JAVASCRIPT FOR THE C# DEVELOPER

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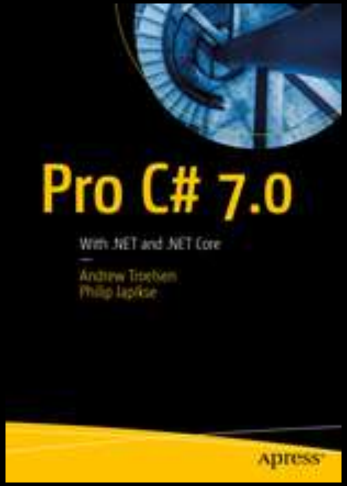

The Cincinnati Day of Agile/Cincy.Develop()

- The annual Cincinnati Day of Agile builds on successful events from past years to present a conference to both introduce those new to Agile and encourage stimulating conversation for those more advanced in the subject.
- Event takes place Friday, July 28, 2017 in West Chester, OH
- **Sponsors**
  - If you are interested in sponsoring, please contact Phil at admin@dayofagile.org for more information.
- **Mailing List**
  - If you would like to be added to our mailing list, please email us at admin@dayofagile.org with subscribe as the subject.
- **Website**: www.dayofagile.org

JAVASCRIPT GRAMMAR

GRAMMAR IS SIMILAR TO C#

- Case Sensitive (camel case is convention)
- Comments (// or /*   */)
- White space is not significant
- Variables start with character
- Strings
  - Can use Single or Double Quotes (must match)
  - Escape characters with backslash
- Statement terminator (;)
  - Be explicit!
- Place open brace on same line
- "use strict"
  - "Error: Variable undefined in strict mode"

OPERATORS AND DATA TYPES

OPERATORS

- Standard Order of Operations applies
  - Parenthetical groupings
  - Exponents/Roots (Math.pow(x,y) || XeY, Math.sqrt(x))
  - Multiplication/Division/Remainder (*,/,%)
  - Addition/Subtraction (+,-)
- Unary
  - Type/To Number/Negation/Logical Not (typeof,+,-,!)
- Ternary
  - (boolean) ? DoIfTrue : DoIfFalse;

OPERATORS

- Logical And/Logical Or (&&,||)
- Inequality
  - <, <=, >=, >
- Equality
  - With type conversion (==,!=)
    - (“1” == 1) //true
  - Without type conversion (===, !==)
    - (“1” === 1) //false

CORE DATA TYPES AND VALUES

Data Types

- String
- Number
  - Double precision 64-bit binary
- Boolean
- Array
- Date
- RegEx
- Function
- Object

Built in Values

- Boolean
  - true, false
- null
- undefined
- NaN
  - isNaN(“foo”) //true
- Infinity
  - 10/0

STATEMENTS

```
if (condition) { /* DoIfTrue; */ } else { /* DoIfFalse;*/ }

while (false) { /* do work */ }

do { /* work */ } while (false);

for (var x=0;x<10;x++) { /* do work */}

var arr = [1,2]; for (var key in arr) { /* do something */ }

try {} catch (ex) {}

switch (x) {
    case 1: /* do something */ break;
    case 2: /* falls through */
    case 3: break;
    default:
```

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Data Types

Truthiness

ARRAYS

ARRAYS

- Extremely useful
- Loosely typed
  - Indices can be strings
- Properties
  - Length = highest index + 1

- “Standard Operators”
  - indexOf/lastIndexOf
  - sort(function)
  - reverse

ARRAY METHODS

- forEach(function(index,value)
  - Executes function for each element
- every(functionTest(value,index))
  - True if all elements match test
- some(functionTest(value,index))
  - True if one element matches test
- filter(functionTest(value,index))
  - New array where elements match test
- join([separator])
  - Create string from all values
- map(function(value,index))
  - Creates a new array from return value of the function
- reduce[Right](function(previousValue,currentValue,index) [, initialValue])
  - Recursively process the elements

ARRAY METHODS

- pop
  - Remove and return last element
- shift
  - Remove and return first element
- push([items])
  - Add elements to end and return length
- unShift([items])
  - Add elements at start and return length

- slice(start_pos,length)
  - Returns new array
- splice(start_pos,length,[items])
  - Remove items (length != 0), Adds [items] at start_pos

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Array Examples

FUNCTIONS

FUNCTIONS

- Functions in JavaScript are first class objects
- Can be named or anonymous
- Can be passed as arguments to other functions
- All arguments are optional
- Additional arguments can be passed in
  - Accessed through the arguments collection

IMMEDIATELY INVOKED FUNCTION EXPRESSIONS (IFFE)

- Used to ensure all necessary code is executed on load
- Creates private scope of included variables
- Default pattern in most libraries

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Functions

Function Parameters

Self Executing Functions

OBJECTS

SIMPLE OBJECTS

- Create simple objects with name/value pair (similar to JSON)
- JavaScript is Dynamic
  - Properties can be added at anytime
    - Properties can be removed via “delete”
  - Validate existence with hasOwnProperty()
- Accessed through “dot” notation or brackets
- Objects can be nested
- Properties can be functions

CUSTOM TYPES

- All features of simple objects
- Created using a constructor function
  - Create new instances using “new”
- Access/Add shared properties through object’s prototype
  - Creates pseudo inheritance (copy on write)
- Can use Object.Create to lock down prototypes
- Can have static members

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Objects

SCOPE & NAMESPACES

SCOPE

- Only two options – Global or Function
- Blocks don’t encapsulate variables
- Order doesn’t matter
  - As long as they are declared, variables get hoisted
- Can (and should) force explicit scoping
  - “use strict”

NAMESPACES

- Encapsulate Variables
  - Much like C#, VB.NET
- Helps prevent collisions with other frameworks
- Leverage dynamic nature of JavaScript

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Scope and Hoisting

Namespaces

CLOSURES

CLOSURES

- Local variables for a function kept alive after the function has returned
  - Created by using a function inside of a function
- Internal function can reference local variables inside returned function
  - In C#, this would have been destroyed

- A nice little tutorial:
  - http://www.javascriptkit.com/javatutors/closures.shtml

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Closures, Memoization

JSON

JSON SERIALIZATION

- JavaScript Object Notation
  - Largely replaced POX and SOAP
- Converts object graph to string
  - JSON.stringify(myobject)
- Converts string to object graph
  - JSON.parse(text [,reviver]);
  - JSON.parse('{"firstName":"Philip","lastName":"Japikse"}')

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JSON

PROMISES

PROMISES

- Not yet part of the standard
  - Implemented by JQuery, WinJS, NodeJS
- Similar to await/async
  - Does not necessarily mean multi threaded

PROMISES, PROMISES, PROMISES

```
Promise
   .then(onComplete, onError, onProgress)
   .done(onComplete, onError, onProgress);
-------------------------------------------------

return new WinJS.Promise(
   function(fDone, fError, fProgress){
      var contacts = JSON.stringify(contactList.slice(0));
      FileHandling.saveContactsFile(contacts)
          .then(function () { fDone("Saved"); });
   }
);
```

Me.Contact()

Thank You!

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Questions?