Functions, Part 2 of 2

Topics

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

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;
}
```


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>
```


Parameter Passing

- **Actual parameters** 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.

Parameter Passing

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

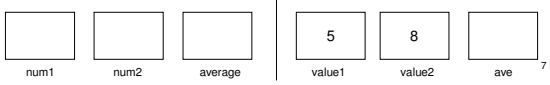
Local Variables

- 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.

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>
```

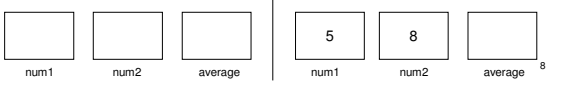
```
<body>
 <script type="text/javascript">
  <!--
    var ave, value1 = 5, value2 = 8;
    ave = AverageTwo(value1, value2);
    alert("The average is " + ave);
  //-->
 </script>
</body>
```



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>
```