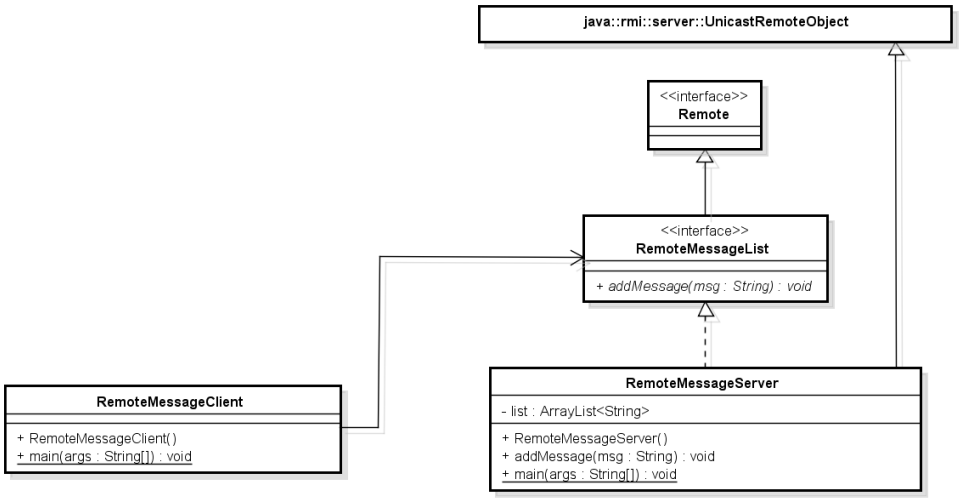
Exercises Session 7 SDJ2, RMI

Exercise 07.01

Implement a simple RMI system where the server contains a list of strings and clients can add strings to this list. Implement it as shown in the UML class diagram below

- In the `addMessage` method (on the server) print out the message being added
- Implement the client to add messages to the server in a loop.

Test it stating up the registry, the server and a few clients

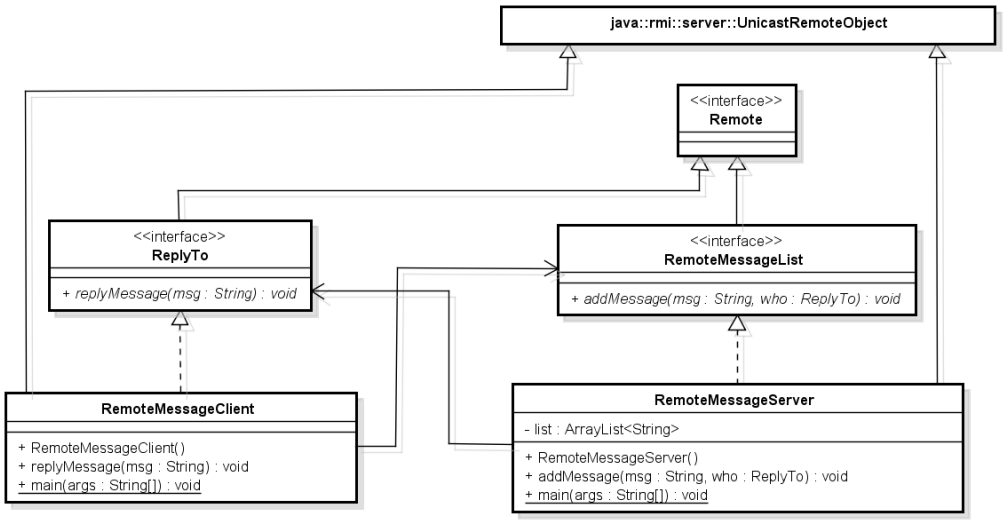


Exercise 07.02

Modify the previous exercise to become an RMI call back system as shown in the class diagram below.

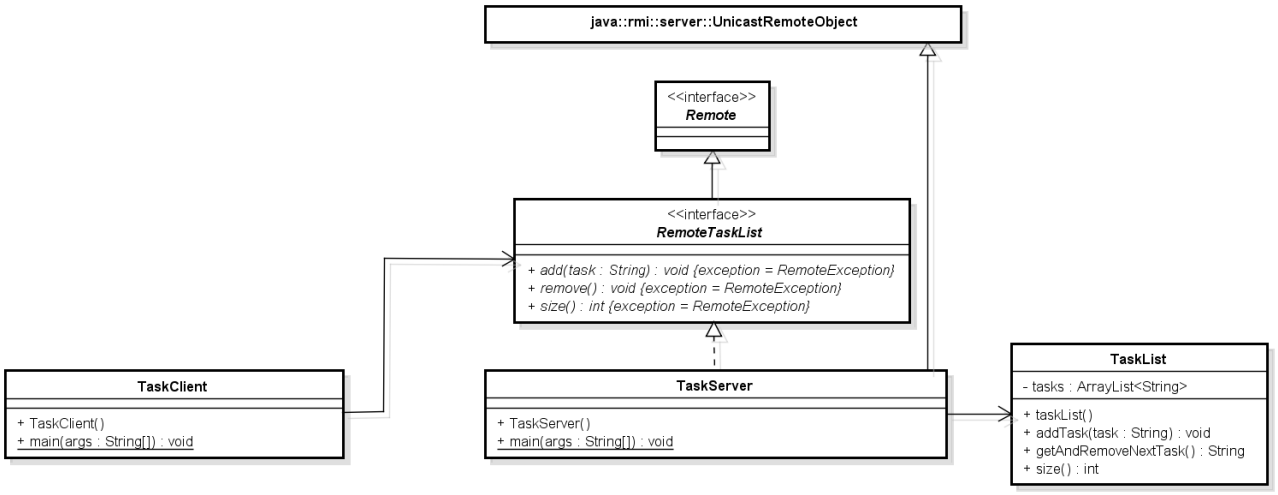
- Method `addMessage` now takes two arguments. In the method add the message to the list, print it out and reply with the message "Thank you"
- Implement the client (`RemoteMessageClient`) to implement an interface `ReplyTo` extending `Remote` and let the class extend `UnicastRemoteObject` (to become a server too). In the method just print out whatever message received.

Note: You only make one lookup in the registry – the server never makes a lookup.



Exercise 07.03

Implement an RMI system where the server has a task list - an ArrayList of Strings (or a Queue from your own implementation) and clients can add a task, get the next (first) task and get the size of the task list. Consider how to avoid concurrency problems.



(Exercise 07.04 – group work: Design an RMI call back system)

Use the previous exercise as basis to design (draw a UML class diagram in Astah) of an RMI callback system. Every time a client is adding a task then every connected clients will get a message that a task has been added.

(Exercise 07.05)

Implement and test the system you designed in the previous exercise.

(Exercise 07.06)

Modify exercise 16.02 to send `Message` objects as defined in the socket chat system from last session instead of sending strings. What if class `Message` do not implement interface `Serializable`?