

T.P. 3

## Threads : Master-Slave Patterns

### 1 Digest computations

Complete the four master-slave patterns presented in the lecture (slides 68/231 to 78/231). All the four cases concern the computing of the digest of a file. The main program (the *master*) reads the name of a (local) file. It starts (if not yet) a thread (the *slave*) and this thread computes the digest. There are various forms and you have to program and test each form :

1. Callback after thread call (continuation method) : the slave calls a method (the *callback method*) defined in the master to put the result (and this method prints the result).
2. Callback after thread call (listeners) : the slave has a field of objects (the *listeners*), each of them implementing the callback method. As soon as the slave finishes the computation of the digest, it calls the callback method for each listener. For simplicity, we suppose that the only listener is the master.
3. Master waits for the end of the slave : the slave computes the digest, as soon as the slave stops, the master fetches the result.
4. Master waits until the slave notifies the server it can fetch the result.