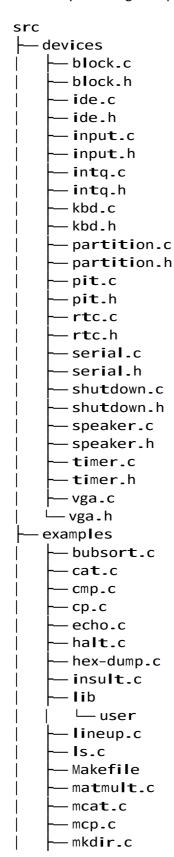
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• Let's say the original pintos src directory looks like this:



```
-pwd.c
    recursor.c
    -rm.c
   -shell.c
– filesys
   - directory.c
   -directory.h
   -file.c
   -file.h
    -filesys.c
   -filesys.h
    -free-map.c
   -free-map.h
   -fsutil.c
    -fsutil.h
    -inode.c
    -inode.h
   -Makefile
   -Make.vars
 └─ off t.h
– lib
  -arithmetic.c
   -ctype.h
   -debug.c
   -debug.h
   - inttypes.h
   -kernel
     - bitmap.c
       -bitmap.h
       -console.c
       -console.h
       - debug.c
       - hash.c
       -hash.h
       -list.c
       -list.h
      -stdio.h
   -limits.h
    -packed.h
    -random.c
    -random.h
   -round.h
   -stdarg.h
    -stdbool.h
    -stddef.h
   -stdint.h
   -stdio.c
    -stdio.h
    -stdlib.c
    -stdlib.h
   -string.c
```

```
string.h
    syscall-nr.h
   -user
       -console.c
       -debug.c
       entry.c
       -stdio.h
       -syscall.c
       -syscall.h
       user.Ids
   -ustar.c
   -ustar.h
- LICENSE
-Make.config
-Makefile
-Makefile.build
-Makefile.kernel
– Makefile.userprog
-misc
  — bochs-2.2.6-big-endian.patch
   -bochs-2.2.6-build.sh
   - bochs-2.2.6-gdbstub-ENN.patch
   -bochs-2.2.6-jitter.patch
   -bochs-2.2.6-ms-extensions.patch
   -bochs-2.2.6-page-fault-segv.patch
   -bochs-2.2.6-paranoia.patch
   -bochs-2.2.6-solaris-link.patch
   -bochs-2.2.6-solaris-tty.patch
   -bochs-2.2.6-triple-fault.patch
   -gcc-3.3.6-cross-howto
 __gdb-macros
- tests
 - Algorithm
     └─ Diff.pm
   -arc4.c
    -arc4.h
   -arc4.pm
   -cksum.c
   -cksum.h
   -cksum.pm
    -filesys
       base
          - child-syn-read.c
           child-syn-wrt.c
           -full.inc
           - Ig-create.c
           - Ig-create.ck
           - Ig-full.c
           - Ig-full.ck
           - Ig-random.c
           - Ig-random.ck
```

```
- Ig-seq-block.c
   - Ig-seq-block.ck
   - Ig-seq-random.c
   - Ig-seq-random.ck
   -Make.tests
   - random.inc
  — Rubric
   - seq-block.inc
   -seq-random.inc
   -sm-create.c
   -sm-create.ck
   -sm-full.c
  - sm-full.ck
  -sm-random.c
   -sm-random.ck
  -sm-seq-block.c
   - sm-seq-block.ck
   -sm-seq-random.c
   -sm-seq-random.ck
   -syn-read.c
   - syn-read.ck
  - syn-read.h
   -syn-remove.c
   -syn-remove.ck
   -syn-write.c
   -syn-write.ck
 └─ syn-write.h
-create.inc
-extended
  — child-syn-rw.c
  — dir-empty-name.c
  — dir-empty-name.ck
   -dir-empty-name-persistence.ck
   -dir-mkdir.c
   -dir-mkdir.ck
   - dir-mkdir-persistence.ck
  -dir-mk-tree.c
  -dir-mk-tree.ck
  — dir-mk-tree-persistence.ck
  -dir-open.c
   -dir-open.ck
   -dir-open-persistence.ck
   -dir-over-file.c
   -dir-over-file.ck
   -dir-over-file-persistence.ck
  -dir-rm-cwd.c
   -dir-rm-cwd.ck
   -dir-rm-cwd-persistence.ck
   -dir-rmdir.c
   -dir-rmdir.ck
   -dir-rmdir-persistence.ck
```

```
-dir-rm-parent.c
-dir-rm-parent.ck
-dir-rm-parent-persistence.ck
-dir-rm-root.c
 dir-rm-root.ck
-dir-rm-root-persistence.ck
-dir-rm-tree.c
-dir-rm-tree.ck
-dir-rm-tree-persistence.ck
 dir-under-file.c
-dir-under-file.ck
-dir-under-file-persistence.ck
-dir-vine.c
-dir-vine.ck
-dir-vine-persistence.ck
-grow-create.c
-grow-create.ck
-grow-create-persistence.ck
 grow-dir.inc
-grow-dir-lg.c
-grow-dir-lg.ck
— grow-dir-lg-persistence.ck
-grow-file-size.c
 grow-file-size.ck
-grow-file-size-persistence.ck
-grow-root-lg.c
-grow-root-lg.ck
-grow-root-lg-persistence.ck
-grow-root-sm.c
-grow-root-sm.ck
grow-root-sm-persistence.ck
- grow-seq.inc
-grow-seq-lg.c
-grow-seq-lg.ck
-grow-seq-lg-persistence.ck
-grow-seq-sm.c
-grow-seq-sm.ck
-grow-seq-sm-persistence.ck
-grow-sparse.c
-grow-sparse.ck
-grow-sparse-persistence.ck
-grow-tell.c
-grow-tell.ck
grow-tell-persistence.ck
-grow-two-files.c
-grow-two-files.ck
-grow-two-files-persistence.ck
- Make.tests
-mk-tree.c
-mk-tree.h
- Rubric.functionality
```

```
Rubric.persistence
       Rubric.robustness
       -syn-rw.c
       -syn-rw.ck
       -syn-rw.h
       -syn-rw-persistence.ck
      -tar.c
   -Grading.no-vm
   -Grading.with-vm
   -seq-test.c
 └─ seq-test.h
-internal
 -- list.c
   -stdio.c
  -stdlib.c
-lib.c
-lib.h
-lib.pm
-main.c
-main.h
-make-grade
- Make.tests
-random.pm
-tests.pm
- threads
   — alarm-multiple.ck
   -alarm-negative.c
   -alarm-negative.ck
   -alarm.pm
   -alarm-priority.c
   - alarm-priority.ck
   -alarm-simultaneous.c
   -alarm-simultaneous.ck
   -alarm-single.ck
   -alarm-wait.c
   -alarm-zero.c
   -alarm-zero.ck
   -Grading
   -Make.tests
   -mlfqs-block.c
   -mlfqs-block.ck
   -mlfqs-fair-20.ck
   -mlfqs-fair-2.ck
   -mlfqs-fair.c
   -mlfqs-load-1.c
   -mlfqs-load-1.ck
   -mlfqs-load-60.c
    -mlfqs-load-60.ck
    -mlfqs-load-avg.c
   -mlfqs-load-avg.ck
   -mlfqs-nice-10.ck
```

```
mlfqs-nice-2.ck
   mlfqs.pm
  -mlfqs-recent-1.c
   -mlfqs-recent-1.ck
   priority-change.c
   priority-change.ck
   -priority-condvar.c
  -priority-condvar.ck
   -priority-donate-chain.c
   priority-donate-chain.ck
   -priority-donate-lower.c
   -priority-donate-lower.ck
   -priority-donate-multiple2.c
   -priority-donate-multiple2.ck
   -priority-donate-multiple.c
   -priority-donate-multiple.ck
  -priority-donate-nest.c
   -priority-donate-nest.ck
   -priority-donate-one.c
   -priority-donate-one.ck
  -priority-donate-sema.c
  -priority-donate-sema.ck
   -priority-fifo.c
   priority-fifo.ck
   priority-preempt.c
   -priority-preempt.ck
  -priority-sema.c
   -priority-sema.ck
   Rubric.alarm
   -Rubric.mlfqs
  -Rubric.priority
  -tests.c
  -tests.h
userprog
  -args.c
  -args-dbl-space.ck
  -args-many.ck
  -args-multiple.ck
  -args-none.ck
  -args-single.ck
  -bad-jump2.c
  -bad-jump2.ck
  -bad-jump.c
   -bad-iump.ck
  -bad-read2.c
  -bad-read2.ck
  -bad-read.c
   bad-read.ck
   bad-write2.c
   -bad-write2.ck
  -bad-write.c
```

```
-bad-write.ck
-boundary.c
-boundary.h
-child-bad.c
-child-close.c
-child-rox.c
-child-simple.c
-close-bad-fd.c
-close-bad-fd.ck
-close-normal.c
-close-normal.ck
-close-stdin.c
-close-stdin.ck
-close-stdout.c
-close-stdout.ck
-close-twice.c
-close-twice.ck
-create-bad-ptr.c
-create-bad-ptr.ck
-create-bound.c
-create-bound.ck
-create-empty.c
- create-empty.ck
-create-exists.c
-create-exists.ck
-create-long.c
-create-long.ck
-create-normal.c
-create-normal.ck
-create-null.c
-create-null.ck
-exec-arg.c
-exec-arg.ck
-exec-bad-ptr.c
-exec-bad-ptr.ck
-exec-missing.c
-exec-missing.ck
-exec-multiple.c
-exec-multiple.ck
-exec-once.c
-exec-once.ck
-exit.c
-exit.ck
-Grading
-halt.c
-halt.ck
- lib
 ∟ user
-Make tests
-multi-child-fd.c
-multi-child-fd.ck
```

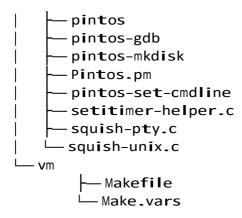
```
multi-recurse.c
 multi-recurse.ck
- no-vm
   - Make.tests
    -multi-oom.c
   -multi-oom.ck
 Rubric
-null.ck
-open-bad-ptr.c
-open-bad-ptr.ck
-open-boundary.c
-open-boundary.ck
-open-empty.c
-open-empty.ck
-open-missing.c
-open-missing.ck
-open-normal.c
-open-normal.ck
-open-null.c
-open-null.ck
-open-twice.c
-open-twice.ck
- read-bad-fd.c
- read-bad-fd.ck
-read-bad-ptr.c
- read-bad-ptr.ck
- read-boundary.c
- read-boundary.ck
-read-normal.c
- read-normal.ck
- read-stdout.c
- read-stdout.ck
- read-zero.c
- read-zero.ck
-rox-child.c
-rox-child.ck
- rox-child.inc
-rox-multichild.c
-rox-multichild.ck
-rox-simple.c
-rox-simple.ck
-Rubric.functionality
-Rubric.robustness
-sample.inc
-sample.txt
-sc-bad-arg.c
-sc-bad-arg.ck
-sc-bad-sp.c
-sc-bad-sp.ck
-sc-boundary-2.c
-sc-boundary-2.ck
```

```
-sc-boundary.c
-sc-boundary.ck
-wait-bad-pid.c
-wait-bad-pid.ck
 -wait-killed.c
 -wait-killed.ck
-wait-simple.c
-wait-simple.ck
-wait-twice.c
 -wait-twice.ck
-write-bad-fd.c
 -write-bad-fd.ck
-write-bad-ptr.c
-write-bad-ptr.ck
-write-boundary.c
-write-boundary.ck
-write-normal.c
-write-normal.ck
 -write-stdin.c
 -write-stdin.ck
-write-zero.c
-write-zero.ck
-child-inherit.c
-child-linear.c
-child-mm-wrt.c
-child-qsort.c
-child-qsort-mm.c
 -child-sort.c
-Grading
- Make.tests
- mmap-bad-fd.c
- mmap-bad-fd.ck
-mmap-clean.c
-mmap-clean.ck
-mmap-close.c
- mmap-close.ck
-mmap-exit.c
-mmap-exit.ck
-mmap-inherit.c
-mmap-inherit.ck
- mmap-misalign.c
- mmap-misalign.ck
-mmap-null.c
-mmap-null.ck
- mmap-over-code.c
-mmap-over-code.ck
 -mmap-over-data.c
 -mmap-over-data.ck
-mmap-overlap.c
-mmap-overlap.ck
```

```
mmap-over-stk.c
-mmap-over-stk.ck
-mmap-read.c
-mmap-read.ck
-mmap-remove.c
-mmap-remove.ck
-mmap-shuffle.c
-mmap-shuffle.ck
-mmap-twice.c
-mmap-twice.ck
-mmap-unmap.c
-mmap-unmap.ck
-mmap-write.c
-mmap-write.ck
-mmap-zero.c
-mmap-zero.ck
-page-linear.c
-page-linear.ck
page-merge-mm.c
-page-merge-mm.ck
-page-merge-par.c
-page-merge-par.ck
-page-merge-seq.c
-page-merge-seq.ck
-page-merge-stk.c
-page-merge-stk.ck
-page-parallel.c
-page-parallel.ck
-page-shuffle.c
-page-shuffle.ck
-parallel-merge.c
-parallel-merge.h
-process death.pm
-pt-bad-addr.c
-pt-bad-addr.ck
-pt-bad-read.c
-pt-bad-read.ck
-pt-big-stk-obj.c
-pt-big-stk-obj.ck
-pt-grow-bad.c
-pt-grow-bad.ck
-pt-grow-pusha.c
-pt-grow-pusha.ck
-pt-grow-stack.c
-pt-grow-stack.ck
-pt-grow-stk-sc.c
-pt-grow-stk-sc.ck
pt-write-code-2.c
pt-write-code2.ck
pt-write-code.c
-pt-write-code.ck
```

```
-qsort.c
        -gsort.h
       -Rubric.functionality
       -Rubric.robustness
       - sample.inc
     └─ sample.txt
– threads
 - flags.h
   -init.c
    -init.h
   -interrupt.c
   -interrupt.h
   - intr-stubs.h
   - intr-stubs.S
   – io.h
   -kernel.lds.S
   -loader.h
   - loader.S
   - Makefile
   -Make.vars
   -malloc.c
   -malloc.h
   -palloc.c
    -palloc.h
    -pte.h
    -start.S
   -switch.h
   -switch.S
    -synch.c
   - synch.h
   -thread.c
   - thread.h
  — vaddr.h
-userprog
   - exception.c
   exception.h
   -gdt.c
    -gdt.h
   -Makefile
   -Make.vars
   - pagedir.c
    -pagedir.h
    -process.c
    -process.h
    -syscall.c
   - syscall.h
   -tss.c
   -tss.h
 utils
   — backtrace
```

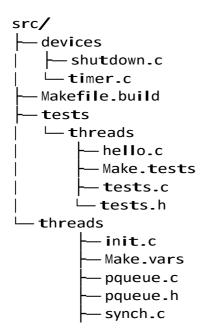
– Makefile



• Let's say you have only made changes to the following files:

```
src/threads/init.c
src/threads/pqueue.h
src/threads/synch.c
src/threads/pqueue.c
src/threads/Make.vars
src/threads/thread.c
src/threads/thread.h
src/devices/shutdown.c
src/devices/timer.c
src/Makefile.build
src/tests/threads/Make.tests
src/tests/threads/tests.c
src/tests/threads/hello.c
src/tests/threads/tests.h
```

• Then include only these files (i.e. only the file that you've made changes to keeping the directory structure intact). So, your submission will have a src directory that looks like this:



├— thread.c └— thread.h

- The idea is that merging (with replacement) the src directory-tree from your submission onto the original src directory-tree should give the full buildable src directory-tree for your project.
- Do **NOT** include the build directory/directories. You'll lose marks for that. Name your
- report file report.pdf and place it and src in a directory named <RollNo1>_<RollNo2> (<RollNo1> for single person teams), where <RollNo1>, <RollNo2> are the roll numbers of the team members.
 - Example: 2018201001_2018201002
- Tar-GZip this directory into
 <RollNo1>_<RollNo2>.tar.gz
 (Or<RollNo1>.tar.gz for single person teams)
 - Example: 2018201001_2018201002.tar.gz