Lab 10 - Networking - Client/Server

This lab contains in-class exercises related to networking in Java. Before starting solving these exercises, one is advised to review `java.net.ServerSocket` and `java.net.Socket` classes.

Task 1: Develop a class to determine all the IP addresses of a host, given the host's name.

Task 2: Develop a program called `ReadSites` that takes as command line parameters the URL strings (without protocol, i.e. http://). The program must print the content of all sites entry point (index.html or similar for each site).

Task 3: Develop a "Echo" multi-threaded server. The server structure is given here:

```java
public class ThreadedEchoServer {

    public static void main(String[] args) throws IOException {
        ServerSocket s = null;
        try {
            s = new ServerSocket(7777);
            int i = 0;

            for (; ; ) {
                Socket incoming = s.accept();
                System.out.println("Spawning " + i++);
                new ThreadedEchoHandler(incoming, i).start();
            }

        } catch (Exception e) {
            System.out.println(e);
        } finally {
            s.close();
        }
    }
}
```

Study first the `Echo` server. You need to implement the thread class `ThreadedEchoHandler`

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Task 4: In the observer example provided, replace the `OnlineLearner` and `InclassLearner` class with the generic class

```
public class Learner<L> {
   ...
}
```

What else needs to be changed? Refactor the given example so that you can create three learner types.