Announcements

- You must implement programming projects by yourself
First Bug

- [http://www.jamesshuggins.com/h/tek1/first_computer_bug.htm](http://www.jamesshuggins.com/h/tek1/first_computer_bug.htm)
Introduction to Functions

- Function → An entity that completes a particular task for us
- It can take values necessary to complete a particular task
- After completing a task it returns to the point after the call
- Examples of JavaScript functions
  - `document.writeln`
  - `alert()`
- You can define your own functions.
- Order of declaration is immaterial
- **Example**: Functions.html
- **Note**: `+=`
  - `x += 10 → x = x + 10`
Introduction to Functions

- General form of a function is:

  
  ```
  function name (<comma-separated list of parameters>) {
    statements
  }
  ```

- Functions are invoked (called) by using the () operator
- A function can receive values via parameters
  - We don’t use var for parameters
- A function may return a value
- There are other approaches to define functions
Scope of Variables

- Variables declared in a function are called local variables.
- They are created on entry to the function and destroy on exit.
- You can use the same name in different functions as they are different variables.
- Variables declared outside of a function are called global variables.
Functions Returning Values

- A function can return a value via the return statement
  
  ```
  return expression;
  ```

- A call to a function that returns a value can be used as an expression.

- The function execution terminates when a return statement is executed.

- A return statement with no return value terminates the function execution.

- Can we return more than one value?

  **Example:** FunctionReturn.html

- Can we reduce the code for the `maxValue` function?

- What if we want to compute the maximum of more than two values?
JavaScript (Functions)

- Advantages of functions are:
  - Allows you to factor out common code
  - Allows you to reuse code
  - Allows you to control the code complexity
- While designing a solution to a problem you can divide a problem into sub-problems each represented by a function
main() Function

- The organization for code dealing with functions will be as specified in the following example.
- **Example:** MainFunction.html
Global Variables

- Global Variables $\rightarrow$ variables defined outside of any function
- We want to avoid using global variables. Why?
Passing Values to Function

- Mechanism used to pass values to function is called *pass-by-value*
- **Parameters**
  - Variables that receive data
  - There are normal variables
- **Arguments**
  - Values you pass to a function
- **Example**: PassByValue.html
- Does it matter how we name the parameters?