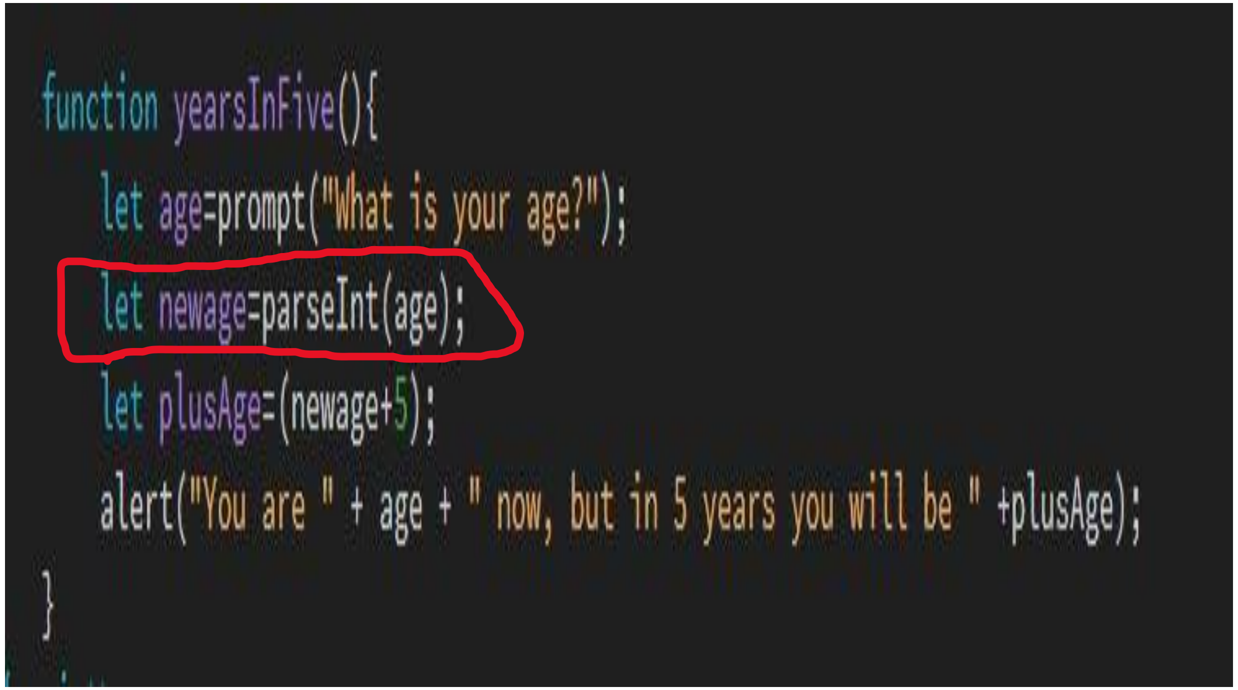
Wednesday /Thursday

Shop Week 3

Converting a string to a number

- When we have a prompt in our program- the result comes in as a string value.
- What if we want to obtain a number via a prompt?
- We change it.



```
function yearsInFive(){
    let age=prompt("What is your age?");
    let newage=parseInt(age);
    let plusAge=(newage+5);
    alert("You are " + age + " now, but in 5 years you will be " +plusAge);
}
```

JavaScript – The math object

- The **Math Object**. The math object provides you properties and methods for mathematical constants and functions. Unlike other global objects, Math is not a constructor. All the properties and methods of Math are static and can be called by using Math as an object without creating it.

- Methods

Methodz	Description
abs(x)	Returns the absolute value of x
acos(x)	Returns the arccosine of x, in radians
acosh(x)	Returns the hyperbolic arccosine of x
asin(x)	Returns the arcsine of x, in radians
asinh(x)	Returns the hyperbolic arcsine of x
atan(x)	Returns the arctangent of x as a numeric value between -PI/2 and PI/2 radians
atan2(y, x)	Returns the arctangent of the quotient of its arguments
atanh(x)	Returns the hyperbolic arctangent of x
cbrt(x)	Returns the cubic root of x

Math.floor( )

- The **`Math.floor()`** function returns the largest integer less than or equal to a given number.

- console.log(Math.floor(5.95));
- // expected output: 5

- console.log(Math.floor(5.05));
- // expected output: 5

- console.log(Math.floor(5));
- // expected output: 5

- console.log(Math.floor(-5.05));
- // expected output: -6

Math.abs( )

- The **`Math.abs()`** function returns the absolute value of a number

```
function difference(a, b) {
  return Math.abs(a - b);
}

console.log(difference(3, 5));
// expected output: 2

console.log(difference(5, 3));
// expected output: 2

console.log(difference(1.23456, 7.89012));
// expected output: 6.6555599999999995
```

Math.ceil( )

- The **`Math.ceil()`** function always rounds a number up to the next largest integer.

```
console.log(Math.ceil(.95));

// expected output: 1


console.log(Math.ceil(4));

// expected output: 4


console.log(Math.ceil(7.004));

// expected output: 8


console.log(Math.ceil(-7.004));

// expected output: -7
```

Math.max( )

- The **`Math.max()`** function returns the largest of the zero or more numbers given as input parameters.

```
console.log(Math.max(1, 3, 2));
// expected output: 3


console.log(Math.max(-1, -3, -2));
// expected output: -1


const array1 = [1, 3, 2];


console.log(Math.max(...array1));
// expected output: 3
```

Math.min( )

- The static function **`Math.min()`** returns the lowest-valued number passed into it, or `NaN` if any parameter isn't a number and can't be converted into one.

```
console.log(Math.min(2, 3, 1));
// expected output: 1


console.log(Math.min(-2, -3, -1));
// expected output: -3


const array1 = [2, 3, 1];


console.log(Math.min(...array1));
// expected output: 1
```

Math.random( )

- The **`Math.random()`** function returns a floating-point, pseudo-random number in the range 0 to less than 1 (inclusive of 0, but not 1) with approximately uniform distribution over that range - which you can then scale to your desired range. The implementation selects the initial seed to the random number generation algorithm; it cannot be chosen or reset by the user.

```
function getRandomInt(max) {
  return Math.floor(Math.random() * Math.floor(max));
}


console.log(getRandomInt(3));
// expected output: 0, 1 or 2


console.log(getRandomInt(1));
// expected output: 0


console.log(Math.random());
// expected output: a number from 0 to <1
```

Math.sqrt( )

- The **`Math.sqrt()`** function returns the square root of a number

```
function calcHypotenuse(a, b) {
  return (Math.sqrt((a * a) + (b * b)));
}

console.log(calcHypotenuse(3, 4));
// expected output: 5

console.log(calcHypotenuse(5, 12));
// expected output: 13

console.log(calcHypotenuse(0, 0));
// expected output: 0
```

JavaScript Global Properties

Property	Description
Infinity	A numeric value that represents positive/negative infinity
NaN	"Not-a-Number" value
undefined	Indicates that a variable has not been assigned a value

JavaScript Global Functions

Function	Description
decodeURI()	Decodes a URI
decodeURIComponent()	Decodes a URI component
encodeURI()	Encodes a URI
encodeURIComponent()	Encodes a URI component
escape()	Deprecated in version 1.5. Use encodeURI() or encodeURIComponent() instead
eval()	Evaluates a string and executes it as if it was script code
isFinite()	Determines whether a value is a finite, legal number
isNaN()	Determines whether a value is an illegal number
Number()	Converts an object's value to a number
parseFloat()	Parses a string and returns a floating point number
parseInt()	Parses a string and returns an integer
String()	Converts an object's value to a string

Local JavaScript Variables

- Variables declared within a JavaScript function, become LOCAL to the function.
- Local variables have Function scope: They can only be accessed from within the function.

- Global JavaScript Variables
- A variable declared outside a function, becomes GLOBAL.
- A global variable has global scope: All scripts and functions on a web page can access it.

JavaScript Arithmetic Operators (Arithmetic operators are used to perform arithmetic on numbers)/
JavaScript Assignment Operators (Assignment operators assign values to JavaScript variables.)

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
**	Exponentiation (ES2016)
/	Division
%	Modulus (Division Remainder)
++	Increment
--	Decrement

Operator	Example	Same As
=	x = y	x = y
+=	x += y	x = x + y
-=	x -= y	x = x - y
*=	x *= y	x = x * y
/=	x /= y	x = x / y
%=	x %= y	x = x % y
**=	x **= y	x = x ** y

Todays assignment

- Building on your program that you wrote yesterday where you asked people their name and age.
- Concatenate a message on the screen that says
- Hello [name] you are [age] now but in 5 years you will be [age +5].
- Reminder- prompts bring in data as strings but you can't add a string and result in a number value- so you will need to convert the string variable to a number!

Math object

Math.sqrt()

```
let n= prompt('Enter any
let newN=parseInt(n);
let sqN=Math.sqrt(newN);
        Object  Method
```

This will get the square route of the variable newN

Math.round()

```
let n= prompt('Enter any number');
     let newN=parseInt(n);
     let sqN=Math.sqrt(newN);
     let num=Math.round(sqN);
             Object  Method
```

This will round the variable sqN to the nearest whole number- eliminating any numbers to the right of the decimal

Thursdays assignment

- Create a new html document that prompts someone to enter any number that they would like to know the square route of.
- Have the output read "The square route of [whatever number they put in] is [whatever the square route of their entered number is]
- Make sure that there are no numbers to the right of the decimal.