

Core Servlets and JavaServer Pages / 2e

Volume 1: Core Technologies

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**Generating the
Server Response:
HTTP Status Codes**

Agenda

- **Format of the HTTP response**
- **How to set status codes**
- **What the status codes are good for**
- **Shortcut methods for redirection and error pages**
- **A servlet that redirects users to browser-specific pages**
- **A front end to various search engines**

HTTP Request/Response

- Typical Request

```
GET /servlet/SomeName HTTP/1.1
Host: ...
Header2: ...
...
HeaderN:
(Blank Line)
```

- Typical Response

```
HTTP/1.1 200 OK
Content-Type: text/html
Header2: ...
...
HeaderN: ...
(Blank Line)
<!DOCTYPE ...>
<HTML>
<HEAD>...</HEAD>
<BODY>
...
</BODY></HTML>
```

HTTP Request/Response

- **The status line consists of**
 - the HTTP version (HTTP/1.1)
 - The status code (200)
 - Short message corresponding to the status code (OK)
- **In most cases, the headers are optional except for Content-Type which specifies the MIME type of the document**
 - Some responses don't contain a document, particularly if there is some type of failure

Setting Status Codes

- **response.setStatus(int statusCode)**
 - Status line of HTTP response comes before anything else so set the status code *before* returning any content with the PrintWriter
 - Use constants in HttpServletResponse, not an explicit int.
 - e.g., SC_OK, SC_NOT_FOUND, etc.
- **response.sendError(int code, String message) throws java.io.IOException**
 - sends an error response to the client using the specified status code (usually 404) and descriptive message.
 - The server generally creates the response to look like a normal server error page. Wraps message inside small HTML document
- **response.sendRedirect(String url) throws java.io.IOException**
 - Sets status code to 302
 - Sends a temporary redirect response to the client using the specified redirect location URL.
 - Sets Location response header also

Common HTTP 1.1 Status Codes

- **200 SC_OK**
 - Everything is fine; document follows.
 - Default for servlets.
- **204 SC_NO_CONTENT**
 - Browser should keep displaying previous document.
- **301 (SC_MOVED_PERMANENTLY)**
 - Requested document permanently moved elsewhere (indicated in Location header).
 - Browsers go to new location automatically.

Common HTTP 1.1 Status Codes (Continued)

- **302 SC_MOVED_TEMPORARILY (Found)**
 - Requested document temporarily moved elsewhere (indicated in Location header).
 - In HTTP 1.0 the message was Moved Temporarily instead of Found
 - Browsers go to new location automatically.
 - Servlets should use sendRedirect, not setStatus, when setting this header.
- **401 SC_UNAUTHORIZED**
 - Browser tried to access password-protected page without proper Authorization header.
- **404 SC_NOT_FOUND**
 - No such page. Servlets should use sendError to set this.
 - Problem: Internet Explorer 5 and later ignore this message and displays its own static and relatively useless message (against HTTP specs)
 - Can be turned off in Advanced tab under Internet Options

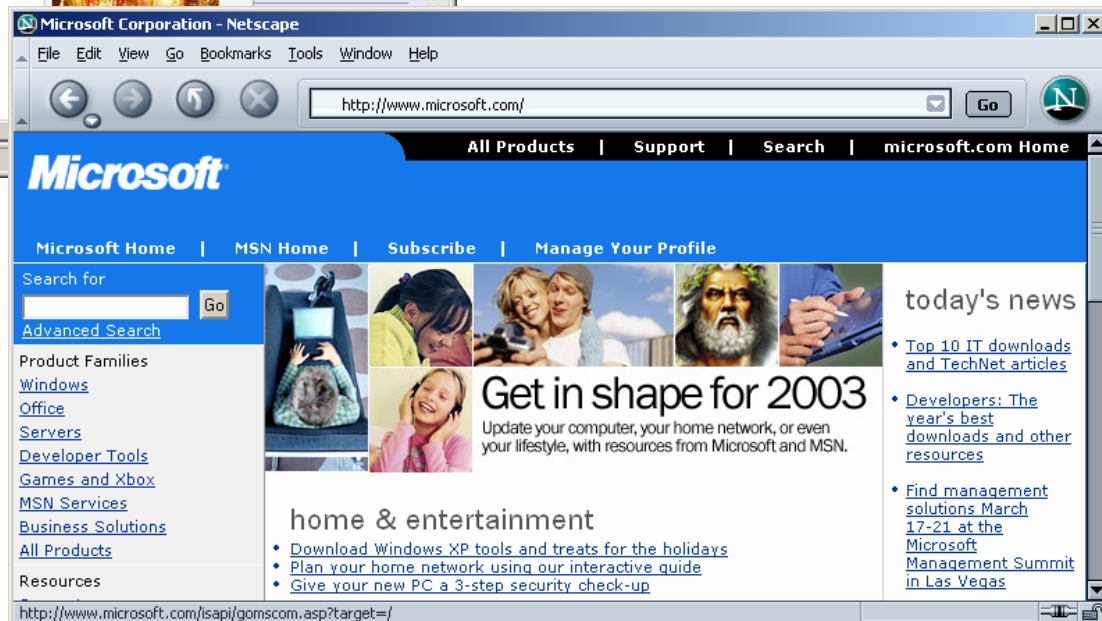
A Servlet That Redirects Users to Browser-Specific Pages

```
// Servlet sends IE users to the Netscape homepage
// and all other users to the Microsoft homepage

public class WrongDestination extends HttpServlet {
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response)
        throws ServletException, IOException {
        String userAgent = request.getHeader("User-Agent");
        // Internet Explorer is the only browser that contains
        // MSIE in the User-Agent header

        if ((userAgent != null) &&
            (userAgent.indexOf("MSIE") != -1)) {
            response.sendRedirect("http://home.netscape.com");
        } else {
            response.sendRedirect("http://www.microsoft.com");
        }
    }
}
```


A Servlet That Redirects Users to Browser-Specific Pages



A Front End to Various Search Engines

- **Allow user to enter search string and then select a search engine from a list**
- **SearchEngineForm creates web page for user to enter search string and select search engine**
 - parameters: searchString and searchEngine
 - action performed by doGet in SearchEngine
- **SearchEngine verifies each parameter**
 - if null or length < 0 then invokes reportProblem which invokes sendError
 - if parameters OK, invokes makeURL in SearchUtilities which concatenates searchString to the base URL for each engine
 - This value is returned to SearchEngines which invokes sendRedirect with the specific URL for the requested search engine

A Front End to Various Search Engines

```
public class SearchEngines extends HttpServlet {
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response)
        throws ServletException, IOException {
        String searchString =
            request.getParameter("searchString");
        if ((searchString == null) ||
            (searchString.length() == 0)) {
            reportProblem(response, "Missing search string");
            return;
        }
        searchString = URLEncoder.encode(searchString);
        String searchEngineName =
            request.getParameter("searchEngine");
        if ((searchEngineName == null) ||
            (searchEngineName.length() == 0)) {
            reportProblem(response, "Missing search engine name");
            return;
        }
    }
}
```

A Front End to Various Search Engines (Continued)

```
String searchURL =
    SearchUtilities.makeURL(searchEngineName,
                           searchString);

if (searchURL != null) {
    response.sendRedirect(searchURL);
} else {
    reportProblem(response, "Unrecognized search engine");
}
}

private void reportProblem(HttpServletRequestResponse response,
                           String message)
    throws IOException {
    response.sendError(response.SC_NOT_FOUND, message);
}
}
```

A Front End to Various Search Engines (Continued)

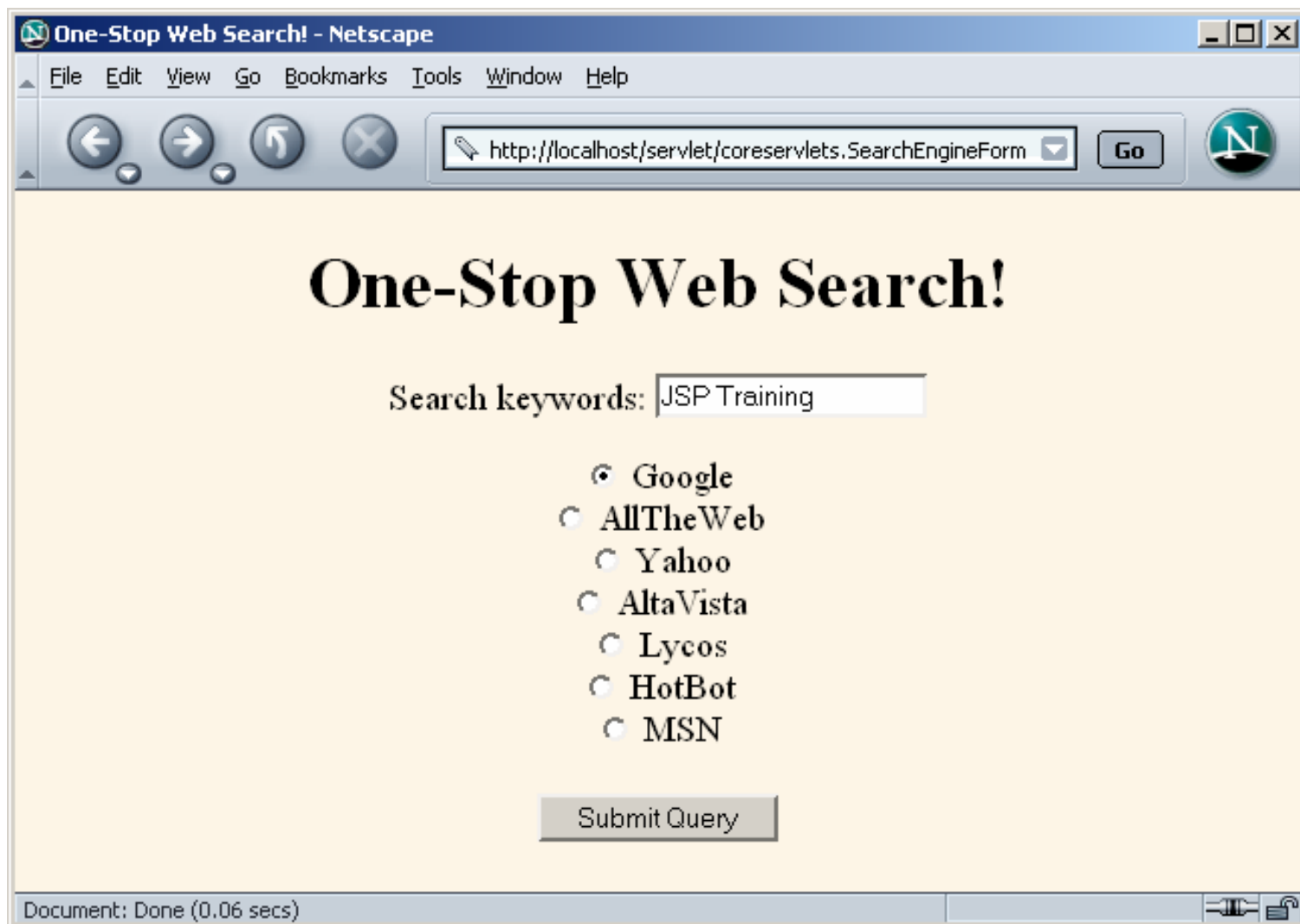
```
public class SearchSpec {  
  
    /** Builds a URL for the results page by  
     * simply concatenating the base URL  
     * (http://...?someVar=") with the  
     * URL-encoded search string  
     */  
    private String name, baseURL;  
  
    public SearchSpec(String name,  
                      String baseURL) {  
        this.name = name;  
        this.baseURL = baseURL;  
    }  
    public String makeURL(String searchString) {  
        return(baseURL + searchString);  
    }  
}
```

```
...  
}
```

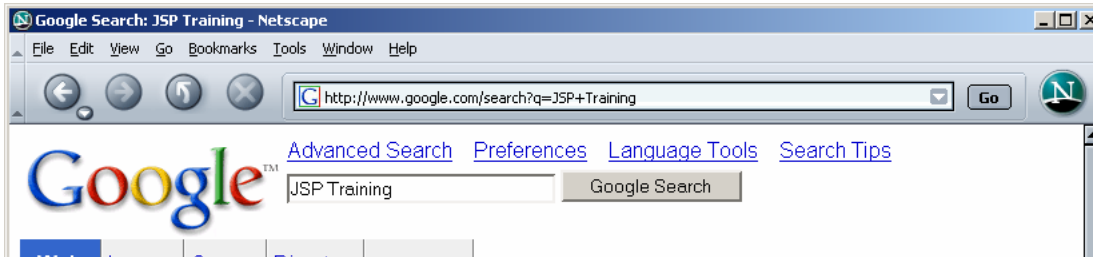
A Front End to Various Search Engines (Continued)

```
private static SearchSpec[] commonSpecs =
{ new SearchSpec("Google",
  "http://www.google.com/search?q="),
  new SearchSpec("AllTheWeb",
  "http://www.alltheweb.com/search?q="),
  new SearchSpec("Yahoo",
  "http://search.yahoo.com/bin/search?p="),
  new SearchSpec("AltaVista",
  "http://www.altavista.com/web/results?q="),
  new SearchSpec("Lycos",
  "http://search.lycos.com/default.asp?query="),
  new SearchSpec("HotBot",
  "http://hotbot.com/default.asp?query="),
  new SearchSpec("MSN",
  "http://search.msn.com/results.asp?q="),
};
```

Front End to Search Engines: HTML Form



Front End to Search Engines: Result for Valid Data



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Front End to Search Engines: Result for Invalid Data

