

Functions, Part 2 of 2

Topics

- Functions That Return a Value
- Parameter Passing
- Local Variables

1

Functions Can Return Values

```
/** AverageTwo - calculates and returns the average of two numbers
** Inputs:  num1 - a number
**          num2 - a number
** Outputs: the average of num1 and num2
***/
function AverageTwo (num1, num2)
{
    var average; /* average of the two numbers */
    average = (num1 + num2) / 2;
    return average;
}
```

2

Using AverageTwo

```
<head>
<title>AverageTwo Example</title>
<script type="text/javascript">
<!--
function AverageTwo (num1, num2)
{
    var average;
    average = (num1 + num2) / 2;
    return average;
}
//-->
</script>
</head>
<body>
<script type="text/javascript">
<!--
var ave, value1 = 5, value2 = 8;
ave = AverageTwo(value1, value2);
alert("The average is " + ave);
//-->
</script>
</body>
```

3

Parameter Passing

- **Actual parameters** (a.k.a. the arguments) are the parameters that appear in the function call.
average = AverageTwo (value1, value2) ;
- **Formal parameters** are the parameters that appear in the function header.
function AverageTwo (num1, num2)
- Actual and formal parameters are matched by position. Each formal parameter receives the value of its corresponding actual parameter.

4

Parameter Passing

- Corresponding actual and formal parameters do not have to have the same name, but they may.

5

Local Variables

- Functions only “see” (have access to) their own **local variables**.
- Formal parameters are declarations of local variables. The values passed are assigned to those variables.
- Other local variables can be declared within the function body.

6

Parameter Passing and Local Variables



```
<head>
<title>AverageTwo Example</title>
<script type="text/javascript">
<!--
function AverageTwo(num1, num2)
{
  var average;
  average = (num1 + num2) / 2;
  return average;
}
//-->
</script>
</head>
```

```
<body>
<script type="text/javascript">
<!--
var ave, value1 = 5, value2 = 8;
ave = AverageTwo(value1, value2);
alert("The average is " + ave);
//-->
</script>
</body>
```



Same Name, Still Different Memory Locations



```
<head>
<title>AverageTwo Example</title>
<script type="text/javascript">
<!--
function AverageTwo(num1, num2)
{
  var average;
  average = (num1 + num2) / 2;
  return average;
}
//-->
</script>
</head>
```

```
<body>
<script type="text/javascript">
<!--
var average, num1 = 5, num2 = 8;
average = AverageTwo(num1, num2);
alert("The average is " + average);
//-->
</script>
</body>
```



Changes to Local Variables Do NOT Change Other Variables with the Same Name



```
<head>
<title>AddOne Example</title>
<script type="text/javascript">
<!--
function AddOne(num1)
{
  num1 = num1 + 1;
  alert("In AddOne: num1 = " +
    num1);
}
//-->
</script>
</head>
```

```
<body>
<script type="text/javascript">
<!--
var num1 = 5;
AddOne(num1);
alert("In the body: num1 = " +
  num1);
//-->
</script>
</body>
```

