

Monitor.java

```
1 package analytics;
2
3 import java.util.ArrayList;
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16
17
18
19
20 /**
21  * Application Lifecycle Listener implementation class Monitor
22  *
23  */
24 @WebListener
25 public class Monitor implements
26     HttpSessionListener, ServletRequestListener
27 {
28     public Monitor()
29     {
30     }
31
32     public void sessionCreated(HttpSessionEvent se)
33     {
34         attachOrder (se);
35         addUser(se);
36     }
37     //attach Order Object for the new session(new user)
38     private void attachOrder(HttpSessionEvent se)
39     {
40         //attach order (shopping cart) object to Session context
41         HttpSession session = se.getSession();
42         List<ItemBean> items = new ArrayList<ItemBean>();
43         OrderBean order = new OrderBean(items);
44         session.setAttribute(AnalyticEngine.ORDER, order);
45     }
46     //Add the new session/user to the list of 'userActivity' stored in
47     //Servlet context
48     private void addUser(HttpSessionEvent se)
49     {
50         //Add client to list of "clients" in ServletContext to monitor all
51         //users activity
52         ServletContext servlet = se.getSession().getServletContext();
53         if (servlet.getAttribute(AnalyticEngine.CLIENTS) == null)
54         {
55             servlet.setAttribute(AnalyticEngine.CLIENTS, new HashMap<String,
56                 UserActivity>());
57         }
58         @SuppressWarnings("unchecked")
59         Map<String, UserActivity> clients = (Map<String,
60             UserActivity>)servlet.getAttribute("clients");
61         clients.put(se.getSession().getId(),
62             new UserActivity(se.getSession().getId(),
```

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        System.currentTimeMillis()));
60    }
61
62
63    public void requestInitialized(ServletRequestEvent sre)
64    {
65        //check if it is addItem Request
66        HttpServletRequest request = (HttpServletRequest)
sre.getServletRequest();
67        if(request.getParameter("select_item")!= null)
68            logAddItem(sre);
69    }
70
71    //to log the adding of item by a user;
72    private void logAddItem(ServletRequestEvent sre)
73    {
74        ServletContext servlet = sre.getServletContext();
75        String id = ((HttpServletRequest) sre.getServletRequest()).getSession
76        ().getId();
77        @SuppressWarnings("unchecked")
78        Map<String, UserActivity> users =
79        (Map<String, UserActivity>)servlet.getAttribute
80        (AnalyticEngine.CLIENTS);
81        UserActivity user = users.get(id);
82        user.logAddItem(System.currentTimeMillis());
83    }
84
85    private void logCheckOut(ServletRequestEvent sre)
86    {
87        //TODO: has not implemented the invoking of checkout event.
88        ServletContext server = sre.getServletContext();
89        @SuppressWarnings("unchecked")
90        Map<String, UserActivity> users =
91        (Map<String, UserActivity>) server.getAttribute
92        (AnalyticEngine.CLIENTS);
93        UserActivity user = users.get
94        (((HttpServletRequest)sre.getServletRequest()).getSession().getId());
95        user.checkoutTime = System.currentTimeMillis();
96    }
97 }
```