Distributed Systems: Practical 1

About this practical

This is the first of two practical exercises for the Distributed Systems course. The two practical exercises are equally weighted and together they count for 25% of the marks for the course. Both of the exercises are *individual exercises*, not to be undertaken in a group.

The course policy on late submission is that late submissions will not be accepted unless arranged through your Director of Studies.

This practical has three parts. The first involves implementing a basic CORBA application; the second involves extending it to support persistence; the third involves writing a CORBA IDL specification.

Description of this practical

Part 1

The aim of the first part of this practical is for you to develop a CORBA application which provides an acronym look-up service. The server, when passed an acronym of five letters or less, returns an appropriate expansion as a string. The server should also allow acronyms to be added, modified or deleted. The client, assumed to be hosted on another JVM, invokes the service remotely. The client does not need to have a graphical interface, a command line interface is perfectly acceptable. It is your responsibility to develop the client, the servant and the server.

- The IDL specification of the acronym service can be found in the file `Acronym.idl` in the directory `/home/cs4/www/disys/coursework`.
- A list of acronyms can be found in the file `basic-acronyms` in the directory `/home/cs4/www/disys/coursework`.
- The idltojava compiler `idlj` is available on the departmental machines and can be downloaded (within the J2SDK) from `http://java.sun.com/j2se/1.3/index.html`.

Part 2

The aim of the second part of the practical if for you to modify your solution to part 1 so that the acronym server remembers the state of the acronym table between instantiations, i.e. to make the service persistent.

Part 3

The aim of the final part of the practical is for you to extend the IDL to specify a new derived interface for an acronym server. As well as the operations supported by the interface used in the earlier parts of the practical, the new CORBA object should support two new operations:

- a partial matching function for acronyms, where "?" is used to denote a single unknown letter
- a search function where a single word is used to denote expansions of interest, e.g. return all the acronyms containing the work "`Java`" in their expansion.

You should not implement this extended interface.

Deadlines and submission

The deadline for completion of this practical exercise is

Wednesday, 13th February 2002 at 5pm.

Please submit your Java source code and the IDL specification for the extended acronym service via email to `stg@dcs.ed.ac.uk`. Please submit only source code: no compiled class files. There is no need to submit the files generated by the `idlj` compiler. Your code should be submitted as a gzipped TAR file of your directory where a subdirectory `Part 1` contains your solution to Part 1, and a subdirectory `Part 2` contains your solution to Part2. This file should be added to your email message as a MIME attachment. In your email message you may wish to include a short description of any other relevant information such as the version of the JDK which was used to compile your code.

Assessment procedure

Your Java submission will be tested by being compiled and executed. A submission which uses proprietary (e.g. Microsoft) Java extensions and fails to compile with a version of the JDK will lose credit.

Queries and clarification

If you have any uncertainties about the requirements of the practical exercise please contact Jane Hillston by email (`jeh@dcs.ed.ac.uk`). If you have any technical questions please raise them with your tutor.

Date of issue: Monday 21st January 2002.