CS 105

Week 4

Exam

Overview

- Variables

- Variables
- Operations: +, -, *, and /

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- Functions / return statements
- Strings
- Arrays

Arrays

Arrays

…just a fancy name for a “list”.

Just like numbers and strings, arrays are stored in variables.

```
var primes = [2, 3, 5, 7, 11];
```

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```

Each element inside of an array can be any type of a variable.

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Strings

```
var hello = ["Hello", "world"];
```

Each element inside of an array can be any type of variable.

Numbers

```
var oddNumbers =
[1, 3, 5, 7, 9, 11, 13, 15];
```

Each element inside of an array can be any type of variable.

Arrays

```
var illiniBasketball =
[ [39, 48], [58, 67], [60, 55] ];
```

Array Functions

Just like strings, use `.length` to find the length of an array.

```
var primes = [2, 3, 5, 7, 11];
var len = primes.length;
```

Unlike Strings, indexing into an array looks different.

```
var primes = [2, 3, 5, 7, 11];
var firstPrime = primes[0];
var secondPrime = primes[1];
```

Adding to an array also looks different.

```
var primes = [2, 3, 5, 7, 11];
primes += 13;  // WRONG!
```

Adding to an array also looks different. Use `.push()`.

```
var primes = [2, 3, 5, 7, 11];
primes.push(13);
```

Review of Syntax

- Curly Braces: { and }
  - Used after function, if, else, while, and for. Associates the code inside of the curly braces with the statements immediately preceding the curly brace.

- Curly Braces: { and }

```
var x = 0;
if (x < 10)
{

}
```

- Parentheses: (and)
  - Used to contain the logic associated with function, if, else, while, and for statements.
  - Used to denote order of operations in equations.

- Parentheses: (and)

```
var x = 0;
if (x < 10)
{

}
```

- Square Brackets: [and]
  - Only used with arrays.

Example

High temperatures for Champaign, IL during January 2014.

```
var highTemps =
   [35, 20, 20, 36, 33, -1, 11,
    21, 32, 41, 41, 44, 51, 38,
    26, 37, 32, 29, 38, 41, 28,
    21,  6, 26, 34, 44, 16, 14,
    30, 37, 31];
```

How many days were at or below freezing all day?

How many days were at or below freezing all day?

```
// set counter to 0
// for each day:
//    if the high temperature <= 32:
//       add one to counter
```

```
var highTemps = [...];

// set counter to 0
var counter = 0;

// for each day:
  // if the high temperature <= 32:
    // add one to counter
```

```
var highTemps = [...];

// set counter to 0
var counter = 0;

// for each day:
for (var i = 0;
      i < highTemps.length;
      i++)
{
    // if the high temperature <= 32:
    // add one to counter
}
```

```
var highTemps = [...];

// set counter to 0
var counter = 0;

// for each day:
for (var i = 0;
      i < highTemps.length;
      i++)
{
    // if the high temperature <= 32:
    if ( highTemp[i] <= 32 )
    {
        // add one to counter
    }
}
```

```
var highTemps = [...];

// set counter to 0
var counter = 0;

// for each day:
for (var i = 0;
      i < highTemps.length;
      i++)
{
   // if the high temperature <= 32:
   if ( highTemp[i] <= 32 )
   {
      // add one to counter
      counter++;
   }
}
```

MP2