

Operating System

Project 1 TestCase Design Document

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Testcases

All testcases are located in *Test.java* in the threads folder.

Task 0: Initial test

- **firstTest**: Initial ping test provided by nachos.

Task 1: Join

- **joinTest1**: two ping threads, thread 2 joins thread 1.
- **joinTest2**: two ping threads, thread 2 joins main, then thread 1 forks.
- **joinTest3**: two ping threads fork, then thread 2 joins main.

Task 2: Condition Variable

- **condTest1**: two Ping threads, which needs to be waked from the conditional variable before pinging and sleeps after pinging.

Task 3: Alarm

- **alarmTest1**: three ping threads with different sleep time to test wake in minimum.
- **alarmTest2**: three ping threads with different sleep time and thread 3 joins thread 2.

Task 4: Communicator

- **communTest1**: two speakers and two listeners with controllable sleep time.
- **communTest2**: 50 speakers and 50 listeners with randomly generated order and random sleep times.

Task 5: Priority

- **priorityTest1**: three ping threads with priorities set to be reversed order of fork.
- **priorityTest2**: three ping threads, thread 1 and thread 3 have priority 1 as main, thread 2 has priority 0 but joins main.

- **priorityTest3**: two ping threads, thread 1 has priority 3 and thread 2 has priority 1, but thread 2 first acquires a priority queue and thread 1 waits for it.

Task 6: Boat

- **Boat.selfTest()**: use selfTest provided by nachos to track itinerary.