
練習 非同步處裡

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Lab

- 建立AsyncTest專案
- 新增Comment.java Servlet
 - 使用標註設定Servlet支援非同步操作
 - 宣告一字串陣列屬性comment
 - 內容為 {"wonderful", "unexpected", "strange", "elegant"}
 - 修改processRequest()方法
 - 啟動非同步操作,取得一AsyncContext物件
 - 宣告一區域常數參考AsyncContext物件
 - 啟動一個執行緒執行指定的Runnable物件

Lab

- 以匿名類別方式建立Runnale物件, run()內容如下:
 - 由AsyncContext物件取得Request, Response物件
 - 暫停2~15秒
 - 由comment陣列中隨機取得一字串串回
 - 呼叫AsyncContext物件complete(), 完成非同步操作回應
- 測試Update非同步Servlet
 - 執行 `http://localhost:8080/AsyncTest/Update`

Lab

- 編輯index.jsp

- HTML body中輸入

<h3>Hello!</h3>

<p>Oh my, that was... let me think...!</p>

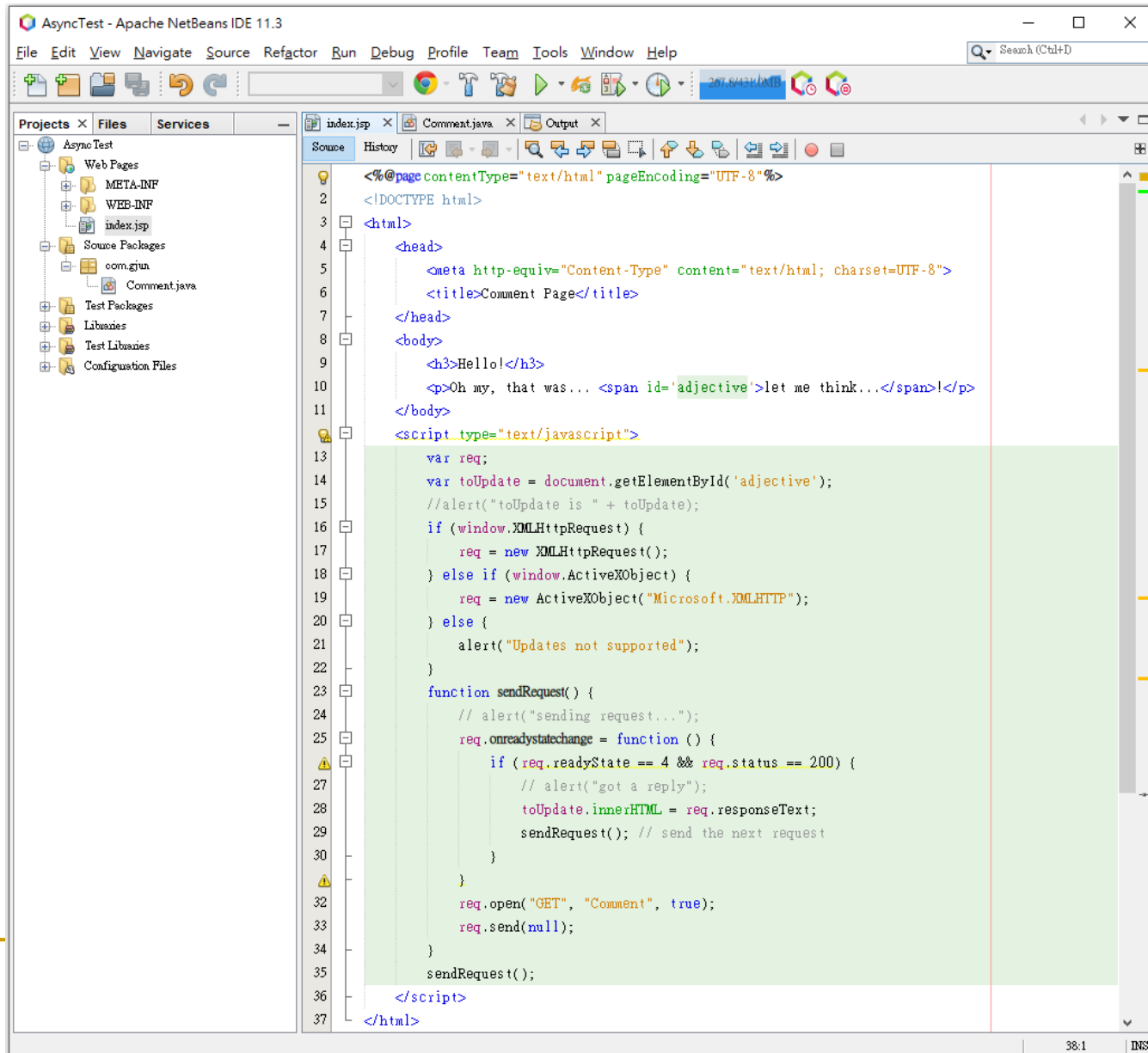
- 建立JavaScript區段在</body>之後

- 宣告兩個變數 req 及 toUpdate
 - toUpdate使用document.getElementById()取得‘adjective’標籤值
 - 建構非同步物件req：使用XMLHttpRequest或ActiveXObject

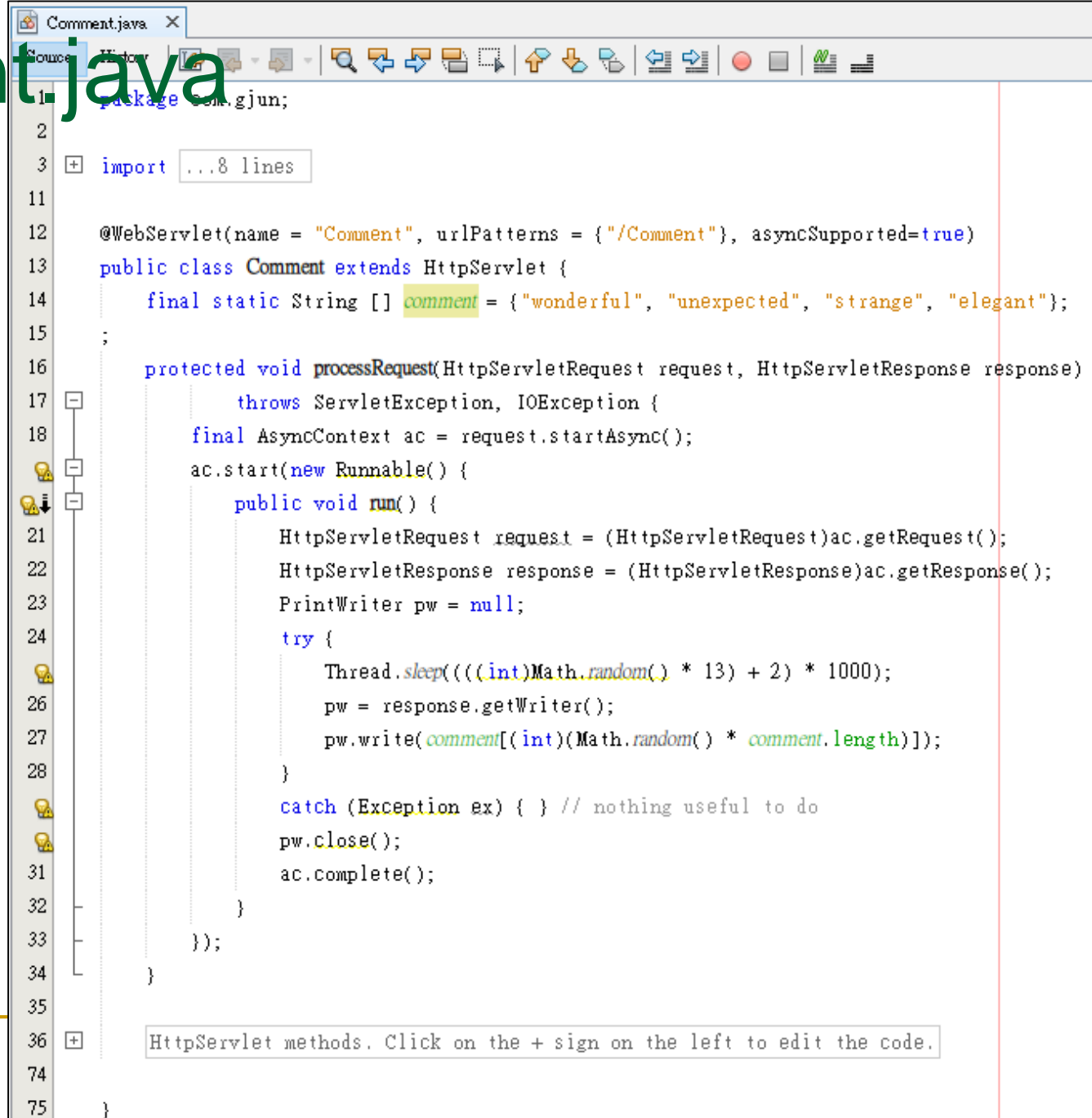
Lab

- 宣告sendRequest(),其中宣告onreadystatechange事件處理
 - 當readystatechange狀態值改變時,檢查readystatechange是否為4, status是否為200
 - 以非同步物件req的回應文字(responseText),作為toUpdate元素('adjective'標籤)的HTML內容
 - 發送一個非同步伺服器請求
 - open()方法 : HTTP方法為Get,URL為Update
 - send()方法
- 呼叫sendRequest()方法
- 測試、執行

AsyncTest 專案



Comment.java



```
1 package com.gjun;
2
3 import ...8 lines
4
11
12 @WebServlet(name = "Comment", urlPatterns = {"/Comment"}, asyncSupported=true)
13 public class Comment extends HttpServlet {
14     final static String [] comment = {"wonderful", "unexpected", "strange", "elegant"};
15
16     protected void processRequest(HttpServletRequest request, HttpServletResponse response)
17         throws ServletException, IOException {
18         final AsyncContext ac = request.startAsync();
19         ac.start(new Runnable() {
20             public void run() {
21                 HttpServletRequest request = (HttpServletRequest)ac.getRequest();
22                 HttpServletResponse response = (HttpServletResponse)ac.getResponse();
23                 PrintWriter pw = null;
24                 try {
25                     Thread.sleep((((int)Math.random() * 13) + 2) * 1000);
26                     pw = response.getWriter();
27                     pw.write(comment[(int)(Math.random() * comment.length)]);
28                 }
29                 catch (Exception ex) { } // nothing useful to do
30                 pw.close();
31                 ac.complete();
32             }
33         });
34     }
35
36     HttpServlet methods. Click on the + sign on the left to edit the code.
37
74
75 }
```

index.jsp

```
index.jsp
Source History
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>Comment Page</title>
  </head>
  <body>
    <h3>Hello!</h3>
    <p>Oh my, that was... <span id='adjective'>let me think...</span>!</p>
  </body>
  <script type="text/javascript">
    var req;
    var toUpdate = document.getElementById('adjective');
    //alert("toUpdate is " + toUpdate);
    if (window.XMLHttpRequest) {
      req = new XMLHttpRequest();
    } else if (window.ActiveXObject) {
      req = new ActiveXObject("Microsoft.XMLHTTP");
    } else {
      alert("Updates not supported");
    }
    function sendRequest() {
      // alert("sending request...");
      req.onreadystatechange = function () {
        if (req.readyState == 4 && req.status == 200) {
          // alert("got a reply");
          toUpdate.innerHTML = req.responseText;
          sendRequest(); // send the next request
        }
      }
      req.open("GET", "Comment", true);
      req.send(null);
    }
    sendRequest();
  </script>
</html>
```


測試、執行

