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We are determining if JavaScript implements Shallow, Deep, or Ad Hoc Binding by running a program that passes a function as a parameter to another function within an environment. Depending on the value of x, we can determine what kind of binding does JavaScript uses. We can have 4 functions to test if JavaScript uses one of the three bindings. We have a parent function sub1() that holds the other three functions. Then we have sub2(), the passed function as a parameter to print the x value and show us what type of binding it is. Then we have sub3 that sets a local x variable to 3 and calls sub4() with the parameter of sub2. Then we have sub4() with a parameter of subx() to set a local variable x to 4 and call the parameter subroutine. Then we set a x within sub1() and call sub3() to see the binding. If the value is 1, then it is Deep Binding, if it is 4, then it is shallow binding, if it is 3, then it is ad hoc binding.

```javascript
// Jeffrey Lansford
// Chapter 9 problem
// 10/20/2020
// program to test JavaScript binding of global varibles during subroutine passin
g
// run with Node.js with the following command `node chapter9.js`

function sub1() {
    var x;
    function sub2() {
        // alert(x);
        console.log(`x = ${x}`);
        if (x == 1) {
            console.log("JavaScript is Deep Binding");
        } else if (x == 4) {
            console.log("JavaScript is Shallow Binding");
        } else if (x == 3) {
            console.log("JavaScript is Ad Hoc Binding");
        } else {
            console.log("Something is wrong...");
        }
    }
    function sub3() {
        var x;
        x = 3;
        sub4(sub2);
    }
    function sub4(subx) {
        var x;
        x = 4;
        subx();
    }
```

```
    x = 1;
    sub3();
}

sub1();
```

```
jeffrey@MFS-3:/mnt/d/Documents/NMSU/CS471/Program6$ node chapter9.js
x = 1
JavaScript is Deep Binding
```

Since x is 1, we can determine that JavaScript uses Deep Binding. Since the passed function sub2() is defined in sub1() environment, it gets that global variable x, defined to be 1.