

**EXAMPLE 42:** THE CLOSURE VARIABLE ALWAYS  
WINS OVER EITHER LOCAL OR GLOBAL VARIABLES.

```
function Circle(r) {  
  this.radius = r;  
}
```

```
var PI = 3.14;
```

```
window.onload = function(){  
  var circle1 = new Circle(3);  
  var circle2 = new Circle(4);  
  var circle3 = new Circle(5);
```

```
  var circleArray = [circle1, circle2, circle3];  
  var PI = 3.1415;
```

```
  var printStuffAboutCircleArray = function(circleArray) {  
    var PI = 3.14159;
```

```
    var getArea = function(circle){  
      console.log("Inside the nested function getArea, PI = " + PI);  
      return PI * circle.radius * circle.radius;  
    };  
    for (var i = 0; i < circleArray.length; i++) {  
      var c = circleArray[i];  
      console.log(c.radius + ", " + getArea(c));  
    }  
  }  
}
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    return PI * circle.radius * circle.radius;  
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  for (var i = 0; i < circleArray.length; i++) {
```

```
    var c = circleArray[i];
```

```
    console.log(c.radius + " * " + PI + " = " + getArea(c));
```

```
  }
```

```
  return getArea;
```

```
}
```

**CLOSURE** + **NESTED**

**VARIABLES LOCAL TO THE OUTER SCOPE**

**"REFERENCING"**

```
var areaFunction = printStuffAboutCircleArray(circleArray);  
areaFunction(circle1);
```

```
};
```

```
var PI = 3.14;
```

```
window.onload = function(){  
  var circle1 = new Circle(3);  
  var circle2 = new Circle(4);  
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      console.log("Inside the nested function getArea, PI = " + PI);  
      return PI * circle.radius * circle.radius;  
    };  
    for (var i = 0; i < circleArray.length; i++) {  
      var c = circleArray[i];  
      console.log(c.radius, getArea(c));  
    }  
    return getArea;  
  }
```

**CLOSURE =**

SAY WE HAVE A **NESTED**

**VARIABLES LOCAL TO THE  
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```
  var areaFunction = printStuffAboutCircleArray(circleArray);  
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```
    };  
    for (var i = 0; i < circleArray.length; i++) {
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      var c = circleArray[i];
```

```
      console.log(c.radius + " * " + PI + " = " + getArea(c));
```

```
    }  
    return getArea;
```

```
  }
```

```
  return getArea;
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}
```

```
var areaFunction = printStuffAboutCircleArray(circleArray);
```

```
areaFunction(circle1);
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  var getArea = function(circle){  
    console.log("Inside the nested function getArea, PI = " + PI);  
    return PI * circle.radius * circle.radius;  
  };  
  for (var i = 0; i < circleArray.length; i++) {  
    var c = circleArray[i];  
    console.log(c.radius + " * " + PI + " = " + getArea(c));  
  }  
  return getArea;  
}
```

**CLOSURE**

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```
var areaFunction = printStuffAboutCircleArray(circleArray);  
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```
function Circle(r) {  
  this.radius = r;  
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window.onload = function(){  
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      console.log("Inside the nested function getArea, PI = " + PI);  
      return PI * circle.radius * circle.radius;  
    };  
    for (var i = 0; i < circleArray.length; i++) {  
      var c = circleArray[i];  
      console.log(c.radius + ", " + getArea(c));  
    }  
  }  
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function Circle(r) {  
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```
var PI = 3.14;
```

```
window.onload = function(){  
  var circle1 = new Circle(2);  
  var circle2 = new Circle(4);  
  var circle3 = new Circle(5);
```

**GLOBAL VARIABLE**

```
var circleArray = [circle1, circle2, circle3];
```

```
var PI = 3.1415;
```

**LOCAL VARIABLE**

```
var printStuffAboutCircleArray = function(circleArray) {
```

```
  var PI = 3.14159;
```

**CLOSURE VARIABLE**

```
  var getArea = function(circle) {
```

**NESTED FUNCTION**

```
    console.log("Inside the nested function getArea, PI = " + PI);
```

```
    return PI * circle.radius * circle.radius;
```

```
  };
```

```
  for (var i = 0; i < circleArray.length; i++) {
```

```
    var c = circleArray[i];
```

```
    console.log("Area of " + c.radius + " is " + getArea(c));
```



```
var PI = 3.14;
```

```
window.onload = function(){  
  var circle1 = new Circle(3);
```

```
  var circle2 = new Circle(4);  
  var circle3 = new Circle(5);
```

```
  var circleArray = [circle1, circle2, circle3];
```

```
  var PI = 3.1415;  
}
```

```
var printStuffAboutCircleArray = function(circleArray) {  
  var PI = 3.14159;
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```
  var getArea = function(circle){
```

```
    console.log("Inside the nested function getArea, PI = " + PI);
```

```
    return PI * circle.radius * circle.radius;
```

```
  };
```

```
  for (var i = 0; i < circleArray.length; i++) {
```

```
    var c = circleArray[i];
```

```
    console.log(c.radius + " " + getArea(c));
```

```
  }
```

```
  return getArea;
```

```
}
```

```
var areaFunction = printStuffAboutCircleArray(circleArray);  
areaFunction(circle1);
```

**EXAMPLE 42: THE CLOSURE VARIABLE ALWAYS WINS OVER EITHER LOCAL OR GLOBAL VARIABLES.**

**REFERENCING ENVIRONMENT RETURNS THE NESTED FUNCTION..**

```
var circle1 = new Circle(3);  
var circle2 = new Circle(4);  
var circle3 = new Circle(5);
```

```
var circleArray = [circle1, circle2, circle3];  
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```
    var getArea = function(circle){  
        console.log("Inside the nested function getArea, PI = " + PI);  
        return PI * circle.radius * circle.radius;
```

```
    };  
    for (var i = 0; i < circleArray.length; i++) {  
        var c = circleArray[i];  
        console.log(c.radius + ", " + getArea(c));  
    }
```

**AND THE NESTED FUNCTION IS USED...**

```
    return getArea;
```

```
};  
  
var areaFunction = printStuffAboutCircleArray(circleArray);  
areaFunction(circle1);
```

**WHAT VALUE OF PI IS USED?!**

```
function Circle(r) {  
  this.radius = r;  
}
```

**WHAT VALUE OF PI IS  
USED?!**

```
var PI = 3.14;
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```
window.onload = function(){  
  var circle1 = new Circle(3);  
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**GLOBAL VARIABLE?**

```
var circleArray = [circle1, circle2, circle3];
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```
var PI = 3.1415;
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**LOCAL VARIABLE?**

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var printStuffAboutCircleArray = function(circleArray) {
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```
  var PI = 3.14159;
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**CLOSURE VARIABLE?**

```
  var getArea = function(circle) {
```

**NESTED FUNCTION**

```
    console.log("Inside the nested function getArea, PI = " + PI);
```

```
    return PI * circle.radius * circle.radius;
```

```
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  for (var i = 0; i < circleArray.length; i++) {
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    var c = circleArray[i];
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    console.log("Area of " + c.radius + " is " + getArea(c));
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WHAT VALUE OF PI IS  
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GLOBAL VARIABLE?

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```
var PI = 3.1415;
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LOCAL VARIABLE?

```
var printStuffAboutCircleArray = function(circleArray) {
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CLOSURE VARIABLE?

NESTED FUNCTION

```
  console.log("Inside the nested function getArea, PI = " + PI);  
  return PI * circle.radius * circle.radius;
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```
for (var i = 0; i < circleArray.length; i++) {
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  var c = circleArray[i];
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  console.log("Area of " + c.radius + " is " + getArea(c));
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**THE CLOSURE VARIABLE ALWAYS WINS  
OVER EITHER LOCAL OR GLOBAL VARIABLES.**

**IF YOU ARE A JAVA OR C++ OR PYTHON  
PROGRAMMER, THIS IS EXPLOSIVE.**

**YOU CAN NO LONGER BE SURE WHAT VALUE OF A VARIABLE  
A FUNCTION WILL USE, OR WHERE IT CAME FROM.**

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**BUT THE FLIP SIDE IS - USING CLOSURES YOU CAN WRITE  
FUNCTIONS THAT WILL ALWAYS USE THE VALUES YOU WANT THEM  
TO, NEVER MIND HOW THEY ARE USED.**

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