

Web Page Update Notifier
Due Apr 5, 23:59

There are times that one would like to know when a web page has been updated. We will build a small system to notify people when web pages have been updated.

1. In Java use the `java.net.URL` class and the `getLastModified()` method in `URLConnection` class to retrieve the last modified date of a web page. That is when the last modified date of the web page changes or is more recent than a given time. Below is an example of using the `URL` and `URLConnection` classes.

```
URL address = new URL("http://www.eli.sdsu.edu/");
URLConnection connect = address.openConnection();
long time = connect.getLastModified();
Date modifiedDate = new Date(time);
System.out.println(modifiedDate.toString());
```

2. When a web page has been modified broadcast the change to observers. For this assignment an observer will be specific to a url. That is an observer for page A will only do something when page A changes. We will use two different type of observers. The first type will print a notification to the standard output. The second type will send an email message. (See <http://www.javacommerce.com/displaypage.jsp?name=javamail.sql&id=18274> for an example of sending email or <http://java.sun.com/developer/onlineTraining/JavaMail/contents.html> for more detailed tutorial. See <http://www.oracle.com/technetwork/java/javamail/downloads-137827.html> to download JavaMail.)
3. One problem is that web pages don't change each time you wish to test your program. So we will use factory method and mock objects. Create a factory method that returns a `URL` object (or a `URLConnection` object). Create a subclass that returns a mock object for the `URL` object. The mock `URL` object will return a mock `URLConnection` object. The mock `URLConnection` object returns the proper value for the `getLastModified()` method. See <http://code.google.com/p/mockito/> for more information on mock objects.
4. For the program to be useful it needs to run continuously. This increases that the program or OS may crash while the program is running. Use the memento pattern to save the state of your program to a file. When the program starts up it can recover its last state from the file.

Grading

	Percent of Grade
Working Code	15%
Unit Tests	15%
Quality of Code	20%
Proper implementation of Patterns	50%

What to Turn in

Turn in hard copy of your code.

Late Policy

An assignment turned in 1-7 days late, will lose 3% of the total value of the assignment per day late. The eighth day late the penalty will be 40% of the assignment, the ninth day late the penalty will be 60%, after the ninth day late the penalty will be 90%. Once a solution to an assignment has been posted or discussed in class, the assignment will no longer be accepted. Late penalties are always rounded up to the next integer value.