JavaScript, Sixth Edition

Chapter 8 Solutions

Short Quiz 1

* 1. What string property returns the number of characters in a string?

length

* 1. Explain which values you provide for the two arguments of the substring() and slice() methods.

In both cases, you pass to the method the starting index and ending index of the characters you want to extract.

* 1. In the expression var result = sourceString.localeCompare(compareString), what are the possible return values and what does each mean?

The possible return values are a negative value (usually -1), 0, and a positive value (usually 1). A return value of 0 means that sourceString and compareString are equivalent. A return value of -1 means that compareString sorts after sourceString. A return value of 1 means that compareString sorts before sourceString.

Short Quiz 2

1. How do you use the test() method of the RegExp object to check a string against a regular expression?

The test() method returns a value of true if a string contains text that matches a regular expression or false if it doesn’t. The syntax for the test() method is

var *pattern* = test(*string*);

1. What is an anchor in a regular expression? What two characters are used as anchors?

A pattern that matches the beginning or end of a line is called an anchor. The ^ metacharacter matches characters at the beginning of a string, and the $ metacharacter matches characters at the end of a string.

1. What characters surround a subexpression?

()

1. What characters surround a character class?

[]

Short Quiz 3

* 1. When you use the slice() method, you provide two values as arguments. Explain what these two values signify.

The first argument indicates the start position within the array to begin extracting elements. The second argument is an integer value that indicates the number of elements to return from the array, starting with the element indicated by the first argument.

* 1. What is the difference between the shift() and unshift() methods?

The shift() method removes and returns the first element from the beginning of an array, whereas the unshift() method adds one or more elements to the beginning of an array.

* 1. How do the pop() and push() methods work?

The pop() method removes the last element from the end of an array, whereas the push() method adds one or more elements to the end of an array. You append the pop() method to the name of the array whose last element you want to remove. You append the push() method to the name of an array and pass to the method a comma-separated list of values for the elements you want to add.

Short Quiz 4

* 1. Which method do you use to convert a string to an array? Which object is this a method of?

split()

String

* 1. What is the difference between the toString() and toLocaleString() methods of the String object?

You can use the toString() and toLocaleString() methods to convert an array to a string. The toString() method automatically separates converted array elements with commas. The toLocaleString() method formats the returned string according to the conventions of the user’s language or country and also automatically separates each converted array element with that locale’s separator character.

* 1. What is JSON? What is it used for?

JavaScript Object Notation (JSON) is a data format that represents a JavaScript object as a string. JSON is commonly used to send data from an application to a server, or from a server to an application.

# Review Questions

* + - 1. Extracting characters or substrings from a larger text string is known as \_\_\_\_\_\_\_\_\_\_.
         1. parsing
         2. compiling
         3. rendering
         4. stripping
      2. What is the property of the String class that returns the number of characters in a string?
         1. chars
         2. size
         3. width
         4. length
      3. Regular expression patterns in JavaScript must begin and end with which characters?
         1. { }
         2. / /
         3. ( )
         4. [ ]
      4. Which of the following is a method of the RegExp class for working with regular expressions?
         1. search()
         2. subexpression()
         3. test()
         4. class()
      5. Which metacharacter in a regular expression represents any single character?
         1. $
         2. ^
         3. \
         4. .
      6. Which metacharacter(s) in a regular expression represent characters to exclude?
         1. ()
         2. []
         3. [^]
         4. -
      7. A pattern that matches the beginning or end of a line is called a(n) \_\_\_\_\_\_\_\_\_\_.
         1. anchor
         2. root
         3. metacharacter
         4. class
      8. To match any metacharacter as a literal value in a regular expression, you must \_\_\_\_\_\_\_\_\_.
         1. enclose the character in brackets ([ ])
         2. enclose the character in parentheses (( ))
         3. precede the character with a slash ( / )
         4. precede the character with a backslash ( \ )
      9. Which of the following expressions would return false?
         1. /^1./.test("1.10")
         2. /^1\./.test("1.10")
         3. /1.$/.test("1.10")
         4. /1\.$/.test("1.10")
      10. Which of the following quantifiers specifies that the preceding character repeat at least 2 times?
          1. {2}
          2. {2,}
          3. +
          4. ?
      11. Which of the following characters do you use to create a subexpression?
          1. [ ]
          2. / /
          3. ( )
          4. { }
      12. Which of the following expressions represents numeric characters?
          1. \s
          2. \b
          3. \d
          4. \D
      13. Which method of the Array class removes the last element from the end of an array?
          1. pop()
          2. push()
          3. shift()
          4. unshift()
      14. What array would result from the following statement?  
          [white, silver, blue].splice(1, 0, "gray");
          1. [gray, silver, blue]
          2. [white, gray, blue]
          3. [white, gray, silver, blue]
          4. [gray, white, silver, blue]
      15. The JSON.parse() method converts a value to which data type?
          1. Object
          2. String
          3. Array
          4. Number
      16. After running the statements  
          var media = "dvd",  
           label = media.toUpperCase();  
          what is the value of the media variable, and why?

After running these statements, the value of media is “dvd”. The toUpperCase() method transforms the string “dvd” to “DVD” when assigning the value to the label variable, but the value of the original media variable is unaffected by the second statement.

* + - 1. What is the difference between the indexOf() and lastIndexOf() methods?

The indexOf() method identifies the *first* occurrence of a specified string in a target string. The lastIndexOf() method identifies the *last* occurrences of the specified string in the target string.

* + - 1. Explain why you would specify negative argument values for the slice() method.

If you specify a negative value for the starting index, the slice() method starts at the end of the text string; -1 represents the last character in the string, -2 represents the second to last character, and so on. If you specify a negative value for the ending index, the number of characters that the slice() method extracts also starts at the end of the text string.

* + - 1. Does the expression "a" < "A" evaluate to true or false? Why?

The expression evaluates to false. An uppercase letter *A* is represented by Unicode value 65, whereas a lowercase letter *a* is represented by Unicode value 97. For this reason, a lowercase *a* is considered greater than an uppercase *A*. The expression "a" > "A" would evaluate to true.

* + - 1. What is the difference between the shift() and unshift() methods of the Array class?

The shift() method removes and returns the first element from the beginning of an array, whereas the unshift() method adds one or more elements to the beginning of an array.

# Case Projects

## Individual Case Project

Enhance the feedback form in your project to enable users to choose one or more options from a list of at least five options. Include code that adds user selections to either an array or an object, and ensure that if a user deselects one of the options, it is removed from the array or object. Add code to convert the array or object to a string.

Students should submit the feedback form from their individual website, with the following new features:

* The ability for users to choose one or more options from a list of at least five options (most likely using check boxes or a selection list).
* User selections should be added to either an array or an object.
* When a user deselects an item, that item’s value should be removed from the array or object.
* The document should convert the array or object to a string.

## Group Case Project

Have each group member demonstrate the enhancements they created for the Individual Case Project to the group, including reviewing the code. From the different group members’ implementations, decide on what information would be most useful to collect on the group feedback form, and whether to store it in an array or an object. Then write the code together to add these features to the group site, ensuring that the code removes an option from the array or object if a user deselects it. Add code to convert the array or object to a string.

Each team should submit the feedback form from their group website, with the following new features:

* The feedback form should collect information relevant to the group website content.
* User selections should be added to either an array or an object.
* When a user deselects an item, that item’s value should be removed from the array or object.
* The document should convert the array or object to a string.