Course
CS-E4110
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« Round 1 - Scala concurrency - Part 1 Course materials 2 Threads -- Low-level concurrency basics using Threads. »
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Assignment description My submissions (5/5)

Concurrency basics -- Basics of concurrent computing.

1. *Which ones are true about parallel and concurrent computing?* 0 / 1

- ☐ Concurrent programming focuses more on speed-up and performance than parallel computing.
- ☑ **Throughput and responsiveness are more a focal point for parallel computing than concurrent programming.**
- ☑ **Concurrent computing makes sense even on a computer system with a single CPU.**
- ☐ It is possible to have concurrency without parallelism and vice versa.
- ☑ **Parallel computing only requires the related execution units to show progress while executing at the same time.**

More than one is correct.

✖ Incorrect

2. *Which ones are true regarding threads and processes?* 1 / 1

- ☑ **Thread creation requires fewer resources than process creation.**
- ☐ Each thread in a process has its own separate memory space.
- ☑ **Both threads and processes provide a viable execution environment that can be used to run a given task.**
- ☐ Threads often exist outside of a process.
- ☑ **Context switching and interaction among processes is often more strenuous to implement than context switching and interaction among threads.**

✔ Correct!

3. *Which ones are true about shared memory and message passing programming models?* 1 / 1

- ☑ **Mutable state is confined within the boundaries of an actor.**
- ☐ Message passing encounters similar set of issues regarding data races as in shared memory.
- ☐ Shared memory assumptions ensure that concurrent programming facilities are implemented efficiently on either a single or multicomputer.
- ☑ **Message passing is related to implementing distributed systems.**
- ☑ **Fault tolerance is often an inherent part of the message passing model.**

✔ Correct!

4. *Which ones are true regarding non-determinism in concurrent program control flow?* 1 / 1

- ☑ **Concurrent programs rely on the execution platform for scheduling of their execution units (threads).**
- ☐ Threads are not allowed to temporarily cache their computation results in the processor's registers before writing them to main memory.
- ☑ **The serial semantics of a program is guaranteed inside a thread it is being executed.**
- ☐ The serial semantics of a program is guaranteed in all threads involved in executing it concurrently.
- ☑ **It is the programmer's responsibility to make sure his program is correct for all interleavings that result from running a program using multiple threads.**

✔ Correct!

5. *Which ones are true related to hazards that can result from Non-sequential control?* 1 / 1

- ☑ **A race condition occurs when an output of a concurrent program depends on the execution schedule of its threads.**
- ☑ **Both livelock and deadlock are characterized by an apparent lack of progress.**
- ☑ **Establishing a total order between resource acquisition by threads solves the problem of deadlock.**
- ☐ In a deadlock situation, threads are often seen to constantly change their state but are unable to make progress.
- ☐ We say starvation but not a deadlock occurred when a set of threads acquire resources and cyclically try to acquire other resources that are acquired by other threads.

✔ Correct!

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Earned points
8 / 10

Exercise info

Assignment category
Multiple choice questionnaires

Your submissions
5 / 5

Deadline
Friday, 12 November 2021, 14:00

Late submission deadline
Friday, 19 November 2021, 14:00 (-30%)

Total number of submitters
58

Submission info

Submitted on
Monday, 8 November 2021, 14:29:22

Status
Ready

Grade
8 / 10

Submitters
Binh Nguyen