

## CITS3213 Laboratory Exercises

For help with the Circal System exercises and with running the Circal System, see

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I should be available from 10-12 most weekdays, email to make an appointment at other times.

The example XCircal files can be viewed and downloaded from:

<http://people.csse.uwa.edu.au/joel>

The Linux version of the Circal System can be downloaded from

<http://www.csse.uwa.edu.au/FormalSpecification/CircalSystem/>

A Windows version is also available at that location, however we are not formally supporting it for this course.

Here is a brief guide to getting the Circal System up and running.

(1) Log onto one of the machines in laboratory 2.03 (reboot it to Linux if necessary).

(2) Download the ZIP archive with the Linux binary version of the Circal System from the above URL; save the archive in your home directory.

(3) Extract the archive – this will create a `CircalSystem` directory.

(4) Open a shell (terminal) window and change directory into the `CircalSystem` directory. Look at the `README.txt` file:

```
prompt> cd CircalSystem
prompt> cat README.txt
```

(5) Set up the `XTCLIB` environment variable. Eg for `zsh`:

```
prompt> export XTCLIB=~/.CircalSystem/xtc
```

You may want to add that to your shell startup file (e.g. `.zshrc`) so you don't

have to do it for every session.

(6) Create a test `.xtc` file in the `CircalSystem` directory eg copy the `Lecture4.xtc` example file from:

```
http://www.csse.uwa.edu.au/~joel/ConcurrentProgramming
```

(7) Run the example using the `Circal` System interpreter:

```
prompt> ./circ Lecture4.xtc
```

You may want to put the `circ` executable somewhere in your search path if the `./` bit annoys you.

Laboratory exercises 1 and 2 are designed to follow on from the material presented in Lecture Notes 4, 5, 6 and 7. After following the previous instructions, you should download the `XCircal` example code from:

```
http://www.csse.uwa.edu.au/~joel/ConcurrentProgramming
```

The following files have been provided:

Lecture5.xtc	The "P and Q" introductory <code>Circal</code> example from Lecture Notes 5.
Lecture4a.xtc	The attempted shared-variable mutual exclusion problem solution from Lecture Notes 4
Lecture4b.xtc	The second mutual exclusion problem solution using a test-and-set instruction from Lecture Notes 4.
Lecture7.xtc	The deadlock example from Lecture Notes 7.
SemaphoreQuestion1.2.xtc	This is a stub file for answering questions 1.2, 1.3 and 1.4 for Lab Exercise 1.
SemaphoreQuestion1.5.xtc	This is an example semaphore system with 3 worker processes, referred to in question 1.5 .
PhilosophersQuestion.xtc	This is a stub file for answering questions 2.1 and 2.2 for Lab Exercise 2.

You should begin you lab work by **studying** and **running** the `Lecture5.xtc`, `Lecture4a.xtc`, `Lecture4b.xtc` and `Lecture7.xtc` example files.