

# Microsoft Blazor

## Chapter 02

Q1. What is WebAssembly?

- A. A binary format optimized for browser execution
- B. The render tree built on the server using regular .NET and serialized to the browser
- C. What are roles of Serve, Client and Shared project in Blazor web assembly app?
- D. A new ECMA based script capable of executing .NET language instructions

Answer: A

Q2. Which one does a Web Assembly App **not** allow?

- A. Call to JavaScript methods
- B. Run as a Progressive Web Application (PWA).
- C. use all the .NET APIs you would use with regular ASP.NET Core MVC applications
- D. None of the above

Answer: C

[Blazor Server app can access all .net API. But wasm does]

Q3. Which one does a Web Assembly App not allow?

- A. Call to JavaScript methods
- B. Run as a Progressive Web Application (PWA).
- C. All modern debugging capabilities
- D. None of the above

Answer: C

[Blazor wasm runs on browser, not all debugging is available]

Q4. Which instructions add blazor middleware that serves required special files to client to blazor application?

- A. MapFallbackToFile
- B. UseBlazorFrameworkFiles
- C. UseWebAssemblyDebugging
- D. MapRazorPages

Answer: B

Q5. Which script tag should you use to install Blazor by downloading dotnet.wasm?

- A. <script src="\_content/blazor.webassembly.js"></script>
- B. <script src="\_framework/blazor.webassembly.js"></script>
- C. <script src="\_js/blazor.webassembly.js"></script>
- D. <script src="\_blazor.webassembly.js"></script>

Answer: B

Q6. Which component install the router component in Blazor wasm application.

- A. MainLayout
- B. App
- C. NavLink
- D. The fallback file Index.html

Answer: B

Q6. What is Hot Reload?

- A. The feature that allows you to debug Blazor wasm app
- B. The feature that enhance downloading wasm to client

- C. The feature with .Net 6 that update running your application as soon as you make changes to your code and markup
- D. None of the above

Answer: C

Q7. Which command in dotnet cli do you use to start hot reload?

- A. dotnet start
- B. dotnet run
- C. dotnet watch
- D. dotnet debug

Answer: C

Q8. Which statement uses a null forgiving operator?

- A. `string? name = null;`
- B. `string? name = default;`
- C. `string? name = null!`
- D. `string name = default;`

Answer: C

Q9. Consider the code

`string[]? cities;`

Which code will produce errors?

- A. `Console.WriteLine(cities.Length);`
- B. `Console.WriteLine(cities?.Length);`
- C. `if(cities is not null) Console.WriteLine(cities.Length);`
- D. `if(cities != null) Console.WriteLine(cities.Length);`

Answer: A

# Microsoft Blazor

## Chapter 03, 04

Q1. Any class that derives from the \_\_\_\_\_ class becomes a Blazor component?

- A. Page
- B. Component
- C. ComponentBase
- D. ControllerBase

Answer: C

Q2. Each razor file in Blazor is a \_\_\_\_\_?

- A. Component
- B. Page class instance
- C. AppComponent
- D. LayoutComponent

Answer: A

Q2. What does a Blazor component contain?

- A. Only markup
- B. Only code
- C. Both markup and code
- D. Either markup or code

Answer: C

Q3. What should you do to pass data to a component?

- A. Component parameter
- B. @inject directive
- C. using Component construction
- D. by injecting service

Q4. Parent and child components typically communicate through \_\_\_\_\_.

- A. by injecting service
- B. data binding
- C. through dependency injection
- D. event callback

Answer: B

Q5. Why is a component parameter used?

- A. Parent component pass data to a child component using component parameter
- B. Parent component handles child component's event through component parameter
- C. Parent component detect changes through component parameter
- D. None of the above

Answer: A

Q6. How can you manually trigger the UI to update?

- A. There is no way to trigger update, the Blazor runtime updates the UI automatically when an event triggers, like the button click
- B. By calling the StateHasChanged method.
- C. By overriding AfterRenderAsync
- D. None of the above

Answer: B

Q6. What is the use of EventCallback<T>?

- A. To pass data to a component
- B. To detect changes of component parameter
- C. To trigger UI update
- D. For parent- child communication, such as events and two-way data binding

Answer: D

Q7. What should be used to expose events across components?

- A. Event
- B. Component parameter
- C. EventCallback
- D. Two-way data binding

Answer: C

Q8. Which one is used to call a parent component's method from a child component?

- A. Event
- B. Component parameter
- C. EventCallback
- D. Two-way data binding

Answer: C

Q9. What do you use when you require a reference to an HTML element or Blazor component?

- A. @bind
- B. @bind-Value
- C. @ref
- D. @id

Answer: C

Q10. Which one is to when a higher-level component needs to share some data with a deeper nested component?

- A. Parameter
- B. Data-binding
- C. Cascading Parameters
- D. All of the above

Answer: C

Q11. When a component's OnInitialized/OnInitializedAsync life cycle hook method are called?

- A. After component has been created and the parameters have been set
- B. After component has been created but before the parameters have been set
- C. Before component has been created and the parameters have been set
- D. After the parameters have been set but before component has been created

Answer: A

Q12. Which life cycle method should you use to invoke JavaScript code that needs access to elements from the DOM?

- A. OnInitialized/OnInitializedAsync
- B. OnParametersSet/OnParametersSetAsync
- C. OnAfterRender/OnAfterRenderAsync
- D. ShouldRender

Answer: C

Q13. Which component type allows you to pass one or more UI templates as parameters?

- A. Layout component
- B. Templated component
- C. Normal Blazor component
- D. All of the above

Answer: B

Q14. A \_\_\_\_\_represents a segment of UI to render..

- A. render fragment
- B. component
- C. cascading parameter
- D. data-binding

Answer: A

Q15. The pig-wig syntax starts with \_\_\_\_\_.

- A. @:
- B. @{:
- C. @:@{
- D. @@

Answer: C

# Microsoft Blazor

## Chapter 05

Q1. What is the role of a Service object's role?

- A. encapsulate specific business rules or how data is communicated between the client and the server
- B. handle user request and trigger an action on the server
- C. persist data for a view
- D. pass data to a component

Answer: A

Q2. What is the role of An Inversion-of-Control Container (IoCC)?

- A. specializes in creating objects that is passed through Dependency injection
- B. encapsulate specific business rules or how data is communicated between the client and the server
- C. persist data for a view
- D. handle user request and trigger an action on the server

Answer: A

Q3. Which is a constructor Dependency injection?

- A. `public class AService { public AService(Dependency dep){...}}`
- B. `[Inject] public IProductsService ProductService { get; set; }`
- C. `@inject IProductsService ProductService`
- D. `public class AService { Dependency dep = new Dependency();}`

Answer: A

Q4. Which is a property Dependency injection?

- A. `public class AService { public AService(Dependency dep){...}}`
- B. `[Inject] public IProductsService ProductService { get; set; }`
- C. `public IProductsService ProductService { get; set; }`
- D. `public class AService { Dependency dep = new Dependency();}`

Answer: B

Q5. Which is a constructor Dependency injection?

- A. `public class AService { public AService(Dependency dep){...}}`
- B. `public IProductsService ProductService { get; set; }`
- C. `@inject IProductsService ProductService`
- D. `public class AService { Dependency dep = new Dependency();}`

Answer: C

Q6. What is a Singleton Dependency?

- A. classes that only have one instance
- B. classes that has instance per scope but uses new instances between different scopes
- C. Instance of classes which are short lived, which might not even survive beyond a single method call.
- D. None of the above

Answer: A

Q7. What is a scoped Dependency?

- A. classes that only have one instance
- B. classes that has instance per scope but uses new instances between different scopes

- C. Instance of classes which are short lived, which might not even survive beyond a single method call.
- D. None of the above

Answer: B

Q8. What is a Transient Dependency?

- A. classes that only have one instance
- B. classes that has instance per scope but uses new instances between different scopes
- C. Instance of classes which are short lived, which might not even survive beyond a single method call.
- D. None of the above

Answer: C

# Microsoft Blazor

## Chapter 06, 07

Q1. Which one is not true for REST?

- A. REST is built on top of the HTTP protocol
- B. REST invokes actions on servers
- C. REST can retrieve data from server
- D. REST only uses GET and POST http verbs

Answer: D

Q2. With \_\_\_\_\_, you CREATE something on a server

- A. POST
- B. GET
- C. PUT
- D. DELETE

Answer: A

Q3. With \_\_\_\_\_, you READ data back from a server

- A. POST
- B. GET
- C. PUT
- D. DELETE

Answer: B

Q4. With \_\_\_\_\_, you UPDATE something on the server.

- A. POST
- B. GET
- C. PUT
- D. DELETE

Answer: C

Q5. What are HTTP headers?

- A. Instruction to work with data stored in a database
- B. a status code about the result of a request
- C. instructions exchanged between the client and the server.
- D. type of data is sent to client from the server

Answer: C

Q6. What does the HttpClient Class do?

- A. host Web API controller
- B. acts as a IoCC container for services
- C. communication between the client and server passes through the HttpClient class
- D. serializes server sent data as Jason objects

Answer: C

Q7. What does HttpClientJsonExtensions methods do?

- A. exposes server data to client
- B. converts between .NET objects and JSON
- C. allows client to create JSON objects easily
- D. applies authorization to data access

Answer: B

Q8. Why do you use the GetFromJsonAsync extension method?



- A. extracts JSON object from a HttpResponseMessage object's body asynchronously
- B. serialize .NET object as JSON in the request body to the specified URI.
- C. makes an asynchronous GET request to the specified URL
- D. converts between .NET objects and JSON

Answer: C

Q9. What is required for Customizing JSON Serialization?

- A. System.Text.JsonSerilizer
- B. JsonSerializerOptions
- C. JSON converter
- D. JSON options

Answer: B

Q10. How can you easily switch implementation of the service type required in your component?

- A. Using .Net reflection API
- B. using dependency injection.
- C. Using generic service
- D. Using microservice

Answer: B

# Microsoft Blazor

## Chapter 08

Q1. What is a Single-Page Web Application?

- A. a web application that replaces certain parts of the UI without reloading the complete page.
- B. a web application that can run offline once loaded in a browser
- C. a web application that is independent from a server.
- D. a web application that runs only over secure connection

Answer: A

Q2. SPAs use \_\_\_\_\_ to implement this manipulation of the browser's control tree, also known as the Document Object Model (DOM).

- A. jQuery
- B. JavaScript
- C. WebSocket
- D. Angular or react libraries

Answer: B

Q3. What do you use in the Blazor application for UI elements that you can find on every page, such as a header, footer, copyright, menu, etc?

- A. Component
- B. Layout Component
- C. Layout page
- D. Master page

Answer: B

Q4.. Blazor Layout Components inherit from \_\_\_\_\_.

- A. ComponentBase
- B. LayoutComponentBase
- C. Page
- D. ControllerBase

Answer: B

Q5. Anything you can do with a regular component you can do with a layout component.

- A. True
- B. False

Answer: A

Q6. A component can change the layout component for itself?

- A. True
- B. False

Answer: A

Q7. In which component file, the Default Layout Componen is configured?

- A. App.razor
- B. \_Imports.html
- C. Index.html
- D. Layout.razor

Answer: A

Q8. Which directive is used to set a Layout for a component?

- A. @layout
- B. @defaultLayout

- C. @master
- D. @use

Answer: A

Q9. Single-Page Applications use \_\_\_\_\_ to select which component gets picked to fill in the layout component's Body property?

- A. routing
- B. NavigationManager
- C. NavLink
- D. route constraint

Answer: A

Q10. What is a route template?

- A. A route template is a string matching a URI, and that can contain parameters, which you can then use in your component.
- B. A route template template is string pattern to match controller and action
- C. A route template that a component use help locations itself.
- D. None of the above

Answer: A

Q11. What is used to limit the type of parameter to match.?

- A. Route parameter
- B. Route data
- C. Route constraints
- D. Route pattern

Answer: C

Q12. Which one is not a valid route constraint?

- A. datetime
- B. decimal
- C. guid
- D. currency

Answer: D

# Microsoft Blazor

## Chapter 09

Q1. What is the condition of the javascript function so that it can be called from .NET code?

- A. the function must be JSON serializable.
- B. the arguments the function accepts must be JSON serializable
- C. the function must return .JSON serializable type
- D. All of the above

Answer: B

Q2. What is required to call a JavaScript function?

- A. IJSObjectReference
- B. IJSRuntime
- C. blazor.webassembly.js
- D. JavaScript modules

Answer: B

Q3. You use the .NETIJSRuntime instance \_\_\_\_\_.

- A. by call default constructor
- B. provided through dependency injection
- C. provided factory service
- D. dynamically using .NET reflection

Answer: B

Q4. To call JavaScript functions synchronously, you need \_\_\_\_\_.

- A. IJSRuntime
- B. IJSObjectReference
- C. IJSInProcessRuntime
- D. JsonSerializer

Answer: C

Q5. What are methods exposed by IJSRuntime?

- A. InvokeAsync<T>
- B. InvokeVoidAsync
- C. InvokeVoidAsync<T>
- D. Invoke<T>

Answer: A, B

Q6. If your JavaScript needs to access one of your HTML elements, what should you do?

- A. give the element an id attribute, pass it the id to the function
- B. store the element in an ElementReference and then pass this ElementReference to the function
- C. pass the function a dom query selector and in the function use the selector to find the function
- D. All of the above

Answer: B

Q7. In which lifecycle method you should pass an ElementReference to a JavaScript function?

- A. OnInitialized/OnInitializedAsync.
- B. OnParametersSet/OnParametersSetAsync
- C. OnAfterRender/OnAfterRenderAsync
- D. Any one of the above

Answer: C

Q7. With Blazor, You can call .NET methods from JavaScript.

- A. True
- B. False

Answer: A

Q8 To call a .NET method from javascript what should you do?

- A. Decorate the method with the Serializable attribute
- B. Decorate the method with the JSON attribute
- C. Decorate the method with the JSInvoke attribute
- D. Decorate the method with the Inject attribute

Answer: C

Q9. What should be the type parameter in the `InvokeAsync<T>` method of `IJSRuntime` when loading a JavaScript module dynamically?

- A. `IJSRuntime`
- B. `IJSObjectReference`
- C. `IJSInProcessRuntime`
- D. `JsonSerializer`

Answer: B

Q10. What is required for Blazor components to call a javascript method using the `IJSRuntime.InvokeAsync<T>` ?

- A. register a JavaScript glue function by adding this function in isolated javascript file of the component
- B. register a JavaScript glue function by adding this function to the browser's window global object
- C. using `import` bind the function in the component scope
- D. All of the above

Answer: B

# Microsoft Blazor

## Chapter 10, 11

Q1. What kind of data does Blazor store in the browser's memory?

- A. Render tree.
- B. Component's fields and properties
- C. Dependency injection instances
- D. All of the above

Answer: D

Q2. Where you should **not** store data so that it does not get lost, even after a browser refresh?

- A. browser's memory
- B. local storage
- C. server
- D. URL

Answer: A

Q3. Which data store will fail if the user switches to a different browser?

- A. browser's memory
- B. local storage
- C. server
- D. URL

Answer: B

Q4. Data stored in the URL will survive a browser refresh and work across different browsers.

- A. True
- B. False

Answer: A

Q5. \_\_\_\_\_ is the process of making an application support a range of languages.

- 1. Internationalization
- 2. Localization
- 3. Culture
- 4. Regionalization

Answer: A

Q6. Internationalization is often abbreviated as \_\_\_\_\_.

- A. I18n
- B. L10n.
- C. G10n
- D. None

Answer: A

Q7. \_\_\_\_\_ is the process (probably repeated several times) to make the application support a specific language or locale

- A. Internationalization
- B. Localization
- C. Culture
- D. Regionalization

Answer: B

Q8. Localization is often abbreviated as \_\_\_\_\_.

- A. I18n

- B. L10n.
- C. G10n
- D. None

Answer: B

Q9. In .NET programs, where the user's locale is stored?

- A. in an instance of the CultureInfo class
- B. in an instance of the RegionInfo class
- C. in an instance of the IdentityUser class
- D. in an instance of the UserProfile class

Answer: A

Q10. A locale string composed of \_\_\_\_\_.

- A. two lowercase characters to represent the language and the country
- B. two lowercase characters to represent the language and two/three uppercase characters to represent the country
- C. two lowercase characters to represent the language a hyphen, and two/three uppercase characters to represent the region
- D. two lowercase characters to represent the language, a hyphen, and two/three uppercase characters to represent the country

Answer: D

[en-US, en-UK, bn-BD]

Q11. Why is the use of CurrentCulture?

- A. used by runtime for formatting values
- B. used by runtime for lookup the values from resource file
- C. used by runtime for setting language
- D. used by runtime for finding user geolocation

Answer: A

Q12. Why is the use of CurrentUICulture?

- A. used by runtime for formatting values
- B. used by runtime for lookup the values from resource file
- C. used by runtime for setting language
- D. used by runtime for finding user geolocation

Answer: B

# Microsoft Blazor

## Chapter 12

Q1. To identify the user is known as\_\_\_\_\_.

- A. Authentication.
- B. Authorization
- C. Identity
- D. Token

Answer: A

Q2. To protect certain resources is known as\_\_\_\_\_.

- A. Authentication.
- B. Authorization
- C. Identity
- D. Token

Answer: B

Q3. Which type of security uses a token to represent the user?

- A. Claim-based security
- B. Identity security
- C. Integrated security
- D. Anonymous security

Answer: A

Q4. Modern applications using REST use the\_\_\_\_\_ open standard.

- A. OAuth open standard
- B. JSON Web Token (JWT)
- C. Grant Token open standard
- D. None of the above

Answer: B

Q5. Serialized JWT token consists of \_\_\_\_\_.

- A. three parts
- B. four parts
- C. five parts
- D. six parts

Answer: A

Q6. Which one does a JWT Token base-64 string not contain?

- A. a header
- B. a payload
- C. an optional footer
- D. a signature

Answer: C

Q7. What is OpenId Connect?

- A. a framework for building application for multiple devices
- B. a cloud-based database
- C. a standard protocol that allows us to secure our applications, including websites, mobile applications, server,
- D. a open standard for representing data

Answer: C





# Building Mobile and Desktop Apps Using .NET MAUI

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Q1. Which platform is not supported by .NET MAUI?

- A. Windows
- B. Linux
- C. Android
- D. MacOS catalyst

Answer: B

Q2. What do you need to compile a MAUI app for macOS catalyst?

- A. Xcode and .NET SDK 6+
- B. WinRT and .NET SDK 6+
- C. macOS and Xcode
- D. macOS and .NET SDK 6

Answer: C

Q3. You cannot use XAML for defining user interface for \_\_\_\_\_.

- A. MAUI apps
- B. WPF apps
- C. Windows forms apps
- D. Win 3 apps for windows 10 and 11

Answer: C

Q4. You have the following code defining a button for UI

```
Button newButton = new();  
newButton.Content = "New";  
newButton.Background = new SolidColorBrush(Colors.Pink);  
newButton.Clicked += NewButton_Clicked;
```

Which XAML code can you use alternatively?

- A. <Button Name="newButton" Background="Pink" Clicked="NewButton\_Clicked">New</Button>
- B. <Button x:Name="newButton" Background="Pink" Clicked="NewButton\_Clicked">New</Button>
- C. <Button x:Name="newButton" Brush="Pink" Clicked="NewButton\_Clicked">New</Button>
- D. <Button x:Name="newButton" Background="Pink" OnClicked="NewButton\_Clicked">New</Button>

Answer: B

Q5. Utility types like FlowDirection, IButton, Image, and Thickness are defined in \_\_\_\_\_.

- A. Microsoft.Maui
- B. Microsoft.Maui. Controls
- C. Microsoft.Maui. Graphics
- D. Microsoft.Extensions

Answer: A

Q6. Common controls, pages are defined in \_\_\_\_\_.

- A. Microsoft.Maui
- B. Microsoft.Maui. Controls
- C. Microsoft.Maui. Graphics
- D. Microsoft.Extensions

Answer: B

Q7. Color, Font, ImageFormat, PathBuilder, Point, and Size are defined in \_\_\_\_\_.

- A. Microsoft.Maui
- B. Microsoft.Maui. Controls
- C. Microsoft.Maui. Graphics
- D. Microsoft.Extensions

Answer: C

Q8. To import a namespace using XAML, \_\_\_\_\_.

- A. you add xmlns attributes in the root element

- 
- B. you add @using directive
  - C. you add static resource
  - D. you add local resource

Answer: A

Q9. You have the following XAML

```
<Button x:Name="b" Background="Pink" />
```

The type converter will generate

- A. b.Background = Color.Pink;
- B. b.Background = new SolidColorBrush(Colors.Pink);
- C. b.Background = Color.FromName("Pink");
- D. None of the above

Answer: B

Q10. Which one is a layout container?

- A. Grid
- B. BoxView
- C. Frame
- D. ScrollView

Answer: A

Q11. Which one is used for Editing text?

- A. ContentView
- B. Entry
- C. BoxView
- D. WebView

Answer: B

Q12. Which one is used for Scrolling animated views that show one item at a time?

- A. GraphicsView
- B. WebView
- C. CarouselView
- D. ScrollView

Answer: C

Q13. Which extension is used for linking an element to a value from another element or a data source?

- A. {Binding}
- B. {StaticResource}
- C. {DynamicResource}
- D. {Value}

Answer: A

Q14. .NET MAUI uses \_\_\_\_\_ to define the user interface once for all platforms.

- A. XML
- B. SGML
- C. XAML
- D. HTML

Answer: C

Q15. Why is the Shell control used?

- A. For standardized navigation and search capabilities
- B. For layout containers that affect their children in different ways
- C. For adding a search feature
- D. For building custom controls

Answer: A

Q16. Which one is not a valid shared resource level?

- A. Application
- B. Page
- C. Control
- D. Global

Answer: D

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Q17. A resource can be an instance of\_\_\_\_\_.

- A. any object
- B. any string
- C. any image
- D. any binary object

Answer: A

Q18. Which syntax do you use to set an element's prop-erty with a resource once when the app first starts?

- A. {Resource key}
- B. {StaticResource key}
- C. {DynamicResource key}
- D. {Binding key}

Answer: B

Q19. Which syntax do you use to set an element's prop-erty with a resource once whenever the resource value changes during the lifetime of the app?

- A. {Resource key}
- B. {StaticResource key}
- C. {DynamicResource key}
- D. {Binding key}

Answer: C

Q20. Why do you use the INotifyPropertyChanged interface?

- A. It enables to access to the system's notification feature
- B. It enables an UI element to fire property changes notification to the application
- C. It enables a model class to support two-way data binding
- D. All of the above

Answer: C

Q21. What is the main feature of the ObservableCollection?

- A. It is omitized for dynamic memory allocation
- B. It has subscribable reactive extension
- C. It gives notifications when items get added or removed or when the collection is refreshed
- D. None of the above

Answer: C

# SignalR Programming

1. What is polling?  
Polling basically consists in making periodic connections from the client to check whether there is any relevant update at the server,
2. What are WebSockets?  
WebSocket is HTML5 feature by W3C allows persistent connection and two-way communication between client and server
3. What is a forever frame?  
It consists in entering an <IFRAME> tag in the page markup of the client.  
The server will maintain this connection permanently open and will use it to send updates in the form of calls to script functions defined at the client
4. What is SignalR?  
SignalR is Microsoft's implementation of two-way communication using persistent connection between client and server.  
Main advantage is that SignalR can work even if the browser does support WebSocket.
5. What is a Persistent connection?  
Persistent connection is a low-level API for full-duplex communication.
6. Write down the events of a persistent connection?  
OnConnected  
OnReceived  
OnDisconnected
7. What are SignalR hubs?  
Hubs are for higher-level api built on top of persistent connection. Hub supports different types of messages with various structures between the client and the server.

# SignalR Programming in Microsoft ASP.NET

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Q1. On SignalR client side, how do handle the reception of information from the client?

- A. Using custom event
- B. Using callback
- C. Using promise
- D. Using native socket event handler

Answer: B

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Q2. To map and configure SignalR in host application, which process that must take place during application startup?

- A. Execution of Configure method of the Startup class.
- B. Execution of Application Start event handler
- C. Execution of RegisterRoutes in RouteConfig class
- D. All of the above

Answer: A

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Q3. What does the Configure method of the Startup class of the host application based on OWIN?

- A. filters out irrelevant requests that comes to the application
- B. apply security to the application
- C. configure the different OWIN middleware that will process the requests, such as SignalR, Web API, authentication, tracing, and so on
- D. None of the above

Answer: C

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Q4. What is the type of parameter that is passed to the Configure method of the Startup class?

- A. An instance of WebApp<T> class
- B. An instance of RouteCollection class
- C. An instance of a class implementing the IApplicationBuilder interface
- D. An object of Application class

Answer: C

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Q5. You have created a EchoConnection inheriting from PersistentConnection. How do configure it in the Configure method of the OWIN start up class?

- A. <IApplicationBuilder argument>.MapSignalR();
- B. <IApplicationBuilder argument>.MapSignalR<EchoConnection>()
- C. <IApplicationBuilder argument>.MapSignalR(EchoConnection)
- D. <IApplicationBuilder argument>.MapSignalR ( typeof(EchoConnection))

Answer: B

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Q6. If WebSocket is used as Transport in between SignalR Server and client, how is PersistentConnection instantiated?

- A. the instance of PersistentConnection will remain active until the client disconnects
- B. the instance of PersistentConnection each time the client sends data
- C. the instance of PersistentConnection each time an HTTP connection is opened from a client
- D. the instance of PersistentConnection each time client sends method call

Answer: A

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Q7. If forever frame is used as Transport in between SignalR Server and client, how is PersistentConnection instantiated?

- A. the instance of PersistentConnection will remain active until the client disconnects
- B. the instance of PersistentConnection each time the client sends data
- C. the instance of PersistentConnection each time an HTTP connection is opened from a client
- D. the instance of PersistentConnection each time client sends method call

Answer: B

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Q8. Which one is not a method of PersistentConnection?

- A. protected Task OnConnected(IRequest request, string connectionId)
- B. protected Task OnDisconnected(IRequest request, string connectionId)
- C. protected Task OnReconnected(IRequest request, string connectionId)
- D. protected Task OnSend(IRequest request, string connectionId, string data)

Answer: D

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Q9. By default, SignalR uses connection id as \_\_\_\_\_

- A. GUID
- B. Integer
- C. A random integer value
- D. Double precision floating point value

Answer: A

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Q10. Which method of the persistent connection allows processing the data sent by the clients?

- A. OnConnected
- B. OnDisconnected
- C. OnReconnected
- D. OnReceived

Answer: D

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Q11. With PersistentConnection, which method will to send a message asynchronously to all clients connected to the service?

- A. Connection.Send
- B. Connection.Broadcast
- C. Connection.Notify
- D. Connection.Message

Answer: B

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Q12. You are using PersistentConnection. Which one of the following sends a notification to all users of the service except the one who has just connected?

- A. Connection.Others.Broadcast("A new user is online!");
- B. Connection.AllExcept(connectionId).Broadcast("A new user is online!", connectionId);
- C. Connection.Broadcast("A new user is online!", connectionId);
- D. Connection.All(connectionId).Broadcast("A new user is online!");

Answer: C

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Q13. Which one is not a way to specify OWIN startup class?

- A. By defining the Startup class in the root namespace of the application
- B. Using the assembly attribute OwinStartup
- C. Including the entry "owin:AppStartup" in the <AppSettings> section of the .config file of the application and setting as a value the fully qualified name of the class and the method to
- D. By defining the Startup class in the app\_start folder

Answer: D

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Q14. You have the following Startup class namespace MyApp

```
{  
    public class Start  
    {  
        public void Run(IAppBuilder app){...}  
    }  
}
```

Which one correctly sets OWIN startup class?

- A. [assembly:OwinStartup(typeof(MyApp.Start))] before the namespace
- B. [assembly:OwinStartup(typeof(MyApp.Start))] before the class
- C. [assembly:OwinStartup(typeof(MyApp.Start), methodName: "Run")] before the namespace
- D. [assembly:OwinStartup(typeof(MyApp.Start), methodName: "Run")] before the class

Answer: D

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Q15. To implement a client of PersistentConnection, which JavaScript libraries should you include?

- A. jquery 1.6 or higher
- B. jquery ui 2.2 or higher
- C. jquery.signalR 2.0 or higher
- D. signalr generated proxy

Answer: D

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Q16. You have a PersistentConnection

```
public class ChatConnection: PersistentConnection  
{  
    protected override Task OnReceived(IRequest request, string connectionId, string data)  
    {  
        return Connection.Broadcast(data);  
    }  
}
```

And the OWIN Startup class

```
public class Startup  
{  
    public void Configuration(IAppBuilder app)  
    {  
        app.MapSignalR< ChatConnection>("/chat");  
    }  
}
```

On the client

```
var connection = $.connection("/chat");
```

Now you want that after a successful connection a message will be sent to server. Which code should do it right?

- A. connection.start()  
 connection.send("Hi there!");
- B. connection.start(function() {  
 connection.send("Hi there!");  
 });
- C. connection.start()  
 .done(function() {  
 connection.send("Hi there!");  
 });
- D. connection.start()  
 connection.received = function(){



```
connection.send("Hi there!");
```

```
}
```

Answer: C

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Q17. You have created a PersistentConnection. You want to support cross-domain connections. What should you do?

- A. Install microsoft.owin.cors nuget package
- B. Call the UseCors() before mapping SignalR
- C. Call the UseCors() after mapping SignalR
- D. Use EnableCors attribute on Connection class

Answer: B

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Q18. You implementing cross-domain SignalR client. You want to use JSONP. Which one does it correctly?

- A. 

```
var connection = $.connection("http.....");  
connection.start({ jsonp: true })  
.done(function() {  
    //  
});
```
- B. 

```
var connection = $.connection("http.....");  
connection.start()  
.done(function({ jsonp: true }) {  
    //  
});
```
- C. 

```
var connection = $.connection("http.....");  
connection.jsonp=true;  
connection.start()  
.done(function(){  
    //  
});
```
- D. 

```
var connection = $.connection("http.....", {jsonp: true});  
connection.start()  
.done(function(){  
    //  
});
```

Answer: A

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Q19. In SignalR PersistentConnection client, which method is used for reception of data sent from the server?

- A. received
- B. message
- C. onmessage
- D. onrecieved

Answer: A

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Q20. In PersistentConnection, whenever a new connection is made you want to get authenticated user name. Which code should you use?

- A. request.User.Identity.Name
- B. Context.User.Identity.Name
- C. Connection.User.Identity.Name
- D. Connection(connectionId).User.Identity.Name

Answer: A

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Q21. Which one is not event to register callback on the client of PersistentConnection?

- A. connectionSlow

- B. stateChanged
- C. reconnected
- D. disconnected

Answer: D

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Q22. Which code allows, SignalR web client allows us to activate the tracing of events with the JavaScript console available in major browsers?

- A. `var connection = $.connection("/path", true)`
- B. `var connection = $.connection("/path", null, true)`
- C. `var connection = $.connection("/path", {logging: true})`
- D. `var connection = $.connection("/path");`  
`connection.logging = true;`

Answer: B, D

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Q23. Which one is not SignalR configuration parameter?

- A. ConnectTimeout,
- B. TransportConnectTimeout
- C. DisconnectTimeout
- D. KeepOpen

Answer: D [ConnectTimeout, TransportConnectTimeout, DisconnectTimeout, KeepAlive, LongPollDelay]

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Q24. How can you change SignalR configuration parameter?

- A. global object accessed through GlobalHost
- B. Configuration object accessed through GlobalHost.Configuration
- C. Object implementing IApplicationBuilder interface passed as argument to the Configure method of the startup class
- D. All of the above

Answer: B

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Q25. When should you use hubs instead of persistent connection?

- A. When you need to send different types of messages with various structures between the client and the server.
- B. When you work with string data and want to perform the parsing of data manually
- C. When you want to send only a set defined life cycle events on the clients
- D. All of the above

Answer: A

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Q26. You have created SignalR Hub class ChatHub. Which method of IApplicationBuilder should you use it to configure it?

- A. `MapSignalR()`
- B. `MapSignalR<ChatHub>()`
- C. `MapSignalR(typeof(ChatHub))`
- D. `MapSignalR<typeof(ChatHub)>()`

Answer: A

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Q27. `MapSignalR()` method maps hubs to \_\_\_\_\_ by default.

- A. `/signalr`
- B. `/hub`
- C. `/signalr/hub`
- D. `/`

Answer: A

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Q28. How can you change your hub name?

- A. Using HubName attribute
- B. Using Name attribute
- C. Using assembly attribute
- D. Using MapName attribute

Answer: A

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Q29. If you overload the methods exposed to the client, how signalr determines which method to execute?

- A. the number and type of parameters supplied
- B. only the number of parameters supplied will be considered and not their type
- C. only the type of parameters supplied will be considered and not their number
- D. none of the above

Answer: B

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Q30. If you want invoke a method on the caller of a server method, which one should you use?

- A. Clients.Caller
- B. Clients.Client
- C. Clients.Current
- D. Clients.this

Answer: A

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Q31. If you want invoke a method on a specific client, which one should you use?

- A. Clients.All(connectionId)
- B. Clients.Client(connectionId)
- C. Clients.Others(connectionId)
- A. Clients.User(connectionId)

Answer: B

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Q32. Which one SignalR uses to find name of user associated with the connection id?

- A. ASP.NET's IdentityUserProvider
- B. A class that implement IUserIdProvider
- C. Context provided by the runtime
- D. All of the above

Answer: B

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Q33. How can access client's state data in Hub?

- A. As property in Client
- B. As property in Client.Caller
- C. As property in Context
- D. As property in Connection

Answer: B

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Q34. Which is used to find connectionId of the client in a method Hub?

- A. Client.ConnectionId
- B. Context.ConnectionId
- C. Request.ConnectionId
- D. Server.ConnectionId

Answer: B

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Q35. You have a method named send in Hub

```
public void send (string message){...}
```

How do you call this method using automatic proxy?

- A. proxy.server.alert("message")
- B. proxy.send("message")
- C. proxy.invoke("send", "message")
- D. proxy.server.invoke("send", "message")

Answer: A

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Q36. You have a method named send in Hub

```
public void send (string message){...}
```

How do you call this method on proxy that is not created without the generated proxy?

- A. proxy.server.send("message")
- B. proxy.send("message")
- C. proxy.invoke("send", "message")
- D. proxy.server.invoke("send", "message")

Answer: C

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Q37. In MVC 4 or higher, how do reference the generated proxy in JavaScript client?

- A. <script src="/signalr/js"></script>
- B. <script src="@Url.Content("~/signalr/js")"></script>
- C. <script src="%: ResolveClientUrl("~/signalr/hubs")%"></script>
- D. @{  
    <script src="/signalr/js"></script>  
}

Answer: A

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Q38. In MVC 3 how do reference the generated proxy in JavaScript client?

- A. <script src="/signalr/js"></script>
- B. <script src="@Url.Content("~/signalr/js")"></script>
- C. <script src="%: ResolveClientUrl("~/signalr/hubs")%"></script>
- D. @{  
    <script src="/signalr/js"></script>  
}

Answer: B

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Q39. In WebForms, how do reference the generated proxy in JavaScript client?

- A. <script src="/signalr/js"></script>
- B. <script src="@Url.Content("~/signalr/js")"></script>
- C. <script src="%: ResolveClientUrl("~/signalr/hubs")%"></script>
- D. @{  
    <script src="/signalr/js"></script>  
}

Answer: C

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Q40. Which command in Package Manager console should you use to generate Hub proxy using SignalR.exe?

- A. signalr /path:[dll folder path] /o:[output-file name]
- B. signalr ghp /path:[dll folder path] /o:[output-file name]
- C. signalr ipc /path:[dll folder path] /o:[output-file name]
- D. signalr upc /path:[dll folder path] /o:[output-file name]

Answer: B

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Q41. You have created a Hub class ChatHub.

Which code creates connection correctly without generated proxy?

- A. `var connection = $.connection.chatHub`  
`$.connection.hub.start();`
- B. `var connection = $.hubConnection();`  
`var proxy = connection.createHubProxy("AlertService");`  
`connection.start();`
- C. `var connection = $.connection;`  
`var proxy = connection.createHubProxy("AlertService");`  
`connection.start();`
- D. `var connection = $.connection.hub`  
`var proxy = connection.createHubProxy("AlertService");`  
`connection.start();`

Answer: B

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Q42. You are using non-web application to host SignalR. Which class should use to start the server?

- A. WebApp
- B. GlobalHost
- C. Application
- D. Any class implementing IAppBuilder

Answer: A

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# Angular

## Questions

1. What is Single Page Application?
2. What is Angular CLI?
3. Write the Angular CLI command to create a new Angular project with most common options you supply.
4. What are the differences between JavaScript and TypeScript?
5. What is typescript type union?
6. Why is Null and Nullish Coalescing Operator used?
7. What is an angular module?
8. What is an angular component?
9. What is data binding?
10. What is one-way data binding? Give example.
11. What is two-way data binding? Give example.
12. Name and describe angular built-in directives.
13. Explain ngModel directive?
14. What are pipes?
15. What is a service in an angular application?
16. What is a service provider?
17. What is reactive form?
18. What is a route?
19. What is rout guard?