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Questions and Answers:

1. What is State management in ASP.NET?

Answer: State management is the process by which you maintain state and page information over multiple requests for the same or different pages.

2. Why we need State management to maintain state?

Answer: Net Pages are destroyed and re-created with each round trip to the server; therefore, page information will not exist beyond the life cycle of a single page.

3. What are different state management techniques available in .Net?

Answer: ASP.NET provides multiple ways to maintain state between server round trips this can be either client side or server side.

a) Client Side State Management techniques
b) Server side state management techniques

4. What are different types of Client Side State Management techniques available in .Net?

Answer: Storing page information using client-side options doesn't use server resources.

a) View state
b) Control state
c) Hidden fields
d) Cookies
e) Query strings

5. What are different types of Server side State Management techniques available in .Net?

Answer: Server side state management techniques:

a) Application state
b) Session state
c) Profile properties

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6. What is Static/Shared member in WebForm Class and what is the scope it?

Answer: The name itself tells that it is a static variable, it can be used for sharing data between requests by any user but its scope is local to the WebForm in which it is declared.

7. What is Static/Shared Members in Global Class in App_Code folder and what is the scope it?

Answer: We can write a class in App_Code folder and it can be shared by all the WebForm in the web application. By making the members of the class as shared/static we can store data in that member in one WebForm and retrieve that in another WebForm. The data in such variables is shared by all the clients.

8. What is ViewState?

Answer: Web forms have very short lifetimes. In ASP.NET, the data that is entered in controls is encoded and stored in a hidden field. This encoded data is then sent with each request and restored to controls in Page_Init. The data in these controls is then available in the Page_Load event. The data that ASP.NET preserves between requests is called the Web form's view state.

9. How do you enable or disable a ViewState for a control on the page?

Answer: Every ASP.NET control has a property called EnableViewState. If EnableViewState is set to true ViewState is enabled for the control. If EnableViewState is set to false ViewState is disabled for the control.

10. How do you enable or disable a ViewState at the page level?

Answer: At the page level you can enable or disable ViewState using EnableViewState property of the page.

11. What is the name of the hidden form field in which ViewState of the page is saved?

Answer: _ViewState

12. What are the performance implications of ViewState?

Answer: ViewState is usually good to retain the state of the controls on the WebForm across postbacks. If you have a huge DataGrid with tons of data being loaded on every page load. It is a good idea to disable the ViewState of the DataGrid for the page to load faster. If the ViewState of a large DataGrid is not disabled, ViewState can easily get very large, on the order of tens of kilobytes. Not only does the __ViewState form field causes slower downloads, but, whenever the user posts back the Web page, the

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contents of this hidden form field must be posted back in the HTTP request, thereby lengthening the request time, as well.

13. When ViewState restoration does happens?

Answer: During the Page_Init event.

14. What are the disadvantages of using ViewState?

Answer:

a) On all page visits, during the save view state stage the Page class gathers the collective view state for all of the controls in its control hierarchy and serializes the state to a base-64 encoded string. (This is the string that is emitted in the hidden __ViewState form filed.) Similarly, on postbacks, the load view state stage needs to deserialize the persisted view state data, and update the pertinent controls in the control hierarchy.

b) The __ViewState hidden form field adds extra size to the Web page that the client must download. For some view state-heavy pages, this can be tens of kilobytes of data, which can require several extra seconds (or minutes!) for modem users to download. Also, when posting back, the __ViewState form field must be sent back to the Web server in the HTTP POST headers, thereby increasing the postback request time.

15. Is ViewState encoded?

Answer: Yes, ViewState is base-64 encoded.

16. What happens during the Page_Init event?

Answer: The server controls are loaded and initialized from the Web form's view state. This is the first step in a Web form's life cycle.

17. What is HiddenField?

Answer: The HiddenField control is used to store a value that needs to be persisted across multiple postbacks to the server. ... <asp:HiddenField ID="MyHiddenField" runat="server" Value="Hidden field value"/> It will be hidden to the user that means you can store some value but user cannot able to see that value in a webpage.

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18. Give an example of using querystrings to send data from one page to another?

Answer: Query strings are a very simple and popular technique to pass data from one Web page to the next. You send data as part of the URL. In the below example FName and LName are sent as part of the URL. In the page load of QueryStrings2.aspx we use Request.QueryString to read the values. As we are sending more than one query string we use the & symbol to seperate query strings.

19. Write the syntax to send query strings FName and LName as part of the URL.

Answer: QueryStrings2.aspx?FName=David&LName=Boon.

20. Write the code to access values of query strings FName and LName in server.

Answer: string FirstName = Request.QueryString["FName"];

string LastName = Request.QueryString["LName"];

21. Give an example to send Query Strings from code?

Answer: You can send query strings from server side code using the Response.Redirect() method as shown below.

Response.Redirect("QueryStrings2.aspx?FName=David&LName=Boon");

22. What are the advantages of using Query Strings?

Answer:

1) Query strings are easy to implement.
2) Browser support for passing values in a query string is nearly universal.
3) Query strings are contained in the HTTP request for a specific URL and do not require server resources.

23. What are the disadvantages of using querystrings to send data from one page to another?

Answer:

1) Query strings are insecure because the information in the query string is directly visible to the user on the address line in the browser.
2) Many browsers impose a 255 URL character limit which can limit their flexibility.

24. What is HttpContext(Context)?

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Answer: HttpContext an object created on server for every request and thus its life time is same as the life time of the request. It can be used for managing state in a given request so that code in different files of the web application including master pages, WebForm, user control, custom classes etc., can share the same state. Here Key and value both are of type object. If Key used is of type "string" then it is case sensitive.

25. What are Cookies in ASP.NET?

Answer: Cookies are small pieces of information stored on the client computer. Use cookies to store small amounts of information on the client's machine. Web sites often use cookies to store user preferences or other information that is client-specific. Because cookies can be refused, it is important to check whether the browser allows them before you try to create them. They are limited to storing only character data and they are limited to 4K in size.

26. What are different types of Cookies?

Answer:

1) Session Cookies
2) Persistent Cookies

27. What are Session Cookies?

Answer: Session cookies are stored in-memory during the client browser session. When the browser is closed the session cookies are lost.

28. How can you create Session Cookies?

Answer: You can create session cookies by calling the Add method of the Cookies collection on the Response object. The Cookies collection contains individual cookie objects of type HttpCookie.

29. Give an example to create Cookie object.

Answer: HttpCookie CookieObject = new HttpCookie("UserName", "David");
Response.Cookies.Add(CookieObject);

30. Give an example to access Cookie object in the server.

Answer: Request.Cookies["UserName"].Value;

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31. What are the advantages and disadvantages of using client side state management?

Answer:

Advantages:

1) No server resources are required.
2) Simple implementation.

Disadvantages:

1) Performance considerations
2) Potential security risks
3) Depends on browser compatibility

32. What is the difference between Session Cookies and Persistent Cookies?

Answer: Persistent Cookies are same as Session Cookies except that, persistent cookies have an expiration date. The expiration date indicates to the browser that it should write the cookie to the client's hard drive. Keep in mind that because a user can delete cookies from their machine that there is no guarantee that a cookie you "drop" on a user machine will be there the next time they visit your site.

33. What are Persistent Cookies used for?

Answer: Persistent cookies are generally used to store information that identifies a returning user to a Web site. Typical information found in Persistent Cookies includes user names or user IDs.

34. How do you create a Persistent Cookie?

Answer: You create a persistent cookie the same way as session cookies except that you set the Expires property to a Date in the future which will store the Cookie to the client computer harddrive.

```
CookieObject.Expires = DateTime.Now.AddDays(10);
```

35. What is Cookie Dictionary?

Answer: A cookie dictionary is a single cookie object that stores multiple pieces of information. You use the Values property to access and assign new values to the cookie dictionary.

36. What are the advantages of Using Cookies?

Answer:

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1) Cookies do not require any server resources since they are stored on the client.
2) Cookies are easy to implement.
3) You can configure cookies to expire when the browser session ends (session cookies) or they can exist for a specified length of time on the client computer (persistent cookies).

37. What are the disadvantages of Using Cookies?

Answer:

1) Users can delete a cookies.
2) Users browser can refuse cookies,so your code has to anticipate that possibility.
3) Cookies exist as plain text on the client machine and they may pose a possible security risk as anyone can open and tamper with cookies.

38. How do you create a Cookie that never expires?

Answer: To create a Cookie that never expires set the Expires property of the Cookie object to DateTime.MaxValue.

39. Are Cookies secure?

Answer: No, Cookies are not secure. You must pay attention to the type of data you store in cookies.

1. Cookies are not designed to store critical information so storing passwords in a cookie is a bad idea.
2. Keep the lifetime of a cookie as short as practically possible.
3. Encrypt cookie data to help protect the values stored in the cookie.

40. What is a Session?

Answer: A Session is a unique instance of the browser. A single user can have multiple instances of the browser running on his or her machine. If each instance visits your Web application, each instance has a unique session. A session starts when a user accesses a page on a Web site for the first time, at which time they are assigned a unique session ID. The server stores the user's session ID in the Session. SessionID property.

41. What is the default session timeout period?

Answer: 20 minutes.

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42. Where do you generally specify the Session Timeout?

Answer: You specify the Session Timeout setting in the web.config file.

43. Can you specify Session Timeout in a code behind file?

Answer: Yes, can specify the Session.Timeout property as shown below in a code behind file. Session.Timeout = 10;

44. How do you end a user session?

Answer: You can call the Session.Abandon() method to end a user session. If a user then tries to access a page the server will assign them a new session ID and it will clear all the previous session variables. You'll typically use Session.Abandon() on log-out pages.

45. What type of data can you store in Application State and Session State variables?

Answer: Application State and Session State variables are used to store data that you want to keep for the lifetime of an application or for the lifetime of a session. You can store any type of data in the Application or Session state, including objects.

46. Are Application State or Session State variables type safe?

Answer: No, Application and Session state variables are created on the fly, without variable name or type checking.

47. Do maintaining Session state affects performance?

Answer: Yes

48. Can you turn of Session state?

Answer: Yes, Session state can be turned off at the application and page levels.

49. Are Application state variables available throughout the current process?

Answer: Yes, Application state variables are available throughout the current process, but not across processes. If an application is scaled to run on multiple servers or on multiple processors within a server, each process has its own Application state.

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50. How do you disable Session state for a Web form?

Answer: To turn Session state off for a Web form set EnableSessionState property of the Page to False.

51. How do you turn Session state off for an entire web application?

Answer: In the Web.config file, set the sessionstate tag to False.

52. What are Application State variables?

Answer: Application State variables are global variables that are available from anywhere in the application. All Sessions can access Application State variables.

53. How to add and remove data to Application State Variables?

Answer:

```
//Code to add data to Application State
Application.Add("AppName", "Sample");
//Code to remove data from Application State
Application.Remove("AppName");
```

54. How do you remove all Application State Variables data?

Answer:

```
//Code to remove all Application State Variables data
Application.RemoveAll();
```

55. What does the term Scalability mean?

Answer: Web applications that serve a large number of users or that present large amounts of data need to able to add capacity as users' demands increase. The ability to add capacity to an application is called scalability. ASP.NET Web applications support this concept through their ability to run in multiple processes and to have those processes distributed across multiple CPUs and/or multiple servers.

56. What is the difference between a web farm and a web garden?

Answer: A Web application running on a single server that has multiple CPUs is called a Web garden in the ASP.NET documentation. A Web application running on multiple servers is called a Web farm.

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57. If your web server has multiple processors, how can you specify that ASP.NET runs on all or some of the CPUs?

Answer: If your server has multiple processors, you can specify that ASP.NET runs on all or some of the CPUs by setting the webGarden attribute of the processModel element in the server's Machine.config file.

58. What are the implications on Application and Session state variables in a web farm or a web garden?

Answer: In both a Web garden and a Web farm, client requests are directed to the ASP.NET process that is currently least busy. That means that a single client can interact with different CPUs or servers over the course of his or her session. This has the following implications for Application and Session state variables:

59. Application state variables are unique to each separate instance of the Web application.

Answer: Clients can share information through Application state if the Web application is running on a Web garden or a Web farm.

60. Session state variables are stored in-process by default.

Answer: To enable Session state in a Web garden or Web farm, you need to specify a Session state provider.

61. How can you share Application State in a web farm or a web garden?

Answer: To share data across multiple sessions in a Web garden or Web farm, you must save and restore the information using a resource that is available to all the processes. This can be done through an XML file, a database, or some other resource using the standard file or database access methods.

62. What are the two built-in ways provided by ASP.NET to share Session state information across a Web garden or Web farm?

Answer: ASP.NET provides two built-in ways to share Session state information across a Web garden or Web farm. You can share Session state using:

a) A state server, as specified by a network location, this technique is simple to implement and doesn't require you to install Microsoft SQL Server.
b) A SQL database, as specified by a SQL connection, this technique provides the best performance for storing and retrieving state information.

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