

## Monitor.java

```
1 package analytics;
2
3 import java.util.ArrayList;
4
5
6
7
8
9
10
11
12
13
14 /**
15  * Application Lifecycle Listener implementation class Monitor
16  *
17  */
18 @WebListener
19 public class Monitor implements ServletContextListener,
20     ServletContextAttributeListener, HttpSessionListener,
21     HttpSessionAttributeListener, HttpSessionActivationListener,
22     HttpSessionBindingListener, HttpSessionIdListener,
23     ServletRequestListener, ServletRequestAttributeListener,
24     AsyncListener {
25
26     /**
27      * Default constructor.
28      */
29     public Monitor() {
30         // TODO Auto-generated constructor stub
31     }
32
33     /**
34      * @see HttpSessionListener#sessionCreated(HttpSessionEvent)
35      */
36     public void sessionCreated(HttpSessionEvent se) {
37         // TODO Auto-generated method stub
38         List<Item> items = new ArrayList<Item>();
39         se.getSession().setAttribute("order", new Order(items));
40         se.getSession().setAttribute("orders", new
41             ArrayList<String>());
42         se.getSession().setAttribute("AUTH", new Account());
43         se.getSession().setAttribute("startTime", new Date());
44     }
45
46     /**
47      * @see
48      ServletContextAttributeListener#attributeRemoved(ServletContextAtt
49      ributeEvent)
50      */
51     public void attributeRemoved(ServletContextAttributeEvent
52 scae) {
53         // TODO Auto-generated method stub
54     }
55 }
```

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```
65     }
66
67     /**
68      * @see AsyncListener#onError(AsyncEvent)
69      */
70     public void onError(AsyncEvent arg0) throws
java.io.IOException {
71         // TODO Auto-generated method stub
72     }
73
74     /**
75      * @see
76      HttpSessionIdListener#sessionIdChanged(HttpSessionEvent, String)
77      */
77     public void sessionIdChanged(HttpSessionEvent arg0, String
arg1) {
78         // TODO Auto-generated method stub
79         if (arg0.getSession().getAttribute("orders") == null) {
80             arg0.getSession().setAttribute("orders", new
ArrayList<String>());
81         }
82
83         if (arg0.getSession().getAttribute("order") == null) {
84             List<Item> items = new ArrayList<Item>();
85             arg0.getSession().setAttribute("order", new Order(items));
86         }
87
88         if (arg0.getSession().getAttribute("AUTH") == null) {
89             arg0.getSession().setAttribute("AUTH", new Account());
90         }
91
92         if (arg0.getSession().getAttribute("startTime") == null) {
93             arg0.getSession().setAttribute("startTime", new Date());
94         }
95     }
96
97     /**
98      * @see
99      ServletRequestAttributeListener#attributeAdded(ServletRequestAttri
buteEvent)
100     */
100     public void attributeAdded(ServletRequestAttributeEvent srae)
{
101         // TODO Auto-generated method stub
```

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```
102     }
103
104     /**
105      * @see AsyncListener#onTimeout(AsyncEvent)
106      */
107     public void onTimeout(AsyncEvent arg0) throws
108     java.io.IOException {
109         // TODO Auto-generated method stub
110     }
111
112     /**
113      * @see
114      * HttpSessionAttributeListener#attributeReplaced(HttpSessionBindingE
115      * vent)
116      */
117     public void attributeReplaced(HttpSessionBindingEvent se) {
118         // TODO Auto-generated method stub
119     }
120
121     /**
122      * @see
123      * HttpSessionActivationListener#sessionWillPassivate(HttpSessionEven
124      * t)
125      */
126     public void sessionWillPassivate(HttpSessionEvent se) {
127         // TODO Auto-generated method stub
128     }
129
130     /**
131      * @see
132      * ServletContextListener#contextInitialized(ServletContextEvent)
133      */
134     public void contextInitialized(ServletContextEvent sce) {
135         // TODO Auto-generated method stub
136     }
137
138     /**
139      * @see
140      * ServletContextAttributeListener#attributeAdded(ServletContextAttri
141      * buteEvent)
142      */
143     public void attributeAdded(ServletContextAttributeEvent event)
144     {
145         // TODO Auto-generated method stub
146     }
```

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```

137     }
138
139     /**
140      * @see AsyncListener#onComplete(AsyncEvent)
141      */
142     public void onComplete(AsyncEvent event) throws
java.io.IOException {
143         // TODO Auto-generated method stub
144     }
145
146     /**
147      * @see
ServletRequestListener#requestDestroyed(ServletRequestEvent)
148      */
149     public void requestDestroyed(ServletRequestEvent sre) {
150         // TODO Auto-generated method stub
151     }
152
153     /**
154      * @see
ServletRequestAttributeListener#attributeRemoved(ServletRequestAtt
ributeEvent)
155      */
156     public void attributeRemoved(ServletRequestAttributeEvent
srae) {
157         // TODO Auto-generated method stub
158     }
159
160     /**
161      * @see AsyncListener#onStartAsync(AsyncEvent)
162      */
163     public void onStartAsync(AsyncEvent event) throws
java.io.IOException {
164         // TODO Auto-generated method stub
165     }
166
167     /**
168      * @see
HttpSessionBindingListener#valueBound(HttpSessionBindingEvent)
169      */
170     public void valueBound(HttpSessionBindingEvent event) {
171         // TODO Auto-generated method stub
172     }
173

```

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```
174     /**
175      * @see
ServletRequestListener#requestInitialized(ServletRequestEvent)
176      */
177     public void requestInitialized(ServletRequestEvent sre) {
178         HttpServletRequest req = (HttpServletRequest)
sre.getServletRequest();
179         HttpSession currentSession = req.getSession();
180
181         if (req.getAttribute("users") == null) {
182             req.setAttribute("users", new HashMap<String, long[]>());
183         }
184
185         if (req.getAttribute("poDir") == null) {
186             req.setAttribute("poDir",
req.getServletContext().getRealPath("/POs"));
187         }
188
189         if (currentSession.getAttribute("order") == null) {
190             List<Item> items = new ArrayList<Item>();
191             currentSession.setAttribute("order", new Order(items));
192         }
193
194         if (currentSession.getAttribute("AUTH") == null) {
195             currentSession.setAttribute("AUTH", new Account());
196         }
197
198         if (currentSession.getAttribute("orders") == null) {
199             currentSession.setAttribute("orders", new
ArrayList<String>());
200         }
201
202         ComputeAnalytics.computeUsersAnalytics(req);
203         ComputeAnalytics.computeOrders(req);
204         ComputeAnalytics.addUserOrders(req);
205         ComputeAnalytics.computeAvgStartCheckoutTime(req);
206         ComputeAnalytics.computeAvgAddToCartTime(req);
207     }
208
209     /**
210      * @see HttpSessionListener#sessionDestroyed(HttpSessionEvent)
211      */
212     public void sessionDestroyed(HttpSessionEvent se) {
213         // TODO Auto-generated method stub
```

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```
214     }
215
216     /**
217     * @see
218     HttpSessionActivationListener#sessionDidActivate(HttpSessionEvent)
219     */
219     public void sessionDidActivate(HttpSessionEvent se) {
220         // TODO Auto-generated method stub
221     }
222
223     /**
224     * @see
225     ServletContextListener#contextDestroyed(ServletContextEvent)
226     */
226     public void contextDestroyed(ServletContextEvent sce) {
227         // TODO Auto-generated method stub
228     }
229
230     /**
231     * @see
232     ServletRequestAttributeListener#attributeReplaced(ServletRequestAttributeEvent)
233     */
233     public void attributeReplaced(ServletRequestAttributeEvent srae) {
234         // TODO Auto-generated method stub
235     }
236
237     /**
238     * @see
239     HttpSessionAttributeListener#attributeAdded(HttpSessionBindingEvent)
240     */
240     public void attributeAdded(HttpSessionBindingEvent event) {
241         // TODO Auto-generated method stub
242     }
243
244     /**
245     * @see
246     HttpSessionAttributeListener#attributeRemoved(HttpSessionBindingEvent)
247     */
247     public void attributeRemoved(HttpSessionBindingEvent event) {
248         // TODO Auto-generated method stub
```

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```
249     }
250
251     /**
252     * @see
253     ServletContextAttributeListener#attributeReplaced(ServletContextAt
254     tributeEvent)
255     */
256     public void attributeReplaced(ServletContextAttributeEvent
257     event) {
258         // TODO Auto-generated method stub
259     }
260
261     /**
262     * @see
263     HttpSessionBindingListener#valueUnbound(HttpSessionBindingEvent)
264     */
265     public void valueUnbound(HttpSessionBindingEvent event) {
266         // TODO Auto-generated method stub
267     }
268 }
```