```java
 1 import javax.servlet.ServletContextEvent;
 2 import javax.servlet.ServletContextListener;
 3 import javax.servlet.annotation.WebListener;
 4 import javax.servlet.http.
   HttpSessionAttributeListener;
 5 import javax.servlet.http.HttpSessionEvent;
 6 import javax.servlet.http.HttpSessionListener;
 7 import javax.servlet.http.HttpSessionBindingEvent;
 8 import java.util.ArrayList;
 9
10 @WebListener()
11 public class MyListener implements
   ServletContextListener,
12         HttpSessionListener,
   HttpSessionAttributeListener {
13
14     // Public constructor is required by servlet
   spec
15     public MyListener() {
16     }
17
18
   // ---------------------------------------------------
   -------
19     // ServletContextListener implementation
20
   // ---------------------------------------------------
   -------
21     public void contextInitialized(
   ServletContextEvent sce) {
22         /* This method is called when the servlet
   context is
23             initialized(when the Web application is
```

```java
23 deployed).
24          You can initialize servlet context related
   data here.
25      */
26
27      // Get users from database.
28      ArrayList<User> users = DatabaseTools.
   selectAllUsers();
29
30      // Get servlet context from event object and
   set array list of users as attribute.
31      sce.getServletContext().setAttribute("users",
    users);
32
33    }
34
35    public void contextDestroyed(
   ServletContextEvent sce) {
36      /* This method is invoked when the Servlet
   Context
37          (the Web application) is undeployed or
38          Application Server shuts down.
39      */
40    }
41
42
   // ----------------------------------------------------
   -------
43    // HttpSessionListener implementation
44
   // ----------------------------------------------------
   -------
45    public void sessionCreated(HttpSessionEvent se)
```

```java
45    {
46            /* Session is created. */
47        }
48
49      public void sessionDestroyed(HttpSessionEvent
   se) {
50            /* Session is destroyed. */
51        }
52
53
   // ----------------------------------------------
      -------
54      // HttpSessionAttributeListener implementation
55
   // ----------------------------------------------
      -------
56
57      public void attributeAdded(
   HttpSessionBindingEvent sbe) {
58        /* This method is called when an attribute
59            is added to a session.
60        */
61        }
62
63      public void attributeRemoved(
   HttpSessionBindingEvent sbe) {
64        /* This method is called when an attribute
65            is removed from a session.
66        */
67        }
68
69      public void attributeReplaced(
   HttpSessionBindingEvent sbe) {
```

```
70          /* This method is invoked when an attibute
71             is replaced in a session.
72          */
73      }
74  }
75
```