



OutSystems - Becoming a Reactive Web Developer, True/False Reactive Web, OutSystems Reactive Developer, #11 ENTITIES / DATA TYPES, #2 Blocks, #6 Aggregates, #7 Fetching Data, #12 Data Type, #14 ROLE BASE SECURITY

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1. Which of the following statements about Entities is false? C.

- A. Entities have attributes.
- B. Entities do not require an identifier.
- C. Entities are only stored in memory.
- D. Entities can be created, updated, and deleted.

2. Which of the following is not a Development Environment? C.

- A. Service Studio
- B. Integration Studio
- C. Service Center

3. One of the following Tools allows you to manage the application's lifecycle across an infrastructure. Which one? B.

- A. Service Center
- B. LifeTime
- C. Service Studio
- D. Integration Studio

4. During the 1-Click Publish, your application data model, code, and interface is compiled and generates .NET code, HTML, JavaScript and CSS. A.

- A. True
- B. False

5. In which Service Studio layer can Screens and Blocks be found? B.

- A. Processes
- B. Interface



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C. Logic
D. Data

6. In which Service Studio layer can Entities be found? **D.**

A. Processes
B. Interface
C. Logic
D. Data

7. Regarding Reactive Web Apps in OutSystems, which B. of the following options is false?

A. Reactive Web app is a cross-device app.
B. Data requests are executed synchronously.
C. The code generated by OutSystems results in a single-page application.
D. A developer builds the Reactive Web App in Service Studio.

8. Regarding Mobile (Phone or Tablet) Apps in OutSystems, which of the following options is false? **C.**

A. Mobile Apps can run natively on iOS and Android.
B. Mobile Apps can be distributed as a PWA.
C. Mobile Apps do not have offline capabilities.
D. The programming model of Mobile Apps is similar to Reactive Web Apps.

9. What happens when a developer publishes a module? **A.**

A. The OutSystems platform compiles it and generates the HTML, CSS, and JavaScript.
B. The browser opens.
C Nothing.



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D. The code is uploaded but only compiled when a user accesses the application.

10. Which of the following options is false regarding Modules and Applications? C.

- A. An application is composed of a set of modules.
 - B. Modules can be of different types such as Reactive Web App, Blank or Extension.
 - C. Elements can be exposed and reused, but only within the same application.
 - D. A module that reuses an element from another module is called a Consumer.
-

11. Business concepts that need to be stored and accessed in our applications should be modeled as... A.

- A. Entities.
 - B. Entity diagrams.
 - C. Entity relationships.
 - D. Database tables.
-

12. Which of the following mappings between OutSystems and the Database is NOT correct? C.

- A. Entities - Tables.
 - B. Attributes - Column.
 - C. Reference attribute - Primary Key.
 - D. Index - Index.
-

13. If an Entity Attribute named HouseNumber is created, what needs to happen to its Data Type? D.

- A. It should be set to Integer.
- B. It should be set to Decimal.
- C. Nothing, it will automatically be set to Identifier.
- D. Nothing, it will automatically be set to Integer.



14. Which of the following is not an Entity Action of the Customer Entity? B.

- A. CreateCustomer.
 - B. RetrieveCustomer.
 - C. UpdateCustomer.
 - D. DeleteCustomer.
-

15. Which of the following is a characteristic of a Static Entity? B.

- A. It can't be changed after the first publish.
 - B. It contains a set of Records.
 - C. It has two Entity Actions.
 - D. It can't be extended with any new attributes.
-

16. Regarding the Records of a Static Entity, which of the following options is false? A.

- A. The values for all 4 default attributes must be defined.
 - B. Records can only be added and removed during development.
 - C. The record identifier is the identifier of Static Entity.
 - D. The Identifier attribute is required for all Static Entities.
-

17. Static Entities are most similar to which other programming concept? B.

- A. Linked lists.
 - B. Enumeration.
 - C. Hash Maps.
 - D. Static variables.
-

18. A.



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Screens can be composed of a combination of several elements called Widgets.

- A. True**
- B. False**

19. What type of variables can be created inside a Screen? C.

- A. Local Variables only.**
- B. Input Parameters only.**
- C. Input Parameters and Local Variables.**
- D. Input Parameters, Output Parameters, and Local Variables.**

20. Which of the following options is false? B.

- A. Input Parameters allow passing data between Screens when navigating between them.**
- B. Local Variables from a Screen may be directly accessed from another Screen.**
- C. Local Variables allow temporarily storing relevant information inside a Screen.**
- D. When the value of a Local Variable changes, the user interface reacts immediately.**

21. The Expression widget... B.

- A. ... displays only static text.**
- B. ... displays text calculated at runtime.**
- C. ... displays only the result of mathematical expressions.**

22. Which of the following behaviors is true for Links and Buttons? C.

- A. Links can only navigate to Screens.**



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B. Buttons can only have a Screen Action as an On Click Destination.

C. Links and Buttons can either Navigate to screens or trigger Screen Actions.

D. Only Links can navigate to external URLs.

23. Regarding the If Widget, which of the following options is false? B.

A. Functions can be used inside the Condition of an If.

B. More branches may be added to an If Widget.

C. Only one of the branches is shown at runtime.

D. Multiple widgets may be added inside each branch.

24. Regarding the Container widget, which of the following options is false? D.

A. Containers allow grouping several widgets.

B. By default, containers can span from 1 column up to 12 columns.

C. Containers can be placed inside other containers.

D. All containers must have at least one widget inside.

25. Which of the following options is correct? D.

A. Screen Actions can call other Screen Actions from a different screen.

B. Client Actions can call Screen Actions.

C. Server Actions can call Client Actions.

D. Client Actions can call Server Actions.

26. Client Actions and Server Actions can have the following variables: C.

A. Input and Output Parameters, but no Local variables.



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B. Input Parameters and Local Variables, but no Output Parameters.

C. Input and Output Parameters, as well as Local Variables.

D. Output Parameters and Local Variables, but no Input Parameters.

27. The flow of an action can have... C.

A. ... multiple Start and End nodes.

B. ... one or more Start nodes but only one End node.

C. ... only one Start node but multiple End nodes.

D. ... only one Start node and one End node.

28. Regarding the If statement, which of the following options is false? D.

A. Both True and False branches are mandatory.

B. Only one of the branches is executed, depending on the If condition's outcome.

C. If statements can also be used to implement ad-hoc loops.

D. More branches may be added if needed.

29. Regarding the Switch statement, which of the following options is false? B.

A. The first branch that the condition evaluates to True is executed.

B. Every branch that evaluates to True is executed.

C. If no branch evaluates to True, the Otherwise branch is executed.

D. The Otherwise branch must exist.

30. Inside an Action flow... C.

A. ... only one Exception Handler may exist.



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B. ... it's mandatory to have at least one Exception Handler.

C. ... the Exception Handler flow can't intersect other flows.

31. If we have multiple Exception Handlers in an Action flow and an Exception is raised... B.

A. ... the execution is always moved to the Global Exception Handler.

B. ... the execution is moved to the Exception Handler that is most specific to the Exception.

C. ... the execution is moved to all Exception Handlers of the Action.

D. ... a Switch statement is needed to select which Exception Handler will continue the execution.

32. In an Aggregate, the Sources section is used for... B.

A. Defining values for testing the Aggregate's output records.

B. Defining the Entities we want to retrieve records from.

C. Defining conditions to get specific subsets of records.

D. Defining the order of the Aggregate's output records.

33. Considering that we can add several filters to an Aggregate, which of the following options is false? A.

A. A record is included in the output if it matches at least one of the filters.

B. Filters are concatenated with the AND operator.

C. All filters are translated to SQL and included in the WHERE clause.



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D. Logical operators and some built-in functions can be used inside filters.

34. Regarding Sorting in Aggregates, which of the following options is correct? C.

A. Aggregates only support one sorting criterion.

B. If more than one sorting criterion is defined, all of them must have the same direction (ascending or descending).

C. It is mandatory to set the direction for all sorting criteria (ascending or descending).

D. It is only possible to set multiple sorting criteria if duplicate records exist in the entity.

35. In an Aggregate, the purpose of the Test Values section is... A.

A. To define values for testing the preview of the Aggregate's output.

B. To set the conditions to get specific records, not all the records.

C. To define the order of its output records.

D. To define the Entities we want to get records from.

36. Regarding Screen Aggregates, which of the following options is false? C.

A. Screen Aggregates run asynchronously and in parallel.

B. Screen Aggregates only exist within the scope of the Screen where they were defined.

C. Screen Aggregates can only be executed when explicitly called.

D. By default, Screen Aggregates run automatically. Screen Aggregates can only fetch data from the database.



37. How is the data fetched by an Aggregate bound to a A.
Table or a List widget?

- A. By setting the Source property of the widget to the output of the Aggregate.
 - B. The binding is done automatically since the Aggregate is in the scope of the Screen.
 - C. By adding an Expression inside the widget that refers to an attribute of the data fetched by the Aggregate.
 - D. By creating a Screen Action that programmatically assigns the widget to the data fetched by the Aggregate.
-

38. Considering ListItem and List Actions, which of the C.
following options is false?

- A. List Actions can only be used inside List Items.
 - B. List Items can be used outside of Lists
 - C. When List Items have the full swiping option activated, the List Action is not necessary.
 - D. The List Action triggers a Screen Action that will have the logic to be executed on swipe.
-

39. Regarding data relationships, which of the following A.
options is correct?

- A. An Entity must have an identifier to allow relationships.
 - B. A reference attribute needs to be mandatory.
 - C. An Entity can only have one reference attribute.
 - D. The Entity identifier must be an integer.
-

40. Which of the following steps is necessary to create a A.
1-to-1 relationship between Entity A and Entity B?



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- A. Set the data type of the identifier attribute of Entity B to Entity A Identifier.**
- B. Add a new Entity C, with two reference attributes of type Entity A Identifier and Entity B Identifier.**
- C. Add a new reference attribute of type Entity B Identifier to Entity A.**
- D. Add a new Entity C, with the identifier attribute being a composition of types Entity A Identifier and Entity B Identifier.**

41. Which of the following steps is necessary to create a D. 1-to-many relationship between a Master Entity A and a Detail Entity B?

- A. Set the data type of the identifier attribute of Entity B to Entity A Identifier.**
- B. Add a new Entity C, with two reference attributes of type Entity A Identifier and Entity B Identifier.**
- C. Entity A must have a reference attribute of type Entity B Identifier.**
- D. Entity B must have a reference attribute of type Entity A Identifier.**

42. Which of the following steps is necessary to create C. a many-to-many relationship between Entity A and Entity B?

- A. Set the data type of the identifier attribute of Entity B to Entity A Identifier.**
- B. Add a new reference attribute of type Entity B Identifier to Entity A.**
- C. Add a new Entity C, with two reference attributes of type Entity A Identifier and Entity B Identifier.**
- D. Add a new reference attribute of type Entity B Identifier to Entity A and a new reference attribute of type Entity A Identifier to Entity B.**



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43. Regarding Indexes, which of the following options is C. correct?

- A. Custom indexes cannot be added to an Entity.**
- B. Indexes speed up data retrieval without any kind of impact.**
- C. Unique indexes help prevent data duplication.**
- D. Indexes over referenced attributes cannot be deleted.**

44. Regarding the Delete Rule property, which of the following options does not guarantee referential integrity? C.

- A. Protect**
- B. Delete**
- C. Ignore**

45. Which of the following behaviors does not apply to B. Forms?

- A. A Form groups input widgets and allows displaying and editing data.**
- B. A Form has a Source property that will hold the values submitted by the user.**
- C. Besides input widgets, a Form can hold other widgets such as Links and Buttons.**
- D. A Form is useful to validate data submitted by the user.**

46. Considering the Dropdown and the Button Group, C. which of the following options is false?

- A. A Button Group needs a Button Group Item to represent each option that the user will have available to choose from.**
- B. The List property of the Dropdown defines the data**



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that will appear as options to a user on a Screen.

C. Each Button Group Item within a Button Group has a Variable property to save the option chosen by the user.

D. The Variable property of the Dropdown will hold the value selected by the user. That value is defined in the Options Value property.

47. The Checkbox or Switch Widgets are bound to a variable of which type? C.

A. Text

B. Integer

C. Boolean

D. Date

48. Considering Inputs and Labels, which of the following options is correct? D.

A. Every input must have a Label associated with.

B. An input widget can only be used for the Text data type.

C. To access the value submitted in an Input widget, we can simply use InputName.Value.

D. Labels associated with mandatory fields will display a visual cue on the Screen.

49. What is the Screen behavior when a widget is not valid (Valid property set to False)? D.

A. The Screen displays the widget greyed out, and displays the validation error message on the input.

B. The widget does not appear on the Screen and the validation message appears in its place.

C. Displays the regular widget and displays the validation error message when we hover the mouse.

D. Displays the regular widget, applies a specific



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styling (e.g. red border), and displays the validation error message.

50. Which of the following options is not a built-in validation in OutSystems? B.

- A. Mandatory Fields
- B. Maximum length of text fields
- C. Data types of input fields

51. Which of the following options is correct regarding the Valid property of the Form? A.

- A. The Valid property of the Form should be checked after the last custom validation.
- B. The Valid property of the Form is automatically changed to False when all the input fields of the Form are not valid.
- C. The Valid property of the Form should be explicitly set to False (e.g. with an Assign) when an input field is not valid.
- D. When built-in validations are enabled, the Valid property of the Form is automatically checked before executing the client action logic.

52. In OutSystems, how do we restrict access to a Screen? B.

- A. Go to the Users application and associate the Screen to a specific role.
- B. In the Screen Properties, untick roles to restrict their access.
- C. Use the CheckRole Action.
- D. We don't. Only users with a username and password can access.

53. D.



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Considering the built-in Role Actions, which of the following options is false?

- A. The CheckRole Action checks if a user has that particular Role.**
- B. The GrantRole Action allows to grant a Role to a user programmatically.**
- C. The RevokeRole Action allows to remove a Role from a user programmatically.**
- D. The CreateUserWithRole Action creates an end-user and assigns it the Role.**

54. In OutSystems, where can we place breakpoints? A.

- A. In Actions only (Client-side and Server-Side)**
- B. Server-side logic only**
- C. Client-side logic only**
- D. In Actions and Variables**

55. In OutSystems, it is possible to inspect the values of A. variables while debugging.

- A. True**
- B. False**

56. Which of the following commands is not available in D. the OutSystems debugger?

- A. Stop Debugging**
- B. Continue Request**
- C. Step Over**
- D. Restart Debugging**

57. When debugging a consumer module, how do we D. guarantee that the execution stops on breakpoints defined in the producer module?



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- A. We just need to set breakpoints in the producer module. The execution will stop on its breakpoints automatically.**
- B. We need to also start the debugger on the producer module.**
- C. Nothing, just leave Service Studio open.**
- D. In the producer, set the Entry Module property to the consumer module.**

58. In OutSystems, a Block is a reusable UI component. Which of the following is NOT correct? D.

- A. A Block promotes reusability, i.e. develop once, reuse many times.**
- B. A Block encapsulates its own logic.**
- C. A Block improves maintainability, i.e., change the design or functionality, affect all usages.**
- D. A Block can only be reused once.**

59. A Block can be used... C.

- A. Only inside other Screens.**
- B. Inside Screens and Blocks, including itself.**
- C. Inside Screens and Blocks, except on itself.**
- D. Only inside other Blocks.**

60. Regarding Placeholders, which of the following options is correct? A.

- A. A Placeholder reserves space in the interface to be allocated when the block is instantiated.**
- B. When a Block with Placeholders is instantiated, it is mandatory to place at least one widget inside the placeholders.**
- C. Placeholders can be added to Screens and Blocks.**
- D. Only one placeholder may be added per Block.**



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61. Regarding Block Events, which of the following options is false? A.

- A. Events can be defined at the Block or Screen level.
- B. Events allow to pass information from the Block's scope to the parent scope.
- C. Events are triggered by a Block and handled by its parent.
- D. Two instances of a Block may use the same handler for the same event.

62. In which of the following situations is it necessary to define a handler for a Block Event? D.

- A. When the event has Input Parameters.
- B. When the Block has Placeholders.
- C. When the event Input Parameters are all mandatory.
- D. When the Event is set to mandatory.

63. In which of the following situations is the On Parameters Changed Event triggered? C.

- A. If the value of a Block Input Parameters changes inside a Client Action of the Block.
- B. The On Parameters Changed must be explicitly triggered by the parent of the Block
- C. When the parent of the Block changes the value of at least one of the Block Input Parameters.

64. Which of the following events is not available in Screens or Blocks? C.

- A. Initialize
- B. Ready
- C. After Fetch
- D. Render



65. Considering the Initialize event of a Screen, which of the following would be the best use case for that event? **D.**

- A. Retrieve data from the server database.
 - B. Act on data returned by a Data Action.
 - C. Manipulate the DOM.
 - D. Set the default value of a Local Variable.
-

66. Which of the following is the correct order of occurrence of events in a Screen? **A.**

- A. Initialize, Ready, Render, Destroy.
 - B. Initialize, Destroy, Ready, Render.
 - C. Ready, Initialize, Render, Destroy.
 - D. Initialize, Render, Ready, Destroy.
-

67. Which of the following options is false regarding Screen Aggregates? **C.**

- A. The Render Event on the Screen is triggered when an Aggregate with the Fetch property set to "only on demand" finishes its execution.
 - B. A Screen Aggregate can be triggered when a screen is initializing or only On Demand.
 - C. All Aggregates, by default, have the Fetch property set to On Demand.
 - D. The On After Fetch Event is triggered for every Aggregate, regardless of its Fetch property.
-

68. Consider an Aggregate with the Fetch property set to Only On Demand. When does that Aggregate run? **B.**

- A. Automatically, when the Screen is initializing.
- B. Programmatically, using a Refresh Data node in a Screen Action.



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C. Automatically, when the Aggregates set to run "At Start" finish.

D. Programmatically, using a Server Action.

69. Which of the following options is correct regarding Client Variables? D.

A. The value of a Client Variable is shared among all logged-in users.

B. Lists or Binary Data can also be stored on Client Variables.

C. Client Variables should be used to store confidential information.

D. Client Variables are useful to cache frequently accessed information.

70. Which of the following would be a good use case for a Client Variable? D.

A. Credit Card Number

B. Profile Picture

C. User Identifier

D. User Name

71. The value of a Site Property can be modified in Service Center to change the application behavior at runtime. A.

A. True

B. False

72. Which of the following is a good use case for a Site Property? C.

A. Current user ID

B. Total Stock Quantity of Products



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C. REST Web Service API Key
D. Search Keyword

73. Which of the following options is correct, when implementing pagination with Tables or Lists? B.

- A. The Start Index property of the Pagination holds the current page number.
- B. The Max Records property of the Pagination holds the number of records to show per page.
- C. The Total Count input of the Pagination pattern should be set to the number of records per page.

74. Regarding sorting in a Table, which of the following options is correct? C.

- A. All header cells need to have the Sort Attribute property defined.
- B. Only the Sort Attribute of the header cells needs to be defined. Data is refreshed automatically.
- C. The On Sort event has an input parameter containing the clicked column.

75. Regarding sorting Lists, which of the following options is correct? C.

- A. Lists have a built-in On Sort event.
- B. Sort clauses cannot be changed dynamically at runtime when using Lists.
- C. Other Widgets should be used to allow the end-user to define the sort criteria.

76. Which of the following is the correct syntax for Entities and Attributes? A.

- A. {Entity}.[Attribute]
- B. (Entity).{Attribute}



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- C. [Entity].{Attribute}**
- D. Entity.Attribute**

77. Considering Aggregates and the SQL Tool, which of the following is the correct option? C.

- A. All queries that can be written in an SQL Tool can be defined in an Aggregate.**
- B. Joins between entities can only be defined in Aggregates.**
- C. The SQL Tool allows to write queries that contain sub-queries.**
- D. Attribute grouping can only be done with the SQL Tool.**

78. A developer should favor using a Structure instead of the Entity in the output of a SELECT SQL Query. Do you agree with this statement? B.

- A. Yes, because queries become easier to maintain.**
- B. Yes, because queries will retrieve fewer Attributes and less data.**
- C. No, since it is exactly the same.**
- D. No, it is preferable to use the Entity instead of the Structure.**

79. Regarding non-SELECT queries, which of the following options is correct? D.

- A. It is not possible to execute DELETE queries with the SQL Tool.**
- B. It is not possible to use Query Parameters in Non-SELECT queries.**
- C. It is mandatory to specify all Attributes in an INSERT query.**
- D. It is mandatory to set the Output Entity or Structure.**



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80. Mobile Apps have access to local storage and can be developed to work offline, online, or in both scenarios. A.

- A. True
- B. False
- C. Either
- D. Neither

81. In a ReactiveWeb App, Data is requested asynchronously, thus allowing a more fluid experience. A.

- A. True
- B. False
- C. Either
- D. Neither

82. LifeTime allows you to manage IT users and teams. A.

- A. True
- B. False
- C. Either
- D. Neither

83. Attributes of static entities can be mandatory or not. A value is only required to be set if the attribute is mandatory. A.

- A. True
- B. False

84. Screens have Output Parameters. B.

- A. True
- B. False
- C. It depends on the setup of the developer
- D. Producer module only

85. The scope of Input Parameters and Local Variables is limited to the Screen where they are defined. A.



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- A. True**
- B. False**
- C. Varies depending on the module setup**
- D. Varies when using function.**

86. Screen Actions can also call Server Actions. A.

- A. True**
- B. False**
- C. Neither**
- D. Either**

87. Different Exceptions are handled by different specific A. Handlers.

- A. True**
- B. False**
- C. Either**
- D. Neither**

88. The "Delete" Delete Rule property option does not B. ensure referential integrity in the relationship and should be used with caution.

- A. True**
- B. False**

89. Considering Users and Roles in OutSystems, which A. of the following options is correct?

- A. By default, end-users are managed in the built-in Users application.**
- B. End-users can only be created programmatically, using Actions from the Users application.**
- C. There are three built-in roles in OutSystems: Anonymous, AppUser and Registered.**
- D. All users, with or without a login, have automatically the Registered Role.**



90. **Consider an Aggregate with a "With or Without" join C. between two entities. What is the expected output of the Aggregate?**

- A. All records from both Entities (FULL OUTER JOIN).**
- B. Only records where there is a match between the two Entities (INNER JOIN).**
- C. All records from the left entity even if there is no match in the right entity (LEFT JOIN).**
- D. All records from the right entity even if there is no match in the left entity (RIGHT JOIN).**

91. **Considering that Aggregates can have hidden A. columns, which of the following options is correct?**

- A. Hiding columns in the Aggregate only affects the preview of the output.**
- B. Columns that are empty in the database are automatically hidden.**
- C. The hidden columns help optimizing the Aggregate.**
- D. The hidden columns are not part of the output.**

92. **Which of the following elements can't be used to D. create calculated attributes in an Aggregate?**

- A. Value of the attributes of the Source Entities.**
- B. Built-in Functions that can be translated to SQL (e.g. Length(), Power()).**
- C. Variables.**
- D. Server Actions using Entity Attributes.**

93. **Consider that we want to apply aggregation functions B. in an Aggregate. Which of the following options is false?**

- A. We can apply multiple aggregation functions inside**



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an Aggregate.

B. The output of the Aggregate will contain all attributes from the Source Entities plus the aggregation columns.

C. We can apply the following functions on attributes of integer data type: sum, max, min, count and average.

D. The output of the Aggregate will not include the columns at grey.

94. The order of the Entities in the join does not matter. B.

A. True

B. False

95. It is possible to translate all Server Actions into SQL. B.

A. True

B. False

96. When using aggregation functions, the output of the Aggregate will not include the columns at grey. A.

A. True

B. False

97. The content inside the Placeholder may be different for each instance. A.

A. True

B. False

98. Recursion is allowed when using blocks. B.

A. True

B. False



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99. **Events only allow to communicate with the parent element.** A.

- A. True
- B. False

100. **When the event is mandatory, a Block event such as the Client Action must be specified to handle the event. Although it may be empty.** A.

- A. True
- B. False

101. **On Parameters Change allows a Block to receive the input change from the parent screen.** A.

- A. True
- B. False

102. **Event Handler can be defined at the Screen level.** B.

- A. True
- B. False

103. **On Parameters Changed is from Parent to Block while Event Handler is from Block to Parent.** A.

- A. True
- B. False

104. **Which event is only available in Screen Aggregates and Data Actions and acts upon data fetched from the database or server.** D.

- A. Ready
- B. Render



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- C. Destroy**
- D. After Fetch**

105. Which event is used to set focus on one particular widget? A.

- A. Ready**
- B. Render**
- C. Destroy**
- D. After Fetch**

106. Which event is best used for adding Javascript listeners to elements that are part of the DOM? A.

- A. Ready**
- B. Render**
- C. Destroy**
- D. After Fetch**

107. Which event is best used to react changes in data? B.

- A. Ready**
- B. Render**
- C. Destroy**
- D. After Fetch**

108. Which event is needed for very specific use cases such as removing Javascript listeners or to clean the DOM that was previously changed in the ready event? C.

- A. Ready**
- B. Render**
- C. Destroy**
- D. After Fetch**

109. Which event is useful when aggregates depend on each other? D.



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- A. Ready
 - B. Render
 - C. Destroy
 - D. After Fetch
-

110. Which event handler of the first aggregate can be used to refresh the query of the second aggregate? B.

- A. On Ready
 - B. On After Fetch
 - C. On Destroy
 - D. After Fetch
-

111. Which event is needed if we do some logic over the result such as checking if it is empty? D.

- A. Ready
 - B. Render
 - C. Destroy
 - D. After Fetch
-

112. For a record to be included in the output result it must be true for all filters defined. A.

- A. True
 - B. False
-

113. Considering the following Entities (<https://drive.google.com/file/d/1WsHUUMSgcx3Nb-wSMrshSTKe-SqnLCcRG/view?usp=sharing>), what is required to create a many-to-many relationship between them? A.

- A. Create a third Entity that contains two attributes of types Order Identifier and Product Identifier.
- B. Create a third Entity with a primary key of type



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Order Identifier and an attribute of type Product Identifier.

- C. Create an attribute of type Order Identifier in the Product Entity and an attribute of type Product Identifier in the Order Entity.**
- D. Create an attribute of type Product Identifier in the Order Entity.**

114. OutSystems, an Entity Identifier ... **C.**

- A. ... must have its Data Type set to Long Integer.**
- B. ... must be set to Auto Number.**
- C. ... can only be a single attribute.**
- D. ... is created automatically and cannot be modified.**

115. Considering the following Aggregate **A.**
(<https://drive.google.com/file/d/11tUfXgUASyo932VISD6nB4Xmho342ZNn/view?usp=sharing>), what will be the attributes of the GetOrdersShippingState.List.Current record?

- A. The two aggregation attributes: ShippingState and Count.**
- B. The two aggregation attributes (ShippingState and Count) plus all the attributes of the Source Entity.**
- C. Six attributes corresponding to the six visible columns in the Aggregate: ShippingState, Count, Description, DueDate, CreatedOn and Priority.**
- D. The two aggregation attributes (ShippingState and Count) plus the columns used to calculate these aggregations.**

116. Considering the following Aggregate **D.**
(<https://drive.google.com/file/d/1IRBcU-VYjDN-h0tAlOhJ4ZOL4Nm2udq86/view?usp=sharing>), where the Orders are fetched with their reviewers (Employees), which of the following



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options is correct?

- A. The Aggregate only returns Orders with Priority, Status and Employee.
- B. The Aggregate returns Orders without Employee and without Status.
- C. The Aggregate returns Orders with Status and at least one Employee.
- D. The Aggregate returns Orders with Priority and with zero or more Employees.

117. How would you change the following Aggregate (<https://drive.google.com/file/d/1inmyBDK2wZl-WDS-SzmSrZ1B7gs6hlba/view?usp=sharing>) to return the number of orders per priority? B.

- A. Change the Join between the Order and the Priority to Only With and create a Count over the Priority.Id attribute.
- B. Create a Group By over the Priority.Id attribute and a Count over the Order.Id attribute.
- C. Create a GroupBy over the Order.Id attribute and a Count over the Priority.Id attribute.
- D. Remove the Join between the Order and the OrderStatus and create a Count over the Priority.Id attribute.

118. Considering the On Initialize lifecycle event, which of the following options is true? A.

- A. The On Initialize event is triggered before the Screen or Block is rendered and before fetching any data.
- B. The On Initialize event is triggered after the Screen or Block has been rendered, so you can use it to manipulate its structure.
- C. The On Initialize event is triggered after an Aggre-



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gate finishes fetching data and can be used to act upon the retrieved data before it's used in the Screen.
D. The On Initialize event is triggered after the input parameter of a Block changes.

-
119. The following Screen D.
(<https://drive.google.com/file/d/1gm2xpb-BQmE-KTAHtCdj4wT0jNLnpDzZX/view?usp=sharing>) has two Dropdowns, one to select a Country and one to select a City. The GetCountries and GetCities Aggregates provide the countries and the cities to be displayed in the respective dropdowns and are both set to be fetched At Start. Which of the following options is not a valid step if we want to just fetch the cities for the country selected in the respective dropdown?
- A. Set the Fetch property of the GetCities Aggregate to Only On Demand.
 - B. Refresh the GetCities Aggregate in the OnChange Action of the Country Dropdown.
 - C. Filter the GetCities Aggregate by the selected country.
 - D. Call the GetCities Aggregate in the GetCountries' On After Fetch Event handler.
-
120. Regarding Blocks in OutSystems reactive apps, B.
which of the following options is correct?
- A. Blocks can only be instantiated on Screens.
 - B. Blocks can be instantiated on Screens and other Blocks.
 - C. Blocks can be instantiated on Client Actions on the Screen.
 - D. Blocks can be instantiated on Screens and external HTML pages, using a special HTML tag.
-



121. Which of the following options is a valid usage of the A.

Trigger Event node

(https://drive.google.com/file/d/1R2cEa-XAB6XyZSb-dHVbD8tVY_4E_h4ge/view?usp=sharing)?

A. The Trigger Event allows a Block to notify its parent (Screen or Block) that something relevant occurred in the scope of the Block.

B. The Trigger Event allows a Screen to notify its children (Blocks) that something relevant occurred in the scope of the Screen.

C. The Trigger Event allows a Block to notify its children (other Blocks) that something relevant occurred in the scope of the Block.

D. The Trigger Event allows a Screen to notify its parent (Screen or Block) that something relevant occurred in the scope of the Screen.

122. Consider a Form with a Save button with the Built-in C.

Validations property set to Yes. When a user clicks on the Save button, some validations over the data submitted to the Form are automatically performed by OutSystems by default. Which validations are those?

A. Check if the mandatory fields are filled in.

B. Check if the mandatory fields are filled in and if the non-mandatory fields, that are later used in the logic, are also filled in.

C. Check if the mandatory fields are filled in and if the data submitted by the user matches the data type expected in the input fields.

D. Check if the mandatory fields are filled in and if the data submitted by the user matches the data type of the Form's data source.

123. In the following scenario, we are implementing the D.
ColorsDropdown widget



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(<https://drive.google.com/file/d/109nu1A-BslkBff1G1BtfJaxn-vCRkfNUA/view?usp=sharing>) which will allow a user to select a color. What should be set in the Options Text property to make sure that the names of the colors appear in the dropdown?

- A. Color.Id
- B. GetColors.Color.Label
- C. Color
- D. Color.Label

124. Considering a Button in a Screen, which of the following options cannot be set as its On Click Destination? C.

- A. Screen.
- B. Client Action.
- C. Block.
- D. External Site.

125. Consider the Action called Absolute C.
(<https://drive.google.com/file/d/1whQveFFlesOJl-kA1Qi4JMEV7-oUAZU1f/view?usp=sharing>) which returns an absolute value (abs) of a number N passed as Input Parameter. When does the Action return 0 ?

- A. Never.
- B. When the input parameter (N) is less than zero.
- C. When the input parameter (N) is zero.
- D. When the input parameter (N) is greater than zero.

126. Consider the following Server Action. What happens B.
if the GetEmployeeById
(<https://drive.google.com/file/d/1Q5JfXEu9L5OsY017HLrM-bl8ZlsRI8BJ3/view?usp=sharing>) Aggregate does not return any record?



- A. The DatabaseException flow is executed.**
 - B. The RecordNotFound flow is executed.**
 - C. No exception flow is executed.**
 - D. The module's global exception handler is executed.**
-

127. Considering the Function property in Client Actions, A. which of the following options is correct?

- A. Setting the Function property to Yes restricts the Action to have only one Output Parameter.**
 - B. Setting the Function property to No ensures the Action can only be used in the module where it is defined.**
 - C. Setting the Function property to Yes is not possible, if the Action is exposed to other modules as Public.**
 - D. Setting the Function property to No ensures the Action can only be used in Screen Expressions.**
-

128. Considering that Michael is a user of the Orders application, with only the OrdersAdmin Role assigned to him, which of the following options is correct?

- A. Michael has access to Screens with the Registered Role checked.**
 - B. Michael does not have access to Screens with the Anonymous Role checked.**
 - C. Michael has access to Screens that have the OrdersAdmin Role checked, but not to Screens with the Registered Role checked.**
 - D. Michael has only access to Screens that have the OrdersAdmin Role checked.**
-

129. Which of the following options should not be a use case of client variables?

B.



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- A. Username.
- B. Password.
- C. Search filter keyword.
- D. ID of a user session.

130. Consider the following Action D.
(<https://drive.google.com/file/d/1L6qUwd2jjqWAlu-UB-Kv5gQghendWoMr2/view?usp=sharing>), that calculates the square root (sqrt) of a positive decimal number (N). Knowing that the function was called with $N = 0$, and the debugger is stopped at the Start node, what will happen when the developer selects the Continue (F9) option highlighted in the picture?

- A. The Action will end, with $\text{sqrt} = 0$.
- B. The Action will throw an exception and sqrt will have no value.
- C. The debugger will stop in the $N < 0$ If node.
- D. The debugger will stop at the breakpoint in the End node.

131. Consider the following Pagination A.
(<https://drive.google.com/file/d/1r1xbok0WwGQ3MYyhG-mj1oVDCz6rVfDA3/view?usp=sharing>) that is associated with an already implemented Table on a Screen. There are no errors in Service Studio, but when the user selects a new page (in the pagination widget) the results do not change on the Table. What is the reason for that behavior?

- A. The GetMovies Aggregate is not being refreshed in the OnNavigate Action.
- B. The Max. Records of the Aggregate should be equal to the total number of movies in the database.
- C. The Table is not being refreshed on the OnNavigate Action.



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D. The Max Records property of the Pagination should be set to GetMovies.Count and the TotalCount to RecordsPerPage.

- | | |
|---|------|
| 132. Consider a Screen that contains a Form to collect Customer data. The Form has a Save Button with the On Click Destination set to a SaveOnClick Action, which sends the data to the server to store it in the database. What is the best way to make sure that we do not send the data to the server when the mandatory Customer data fields have not been filled in? | C. |
| A. Just set the Built-in validations of the Save button to Yes. | |
| B. Perform custom validations for all inputs. If one fails, set the Valid property of the Form to False. | |
| C. Set the Built-in validations of the Save button to Yes and check if the Form's Valid property is True. | |
| D. Set the Built-in validations of the Save button to Yes and add an Exception Handler flow to handle invalid inputs. | |
| 133. Both Link and Button widgets can be used to Navigate to a Screen in the application... | TRUE |
| 134. Both Link and Button widgets can use the Submit method with an Action as the Destination... | TRUE |
| 135. Link widgets can enclose other widgets but Button widgets cannot... | TRUE |
| 136. Session Variables should be used to temporarily store relevant end-user data on the server-side... | TRUE |
| 137. Both SOAP and REST requests are logged by default... | TRUE |



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- | | |
|---|------|
| 138. Out Systems allows consuming all methods of a REST API if it has a Swagger specification... | TRUE |
| 139. Entity is Public and ExposeReadOnly is set to Yes, Consumer modules can query the Entity using Aggregates... | TRUE |
| 140. Aggregates allow to visually add filters to a query... | TRUE |
| 141. Aggregates support calculated attributes over multiple attributes... | TRUE |
| 142. Aggregates have a List as output that type matches the definition of the query..... | TRUE |
| 143. Server Actions set as functions and Public = NO... Can be used within the action flow of a Preparation.... | TRUE |
| 144. Server Actions set as functions and Public = NO... Can have Input Parameters of any data type.... | TRUE |
| 145. Server Actions set as functions and Public = NO... Server Action can be called from the Expression Editor.... | TRUE |
| 146. Events can only be defined and triggered in the scope of Web Blocks.... | TRUE |
| 147. The Trigger Event statement allows a Web Block to notify its parent.... | TRUE |
| 148. In the parent of a Web Block, the same Screen Action can be used to handle different Events.... | TRUE |
| 149. It is not possible to set default value for mandatory parameters. Only non-mandatory can have a default value... | TRUE |



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- | | |
|--|------|
| 150. Structures can have list type attributes.... | TRUE |
| 151. Local variables can be manipulated in the preparation. | TRUE |
| 152. Non-mandatory input parameters may have a default value. | TRUE |
| 153. Web Screens can have more than one input parameter, mandatory or not. | TRUE |
| 154. Links and buttons with the Navigate method have no validations. | TRUE |
| 155. Validations with the Submit method are performed only when the data is submitted to the server. | TRUE |
| 156. The type of validation influences how the validations will be performed. | TRUE |
| 157. Web-Blocks, It does not allow recursion. | TRUE |
| 158. Web-Blocks, The same Web Block can have multiple instances in the same parent element. | TRUE |
| 159. Web-Blocks, Only Web Blocks have Placeholders. | TRUE |
| 160. About Roles, All application users have the "Registered" Role. | TRUE |
| 161. Regarding session, Session data is persisted in the database. | TRUE |
| 162. Regarding session, The session is created on the first request submitted to the server. | TRUE |
| 163. Regarding session, The data is linked individually to each user. | TRUE |



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-
164. About Site Properties, They can be modified through the Service Center. TRUE
-
165. About Site Properties, The values are never reset. TRUE
-
166. About Site Properties, The values are the same for all users of the system. TRUE
-
167. About Web Services, For SOAP services, the contract formalized in a WSDL file is generated. TRUE
-
168. About Web Services, Requests and responses to SOAP services have XML format. TRUE
-
169. About Web Services, It is possible to consume and expose SOAP and REST API's services using OutSystems. TRUE
-
170. An Entity Identifier ... can only be a single attribute. TRUE
-
171. Session Variables values are kept, even after the end-user logs out of the application... FALSE
-
172. Session Variables should be used to store data that can be shared between different end-users... FALSE
-
173. Session Variables values can only be assigned in Server Actions... FALSE
-
174. When exposing a SOAP Web Service, the WSDL file needs to be created manually... FALSE
-
175. Entity is Public and ExposeReadOnly is set to Yes, Entity can only be referenced by modules within the OSMDb application.... FALSE
-
176. FALSE



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Entity is Public and Expose Read Only property set to Yes, Consumer modules can modify data in the Movie Entity using the UPDATE SQL Query...

- | | |
|--|-------|
| 177. Entity is Public and Expose Read Only property set to Yes , The Delete Entity Action can be used by consumer modules within the same application... | FALSE |
| 178. Aggregates allow hiding columns to reduce the number of attributes returned in the query... | FALSE |
| 179. Server Actions set as functions and Public = NO... can have multiple Output Parameters.... | FALSE |
| 180. An Event Handler on the parent has access to the Screen Actions of the Block.... | FALSE |
| 181. Screen Actions Can be set to public.. They cannot be public... | FALSE |
| 182. Input parameters are mandatory. They are Not... | FALSE |
| 183. Input parameters cannot have the list type. They Can... | FALSE |
| 184. Structures can be persisted in the database... That is sessions not structures... | FALSE |
| 185. Structures are variables... They are not variables they are a data definition a composite data type... | FALSE |
| 186. Preparation is a mandatory element. | FALSE |
| 187. Built-in Validations, Validations are performed only when data is submitted to the server. Client-Side? | FALSE |
| 188. Web-Blocks, They use output parameters to notify the parent element (Web Screen or Web Block). | FALSE |



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189. About Roles, Roles cannot be shared between modules. They Can...	FALSE
190. About Roles, It is necessary to create Role Anonymous for new applications.	FALSE
191. About Roles, Roles are used to control user access exclusively through the "Roles" property of pages. Can set widgets also with IF's	FALSE
192. Regarding session, The session data does not expire.	FALSE
193. About Site Properties, Supports basic data types, entity identifiers and lists... NO LISTS	FALSE
194. About Web Services, Documentation is automatically generated for SOAP and REST API's services.	FALSE
195. An Entity Identifier ... must have its Data Type set to Long Integer.	FALSE
196. An Entity Identifier ... must be set to Auto Number.	FALSE
197. An Entity Identifier ... is created automatically and cannot be modified.	FALSE
198. Custom Indexes can be created	Having too many can cause performance issues but creating the right indexes can improve performance
199. Index	Speeds up data retrieval over certain attributes



200. Disadvantage of indexes

Takes up storage space and needs updating every time data is changed (e.g. inserts or updates)

201. Reference attributes create indexes automatically

Index is defined over a particular set of attributes and speed up data retrieval

202. To avoid duplicates with unique indexes

Define the index as unique and can combine one or more attributes i.e. references customer ID but also product ID for their order (stops multiple of same product on one order unless quantity attribute is there)

203. Delete rule

Exists where attributes are references to other entities. Applied when we are deleting a record from reference entity. Protect prevents record from



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being deleted, delete will delete record and anything coming from it, ignore doesn't guarantee referential integrity because it deletes records but ignores anything coming from it and ignores the relationship.

204. Using Deletes and protects from Delete rule

Can implement these rules by adding logic inside of code while manipulating the entities

205. Creating a unique index

Create a new index within entity editor and toggle 'Unique' to "YES" then add attribute IDs

206. Data input types in forms

Text fields, List of options and Date pickers

207. Widgets within Form Widget

Allow user interactions in forms and stores data within attribute in aggregate. E.g. In-



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put, Radio Group, Checkbox, Drop-down, Text Area, Button Group and Switch. They're designed for specific scenarios and data types.

The screenshot shows a form titled "Widget examples" with several input fields and controls. It includes text input fields for "What is your name?" and "What is your email address?". There is a section for "Ordering Instructions" with checkboxes for "Gift Wrapped", "Delivered", and "Separate Receipt". Below that is a text area for "Any additional comments?". The "Order Selection" section has radio buttons for "Style: Fancy" and "Regular", and a dropdown menu for "Choice of Fruit" with options like "Apples", "Oranges", "Bananas", and "Grapes". At the bottom are "Order" and "Clear" buttons.

208. Detail screen

Form with input widgets that end-user will use to interact and change the data. Has an aggregate to fetch the data from database.

209. Input parameter of screen is ID

So that the data fetched is uniquely identified and so aggregate can filter the query .i.e. only a certain product with certain id is fetched

210. Input widget

Expects text, numbers and dates. Properties



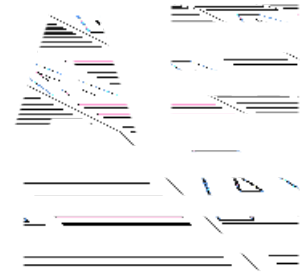
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are Name, Variable, Data type, Max. length and whether or not it is Mandatory.

211. Text area

Multi-line field that expects text, good for descriptions



212. Radio Group

Expects a group of radio buttons that provides a small number of options e.g. Low, Medium and High



213. Button Group

Expects a group of buttons that provides a small number of options and has the Variable where the value of the chosen Item will be saved.



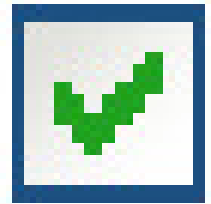
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Bold Italic Underline

214. Checkbox

Allows a user to check or uncheck an option. Data type is Boolean

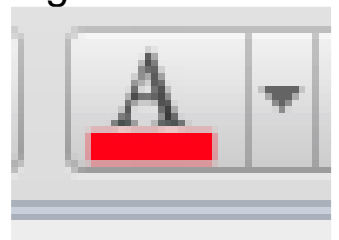


215. Switch

A toggle control that allows a user to select between two options. Data type is Boolean. Swipe left or right behaviour

216. Dropdown

Displays a list of records from which a user can select a value. List of records can be large.



217. Form Widget

Groups input widgets together and is useful to val-



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update user data, submitted by the user as a whole.

218. Where is data from form stored?

All of the input widgets have a Variable property and the value selected in each input field will be stored in the variable. This variable must be within scope of the screen and can be Screen Input Parameter, Local Variable or an attribute of a Source Entity of an aggregate on the Screen i.e. Product name entered in input box

219. Label widget

Displays text to describe an input field and helps identify the purpose of the field i.e. says Name where it wants you to put in your name. The Input Widget property creates an association with the selected input field



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and the label will automatically be visible when field is mandatory.

220. Submitting data in a form

Links and buttons can trigger screen actions. A button can have an action with logic to create or update an attribute in database with the data in input fields of the form.



221. What does OutSystems do?

Enables development and delivery of enterprise and mobile applications using a low-code environment that deploys to enterprise-grade, full stack system. Integrates with other systems easily and provides built-in manage-



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ment and analytics.

222. Platform Server

Compiles, Deploys, Manages, Runs & Monitors.

223. Service Studio

Visual development environment that is used to create mobile and web applications.

224. Integration Studio

Development environment that allows you to create extensions to the platform itself. Provides a number of accelerators to integrate with external resources such as C# and .NET. Takes those resources and creates representations of them in outsystems world. Once they exist in-



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side an extension, they can be published to the server and be used inside service studio as normal outsystems resources.

225. Service center

For managing the server. A platform server management and administration console. A web application that is accessible via web browser and it allows you to look at and configure the platform server from an administration and operation standpoint.

226. Factory in Service Center

Can see what applications are available and monitor the environment and inspect logs generator

227. What is an entity?

an element that allows us to persist and access information that is



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	needed in our applications
228. Each business concept should be represented as	an Entity
229. Entities store sets of data and have (2):	attributes, entity actions
230. Entity Actions: CRUD	CreateCustomer, RetrieveCustomer, UpdateCustomer, DeleteCustomer
231. What are static entities?	are a special type of Entity that creates a predefined list of values that can be used in our applications
232. Static Entities are created with 4 default attributes:	Id, Label, Order, Is_Active
233. T or F, other attributes can be added to a static entity? T	
234. Static Entities have a set of Records, each record has:	an Identifier, attribute values
235. Block is a reusable user interface component that can hold three things:	widgets, patterns and other blocks
236. Blocks have their own scope	input parameters, local variables, screen actions, placeholders, events



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237. Blocks do not have...	Output Parameters
238. Blocks can be placed	inside Screens or other Blocks
239. how many instances of a block can a Parent have?	Multiple
240. Placeholders are available inside or outside a block?	Inside
241. An Event allows a Block to notify	its Parent of an occurrence
242. How are events created inside Blocks?	Have Input Parameters to send data to the parent or be defined as mandatory
243. When a Block triggers an Event...	The Event Handler is executed
244. An Event Handler defines the logic to execute when	an event is triggered
245. an event handler has access to the ___ parameters of the event	input
246. an event handler has access to the parent's	scope
247. A Block can be used Inside Screens and Blocks, except	on itself
248. A ___ reserves space in the interface to be allocated when the block is instantiated	placeholder
249. In a block, inputs and placeholders enable customization	of each instance



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250. How does a block improve maintainability	changes are reflected in every instance of the block
251. Why use a block (2)?	promote resuability, improve maintainability
252. In the parent of a Web Block, the same Screen Ac'on can be used to handle different Events....	TRUE
253. An Event Handler on the parent has access to the Screen Ac'ons of the Block....	FALSE
254. What is an aggregate?	A visual way to show a SQL statement, query to fetch data from entities
255. Aggregates allow us to define database queries in a visual way by	adding Sources, creating Filters, defining Sorting
256. How does an aggregate filter work?	Adds one or more conditions to the query to filter the output records
257. How do aggregates test value?	Allows specifying values for external variables used in the filter or sort conditions, has as many inputs as external variables



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258. What does an aggregate look like as a SQL statement?	SELECT ... FROM {Entities} WHERE {Filters} ORDER BY {Sorting}
259. To display a specific attribute the attribute value is...	is fetched from the aggregate/data action output
260. Aggregates can be defined at the Screen level because widgets have access to the...	output data of Aggregates
261. Aggregates have a Fetch property with 2:	At Start, Only on demand
262. Only on demand aggregates are triggered using a...	Refresh Data node
263. Considering that we can add several filters to an Aggregate	for a record to be included in the output result it must be true for all filters defined
264. data can be fetched from (2):	database, other sources
265. when is data fetched?	Aggregates and Data Actions start executing when the Screen is initializing, when data is available the Screen renders automatically to display it



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266. Widgets are used to display...	the data fetched to the Screen
267. to display a speciic attribute, the attribute value is fetched from	the aggregate/data action output
268. Aggregates have two Fetch properties:	At Start, Only On Demand
269. Fetch property by default is set to	At Start
270. At start option defines that the Screen Aggregates are triggered automatically when....	the screen is initializing
271. Aggregates with Fetch property set to Only on demand do not run when...	screen is initializing, needs to be triggered programmatically
272. Variables are locations in memory that can	hold any data type
273. Every variable must declare its data type and	the data type can't be changed
274. Structures are	custom compound data types
275. Structures data type is a collection of	other simple compound data
276. Structures are defined by	attributes of any data type
277. Built-in Validations for Input Widgets are performed automatically and input values must	comply with the data types of the



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	Variables bound to the widgets
278. BLANK & BLANK are restricted to Basic Data types and Entity Identifiers	Site Properties, Client Variables
279. Two built-in roles for role-based security are:	anonymous, registered
280. All logged in end-users have the	Registered role
281. application-specific Roles can be created, each role has:	check, grant, revoke actions
282. Authorization is granted via roles, roles can be assigned to	users
283. authorization can be managed programatically:	used in server actions, grant/revoke actions
284. Authorization is granted via roles, roles can be assigned to	to users
285. authorization can be managed manually in the	users app
286. roles can be checked in:	screens and actions
287. screen roles property enforces a user to have one of the roles to access	the screen
288. access control for roles in Outsystems (3):	define the user, grant a role to a user, define/check permissions
289. When do you use Manage Dependencies?	



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if you need functionality that isn't included by default (for example, from a Forge component)
