Solutions to Quick Checks

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# Quick Check Answers

Quick Check 1

1. What is object-oriented programming?

Object-oriented programming (OOP) refers to the creation of reusable software objects that can be easily incorporated into multiple programs.

**Feedback**: The term object specifically refers to programming code and data that can be treated as an individual unit. Objects are also called components.

1. Provide code to create an object literal named pokerCard containing a suit property with a value of “Spades” and a rank property with a value of 12.

let pokerCard = {  
 suit: "Spades",  
 rank: 12  
};

**Feedback**: To define an object literal, provide the object’s name followed by a command block that stores object properties within a comma-separated list of *name*:*value* pairs.

1. Provide code that adds a dropRank() method to the pokerCard object that decreases the value of the rank property by 1.

let pokerCard = {  
 suit: "Spades",  
 rank: 12,  
 dropRank: function() {  
 this.rank = this.rank - 1;  
 }  
};

**Feedback**: Methods are added to a custom object by including a function name and its commands as part of the object definition.

1. Provide code to return the value of the rank property of the pokerCard object in bracket notation.

pokerCard["rank"]

**Feedback**: Bracket notation places the name of property within square brackets as a text string.

Quick Check 2

1. How does an object class differ from an object literal?

An object literal is a single object that is created for a single purpose; an object class is a definition of an object that can be created multiply times for different contexts within the app.

**Feedback:** An object class acts as a template or blueprint for the creation of new objects all sharing a common collection of properties and methods. Each new object based on a class, creates an instance of that class.

1. Provide code for a construction function named bounceBall with two parameters named x and y and properties named speedX and speedY with initial values equal to the x and y parameter values.

function bounceBall(x, y) {  
 this.speedX = x;  
 this.speedY = y;  
}

**Feedback:** Object constructors are defined with a constructor function in which the properties are defined using the this keyword along with the property name and value.

1. Provide code to instantiate an object variable named myBall created from the bounceBall class with initial x and y values of 50 and 100.

let myBall = new bounceBall(50, 100);

**Feedback:** Objects are instantiated using an object constructor having the general form: new *Class*(*parameters*), where *Class* is the name of an object class and *parameters* are the values passed to the object class used in creating an instance of that class.

1. What is an object prototype and what is its relationship to a constructor function?

A prototype is an object that acts as a template for all the properties and methods associated with the object’s class. If the constructor function can be thought of as a machine to instantiate objects, then a prototype is the blueprint for that object.

**Feedback:** When an object is instantiated from a constructor function, it uses properties and methods defined in that object class’s prototype.

1. Provide code to add the moveBall() method to the prototype of the bounceBall constructor function.

bounceBall.prototype.moveBall = *function*

**Feedback:** To add a method to a prototype, apply the command *objClass*.prototype.*method* = *function*; where *method* is the name of the method and *function* is the function applied by the method.

Quick Check 3

1. What is the lexical environment of a variable or function?

The lexical environment is the context that encompasses a function and its variables and their values.

**Feedback:** The JavaScript Interpreter applies lexical scope in evaluating all variables it encounters, starting by looking for a matching variable declaration within the innermost function and moving upward. The interpretation of variable and its value exists within the lexical environment that encompasses a function and its variables and their values.

1. What is a closure?

A closure is a copy is made of a function and, thus, the lexical environment in which that function exists.

**Feedback:** Closures “enclose” everything about the function, including its context within the larger source code.

1. What is a disadvantage of creating a closure?

A closure copies a function’s lexical environment and, thus, takes up more system resources such as system memory.

**Feedback:** Because closure copies a function’s lexical environment, it takes more memory. Overuse of closures can lead to excessive memory consumption, impairing system performance. You should use closures only when necessary to achieve a program objective.

The slice() method slices out array items starting with the first index up to (but not including) the last index.

1. What is the difference between a public method and private method?

A public method is defined for the object prototype and, thus, can be called outside of the object. A private method is a method created within the constructor function and, thus, is accessible only within the constructor.

**Feedback:** Public methods are part of an object prototype are accessible outside of the object. Private methods are functions nested within the constructor function and, thus, cannot be accessed outside the function.

1. What is a privileged method?

A privileged method is a method that accesses private variables and methods but is also accessible to the public.

**Feedback:** Privileged methods are methods of an object constructor, but they are methods that involve calls to private functions within the constructor.

Quick Check 4

1. Provide code to specify that the Clothing object class is a subclass of the Merchandise class.

Clothing.prototype = new Merchandise();

**Feedback:** To chain object classes together, define the prototype of each class as an instance of a higher-order class.

1. Provide an expression to test whether the myCard object contains a property named “suit”.

myCard.hasOwnProperty("suit")

**Feedback:** To determine whether an object supports a particular property use the hasOwnProperty() method.

1. Which command should be used to loop through properties of an associative array?

for (let *prop* in *object*) {  
 *commands*  
}

**Feedback:** Because associative arrays do not use indexes, you must examine their contents using a for in program loop.

1. When would you use the call() method with an object?

Use the call() method to call a method from another object and apply it to the current object with argument values entered in comma-separated list.

**Feedback:** Another way of sharing a method between objects is the call() method. The call() method is similar to the apply() method except that the argument values are placed in a comma-separated list of values instead of an array.

1. How do you convert a JSON text string into JavaScript object? How do you convert a JavaScript object into a JSON text string?

Use the parse() method to convert a JSON text string into a JavaScript object. Use the stringify() method to convert a JavaScript object into a JSON text string.

**Feedback:** Use the parse() method to convert a JSON text string into a JavaScript object. Use the stringify() method to convert a JavaScript object into a JSON text string.