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Question Bank

Chapter : 4. Session Management

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Unit-4: Session Management

Objectives

1. Write servlet code to store objects into a session object and retrieve objects from a session object.

2. Given a scenario describe the APIs used to access the session object, explain when the session object was created, and describe the mechanisms used to destroy the session object, and when it was destroyed.

3. Using session listeners, write code to respond to an event when an object is added to a session, and write code to respond to an event when a session object migrates from one VM to another.

4. Given a scenario, describe which session management mechanism the Web container could employ, how cookies might be used to manage sessions, how URL rewriting might be used to manage sessions, and write servlet code to perform URL rewriting.

Q1. A developer for the company web site has been told that users may turn off cookie support in their browsers. What must the developer do to ensure that these customers can still use the web application?

A. The developer must ensure that every URL is properly encoded using the appropriate URL rewriting APIs.
B. The developer must provide an alternate mechanism for managing sessions and abandon the HttpSession mechanism entirely.
C. The developer can ignore this issue. Web containers are required to support automatic URL rewriting when cookies are not supported.
D. The developer must add the string id=<sessionid> to the end of every URL to ensure that the conversation with the browser can continue.

Answer: A

Q2. As a convenience feature, your web pages include an Ajax request every five minutes to a special servlet that monitors the age of the user's session. The client-side JavaScript that handles the Ajax callback displays a message on the screen as the session ages. The Ajax call does NOT pass any cookies, but it passes the session ID in a request parameter called sessionID. In addition, assume that your webapp keeps a hashmap of session objects by the ID. Here is a partial implementation of this servlet:

```
10. public class SessionAgeServlet extends HttpServlet {
11. public void service(HttpServletRequest request, HttpServletResponse) throws
IOException {
12. String sessionID = request.getParameter("sessionID");
13. HttpSession session = getSession(sessionID);
14. long age = // your code here
15. response.getWriter().print(age);
16. } ... // more code here
47. }
```

Which code snippet on line 14, will determine the age of the session?

A. session.getMaxInactiveInterval();
B. session.getLastAccessed().getTime() - session.getCreationTime().getTime();
C. session.getLastAccessedTime().getTime() - session.getCreationTime().getTime();
D. session.getLastAccessed() - session.getCreationTime();
E. session.getMaxInactiveInterval() - session.getCreationTime();
F. session.getLastAccessedTime() - session.getCreationTime();

Answer: F

Q3.Which statement is true about web container session management?

A. Access to session-scoped attributes is guaranteed to be thread-safe by the web container.
B. To activate URL rewriting, the developer must use the HttpServletResponse. setURLRewriting method.
C. If the web application uses HTTPS, then the web container may use the data on the HTTPS request stream to identify the client.
D. The JSESSIONID cookie is stored permanently on the client so that a user may return to the web application and the web container will rejoin that session.

Answer: C

Q4. Your company has a corporate policy that prohibits storing a customer's credit card number in any corporate database. However, users have complained that they do NOT want to re-enter their credit card number for each transaction. Your management has decided to use client-side cookies to record the user's credit card number for 120 days. Furthermore, they also want to protect this information during transit from the web browser to the web container; so the cookie must only be transmitted over HTTPS. Which code snippet creates the "creditCard" cookie and adds it to the out going response to be stored on the user's web browser?

A.10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setAge(10368000);
13. response.addCookie(c);

B. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setHttps(true);
12. c.setMaxAge(10368000);
13. response.setCookie(c);

C. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setMaxAge(10368000);
13. response.addCookie(c);

D. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setHttps(true);
12. c.setAge(10368000);
13. response.addCookie(c);

E. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setAge(10368000);

13. response.setCookie(c);
Answer: C

Q5. You need to retrieve the username cookie from an HTTP request. If this cookie does NOT exist, then the c variable will be null. Which code snippet must be used to retrieve this cookie object?

A. 10. Cookie c = request.getCookie("username");

B. 10. Cookie c = null;
11. for (Iterator i = request.getCookies();
12. i.hasNext();) {
13. Cookie o = (Cookie) i.next();
14. if (o.getName().equals("username")) {
15. c = o;
16. break;
17. }
18. }

C. 10. Cookie c = null;
11. for (Enumeration e = request.getCookies();
12. e.hasMoreElements();) {
13. Cookie o = (Cookie) e.nextElement();
14. if (o.getName().equals("username")) {
15. c = o;
16. break;
17. }
18. }

D. 10. Cookie c = null;
11. Cookie[] cookies = request.getCookies();
12. for (int i = 0; i < cookies.length; i++) {
13. if (cookies[i].getName().equals("username")) {
14. c = cookies[i];
15. break;
16. }
17. }
Answer: D

Q6. What is the purpose of session management?
A. To manage the user's login and logout activities.
B. To store information on the client-side between HTTP requests.
C. To store information on the server-side between HTTP requests.
D. To tell the web container to keep the HTTP connection alive so it can make subsequent requests without the
delay of making the TCP connection.

Answer: C

Q7. The Squeaky Beans Inc. shopping application was initially developed for a non-distributed environment. The company recently purchased the Acme Application Server, which supports distributed HttpSession objects. When deploying the application to the server, the deployer marks it as distributable in the web application deployment descriptor to take advantage of this feature.

Given this scenario, which two must be true? (Choose two.)

A. The J2EE web container must support migration of objects that implement Serializable.
B. The J2EE web container must use the native JVM Serialization mechanism for distributing HttpSession objects.
C. As per the specification, the J2EE web container ensures that distributed HttpSession objects will be stored in a database.
D. Storing references to Enterprise JavaBeans components in the HttpSession object might NOT be supported by J2EE web containers.

Answer: A, D

Q8. In your web application, you need to execute a block of code whenever the session object is first created. Which design will accomplish this goal?

A. Create an HttpSessionListener class and implement the sessionInitialized method with that block of code.
B. Create an HttpSessionActivationListener class and implement the sessionCreated method with that block of code.
C. Create a Filter class, call the getSession(false) method, and if the result was null, then execute that block of code.
D. Create an HttpSessionListener class and implement the sessionCreated method with that block of code.
E. Create a Filter class, call the getSession(true) method, and if the result was NOT null, then execute that block of code.

Answer: D

Q9. Which interface must a class implement so that instances of the class are notified after any object is added to a session?

A. javax.servlet.http.HttpSessionListener
B. javax.servlet.http.HttpSessionValueListener
C. javax.servlet.http.HttpSessionBindingListener
D. javax.servlet.http.HttpSessionAttributeListener

Answer: D

Q10. Which method must be used to encode a URL passed as an argument to HttpServletResponse.sendRedirect when using URL rewriting for session tracking?

A. ServletResponse.encodeURL
B. HttpServletResponse.encodeURL
C. ServletResponse.encodeRedirectURL
D. HttpServletResponse.encodeRedirectURL

Answer: D

Q11. Users of your web application have requested that they should be able to set the duration of their sessions. So for example, one user might want a webapp to stay connected for an hour rather than the webapp's default of fifteen minutes; another user might want to stay connected for a whole day. Furthermore, you have a special login servlet that performs user authentication and retrieves the User object from the database. You want to augment this code to set up the user's specified session duration.
Which code snippet in the login servlet will accomplish this goal?

A. User user = // retrieve the User object from the database

session.setDurationInterval(user.getSessionDuration());
B. User user = // retrieve the User object from the database
session.setMaxDuration(user.getSessionDuration());
C. User user = // retrieve the User object from the database
session.setInactiveInterval(user.getSessionDuration());
D. User user = // retrieve the User object from the database
session.setDuration(user.getSessionDuration());
E. User user = // retrieve the User object from the database
session.setMaxInactiveInterval(user.getSessionDuration());
F. User user = // retrieve the User object from the database
session.setMaxDurationInterval(user.getSessionDuration());

Answer: E

Q12. Which two classes or interfaces provide a getSession method? (Choose two.)

A. javax.servlet.http.HttpServletRequest
B. javax.servlet.http.HttpSessionContext
C. javax.servlet.http.HttpServletResponse
D. javax.servlet.http.HttpSessionBindingEvent
E. javax.servlet.http.HttpSessionAttributeEvent

Answer: A, D

Q13.You have built a web application that you license to small businesses. The webapp uses a context parameter, called licenseExtension, which enables certain advanced features based on your client's license package. When a client pays for a specific service, you provide them with a license extension key that they insert into the <context-param> of the deployment descriptor. Not every client will have this context parameter so you need to create a context listener to set up a default value in the licenseExtension parameter. Which code snippet will accomplish this goal?

A. You cannot do this because context parameters CANNOT be altered programmatically.
B. String ext = context.getParameter('licenseExtension');
if (ext == null) {
context.setParameter('licenseExtension', DEFAULT);
}
C. String ext = context.getAttribute('licenseExtension');
if (ext == null) {
context.setAttribute('licenseExtension', DEFAULT);
}
D. String ext = context.getInitParameter('licenseExtension');

```
if ( ext == null ) {
context.resetInitParameter('licenseExtension', DEFAULT);
}
E. String ext = context.getInitParameter('licenseExtension');
if ( ext == null ) {
context.setInitParameter('licenseExtension', DEFAULT);
}
```

Answer: A

Q14. You have a use case in your web application that adds several session-scoped attributes. At the end of the use case, one of these objects, the manager attribute, is removed and then it needs to decide which of the other session-scoped attributes to remove. How can this goal be accomplished?

A. The object of the manager attribute should implement the HttpSessionBindingListener and it should call the removeAttribute method on the appropriate session attributes.

B. The object of the manager attribute should implement the HttpSessionListener and it should call the removeAttribute method on the appropriate session attributes.

C. The object of the manager attribute should implement the HttpSessionBindingListener and it should call the deleteAttribute method on the appropriate session attributes.

D. The object of the manager attribute should implement the HttpSessionListener and it should call the deleteAttribute method on the appropriate session attributes.

Answer: A

Q15. Your web site has many user-customizable features, for example font and color preferences on web pages. Your IT department has already built a subsystem for user preferences using Java SE's lang.util.prefs package APIs and you have been

ordered to reuse this subsystem in your web application. You need to create an event listener that stores the user's Preference object when an HTTP session is created. Also, note that user identification information is stored in an HTTP cookie.

Which partial listener class can accomplish this goal?

A. public class UserPrefLoader implements HttpSessionListener {
public void sessionCreated(HttpSessionEvent se) {
MyPrefsFactory myFactory = (MyPrefsFactory)
se.getServletContext().getAttribute("myPrefsFactory");
User user = getUserFromCookie(se);
myFactory.setThreadLocalUser(user);
Preferences userPrefs = myFactory.userRoot();
se.getSession().setAttribute("prefs", userPrefs);
}
// more code here
}
B. public class UserPrefLoader implements SessionListener {
public void sessionCreated(SessionEvent se) {
MyPrefsFactory myFactory = (MyPrefsFactory)
se.getContext().getAttribute("myPrefsFactory");
User user = getUserFromCookie(se);
myFactory.setThreadLocalUser(user);
Preferences userPrefs = myFactory.userRoot();
se.getSession().addAttribute("prefs", userPrefs);
}
// more code here
}
C. public class UserPrefLoader implements HttpSessionListener {
public void sessionInitialized(HttpSessionEvent se) {
MyPrefsFactory myFactory = (MyPrefsFactory)
se.getServletContext().getAttribute("myPrefsFactory");
User user = getUserFromCookie(se);
myFactory.setThreadLocalUser(user);
Preferences userPrefs = myFactory.userRoot();
se.getHttpSession().setAttribute("prefs", userPrefs);
}
// more code here
}
D. public class UserPrefLoader implements SessionListener {
public void sessionInitialized(SessionEvent se) {
MyPrefsFactory myFactory = (MyPrefsFactory)
se.getServletContext().getAttribute("myPrefsFactory");
User user = getUserFromCookie(se);

```
myFactory.setThreadLocalUser(user);
Preferences userPrefs = myFactory.userRoot();
se.getSession().addAttribute("prefs", userPrefs);
}
// more code here
}
```

Answer: A

Q16. For which three events can web application event listeners be registered?(Choose three.)

A. when a session is created
B. after a servlet is destroyed
C. when a session has timed out
D. when a cookie has been created
E. when a servlet has forwarded a request
F. when a session attribute value is changed

Answer: A, C, F

Q17. Given an HttpServletRequest request:

22. String id = request.getParameter("jsessionid");
23. // insert code here
24. String name = (String) session.getAttribute("name");
Which three can be placed at line 23 to retrieve an existing HttpSession object? (Choose three.)

A. HttpSession session = request.getSession();
B. HttpSession session = request.getSession(id);
C. HttpSession session = request.getSession(true);
D. HttpSession session = request.getSession(false);
E. HttpSession session = request.getSession("jsessionid");

Answer: A, C, D

Q18. A developer for the company web site has been told that users may turn off cookie support in their browsers. What must the developer do to ensure that these customers can still use the web application?

A. The developer must ensure that every URL is properly encoded using the appropriate URL rewriting APIs.
B. The developer must provide an alternate mechanism for managing sessions and abandon the HttpSession mechanism entirely.
C. The developer can ignore this issue. Web containers are required to support automatic URL rewriting when cookies are not supported.
D. The developer must add the string ?id=<sessionid> to the end of every URL to ensure that the conversation with the browser can continue.

Answer: A

Q19. Given the definition of MyObject and that an instance of MyObject is bound as a session attribute:

```
8. package com.example;
9. public class MyObject implements
10. javax.servlet.http.HttpSessionBindingListener {
11. // class body code here
12. }
```

Which is true?

A. Only a single instance of MyObject may exist within a session.
B. The unbound method of the MyObject instance is called when the session to which it is bound times out.
C. The com.example.MyObject must be declared as a servlet event listener in the web application deployment descriptor.
D. The valueUnbound method of the MyObject instance is called when the session to which it is bound times out.

Answer: D

Q 20. As a convenience feature, your web pages include an Ajax request every five minutes to a special servlet that monitors the age of the user's session. The client-side JavaScript that handles the Ajax callback displays a message on the screen as the session ages. The Ajax call does NOT pass any cookies, but it passes the session ID in a request parameter called sessionID. In addition, assume that your webapp keeps a hashmap of session objects by the ID. Here is a partial implementation of this servlet:

```
10. public class SessionAgeServlet extends HttpServlet {
11. public void service(HttpServletRequest request, HttpServletResponse) throws
IOException {
12. String sessionID = request.getParameter("sessionID");
13. HttpSession session = getSession(sessionID);
```

14. long age = // your code here
15. response.getWriter().print(age);
16. }
... // more code here
47. }

Which code snippet on line 14, will determine the age of the session?
A. session.getMaxInactiveInterval();
B. session.getLastAccessed().getTime() - session.getCreationTime().getTime();
C. session.getLastAccessedTime().getTime() - session.getCreationTime().getTime();
D. session.getLastAccessed() - session.getCreationTime();
E. session.getMaxInactiveInterval() - session.getCreationTime();
F. session.getLastAccessedTime() - session.getCreationTime();

Answer: F
Q21. Which statement is true about web container session management?
A. Access to session-scoped attributes is guaranteed to be thread-safe by the web container.
B. To activate URL rewriting, the developer must use the HttpServletResponse. setURLRewriting method.
C. If the web application uses HTTPS, then the web container may use the data on the HTTPS request stream to identify the client.
D. The JSESSIONID cookie is stored permanently on the client so that a user may return to the web application and the web container will rejoin that session.

Answer: C

Q22. Given an HttpServletRequest request and an HttpServletResponse response:
41. HttpSession session = null;
42. // insert code here
43. if(session == null) {
44. // do something if session does not exist
45. } else {
46. // do something if session exists
47. }
To implement the design intent, which statement must be inserted at line 42?
A. session = response.getSession();
B. session = request.getSession();
C. session = request.getSession(true);
D. session = request.getSession(false);
E. session = request.getSession("jsessionid");
Answer: D

Q 23. A web application uses the HttpSession mechanism to determine if a user is "logged in." When a user supplies a valid user name and password, an HttpSession is created for that user.The user has access to the application for only 15 minutes after logging in. The code must determine how long the user has been logged in, and if this time is greater than 15 minutes, must destroy the HttpSession.

Which method in HttpSession is used to accomplish this?

A. getCreationTime
B. invalidateAfter
C. getLastAccessedTime
D. getMaxInactiveInterval

Answer: A

Q 24. Which method must be used to encode a URL passed as an argument to HttpServletResponse.sendRedirect when using URL rewriting for session tracking?

A. ServletResponse.encodeURL
B. HttpServletResponse.encodeURL
C. ServletResponse.encodeRedirectURL
D. HttpServletResponse.encodeRedirectURL

Answer: D

Q25.Which interface must a session attribute implement if it needs to be notified when a web container persists a session?

A. javax.servlet.http.HttpSessionListener
B. javax.servlet.http.HttpSessionBindingListener
C. javax.servlet.http.HttpSessionAttributeListener
D. javax.servlet.http.HttpSessionActivationListener

Answer: D

Q26.What is the purpose of session management?

A. To manage the user's login and logout activities.
B. To store information on the client-side between HTTP requests.
C. To store information on the server-side between HTTP requests.
D. To tell the web container to keep the HTTP connection alive so it can make subsequent requests without the delay of making the TCP connection.

Answer: C

Q27. Your company has a corporate policy that prohibits storing a customer's credit card number in any corporate database. However, users have complained that they do NOT want to re-enter their credit card number for each transaction. Your management has decided to use client-side cookies to record the user's credit card number for 120 days. Furthermore, they also want to protect this information during transit from the web browser to the web container; so the cookie must only be transmitted over HTTPS. Which code snippet creates the "creditCard" cookie and adds it to the out going response to be stored on the user's web browser?

A. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setAge(10368000);
13. response.addCookie(c);

B. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setHttps(true);
12. c.setMaxAge(10368000);
13. response.setCookie(c);

C. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setMaxAge(10368000);
13. response.addCookie(c);

D. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setHttps(true);
12. c.setAge(10368000);
13. response.addCookie(c);

E. 10. Cookie c = new Cookie("creditCard", usersCard);
11. c.setSecure(true);
12. c.setAge(10368000);
13. response.setCookie(c);

Answer: C

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