%] Built target ch9_zombie
[ 96%] Building C object CMakeFiles/ch10_pool.dir/challenges/ch10_pool.c.o
[100%] Linking C executable ch10_pool
[100%] Built target ch10_pool
● @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $ ./ch10_pool 3 file1 file2 file3 file4 file5
[worker] PID=37450 working on file1
[worker] PID=37451 working on file2
[worker] PID=37452 working on file3
[worker] PID=37450 finished file1
[worker] PID=37451 finished file2
[parent] Worker PID=37450 exited
[worker] PID=37452 finished file3
[parent] Worker PID=37451 exited
[parent] Worker PID=37452 exited
[worker] PID=37480 working on file4
[worker] PID=37481 working on file5
[worker] PID=37480 finished file4
[worker] PID=37481 finished file5
[parent] Worker PID=37480 exited
[parent] Worker PID=37481 exited
❖ @camcleve3 → /workspaces/c375-fa25-lab3/build (main) $

```