

Technical Assignment

Instructions:

The code should include a set of unit tests.
The resulting code should be easy to run in order to test it.

Problem:

Design and implement (in java) a service monitoring class. This monitor will be used to monitor the status of multiple services.

A service is defined as a host/port combination. To check if a service is up, the monitor will establish a TCP connection to the host on the specified port.

If a connection is established, the service is up. If the connection is refused, the service is not up.

The monitor will allow callers to register interest in a service, and a polling frequency. The callers will be notified when the service goes up and down.

The monitor should detect multiple callers registering interest in the same service, and should not poll any service more frequently than once a second.

The monitor should allow callers to register a planned service outage. The caller will specify a start and end time for which no notifications for that service will be delivered.

The monitor should allow callers to define a grace time that applies to all services being monitored. If a service is not responding, the monitor will wait for the grace time to expire before notifying any clients. If the service goes back on line during this grace time, no notification will be sent. If the grace time is less than the polling frequency, the monitor should schedule extra checks of the service.