



First Nations
Technology Council

Focus Web Developer

Week 1 - Lesson 2

Lesson Topics

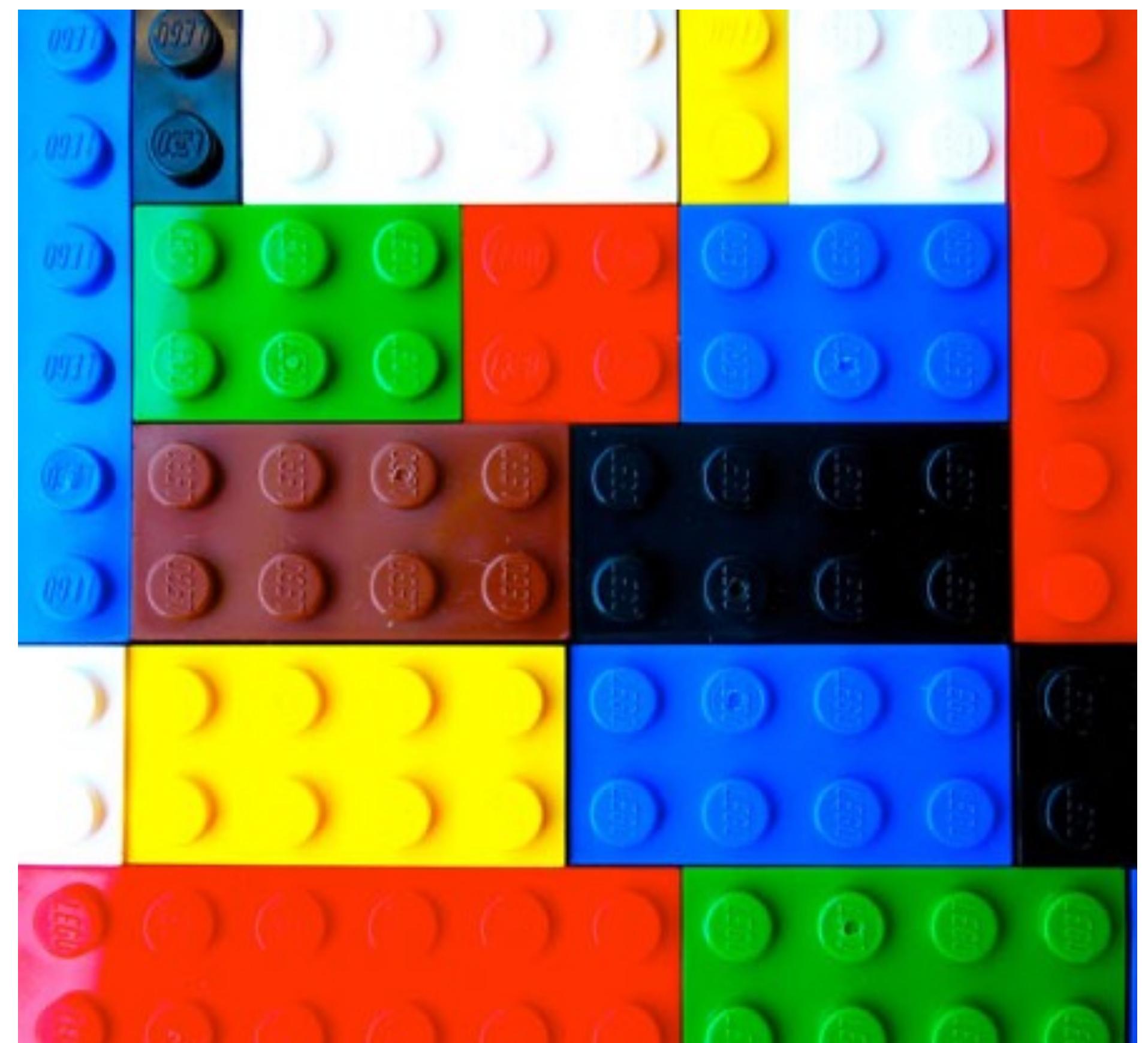
- Review
- General Programming Languages
- Specific Problem Domain Programming Languages
- JavaScript Introduction
- JavaScript Environments
- ECMA Script



Review

A quick review of yesterday:

- Programming is manipulating data
- Computer architectures
- Computer instructions
- Programming paradigms





Discussion

How does JavaScript fit in with HTML and CSS?

Work with your neighbor and answer the following questions from yesterday;

- What is HTML?
- What is CSS3?
- What is a Problem Domain?

General Programming Languages

- Some computer programming languages can be used for multiple **Problem Domains**
- These are called **General Programming languages**



General Programming Languages

Examples:

- C
- Java
- Python





Discussion

Where does JavaScript fit in?

Where does **JavaScript** fit in?

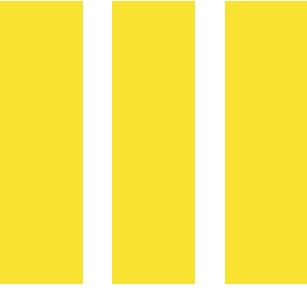
Is it a **Specific Problem Domain** computer
programming language, or is it a **General
Programming Language**?

Do a quick search and share your findings
with the class

JavaScript

- JavaScript is a Specific Problem
Domain Programming Computer
Language
- The Problem Domain that
JavaScript works well within is Web
Development

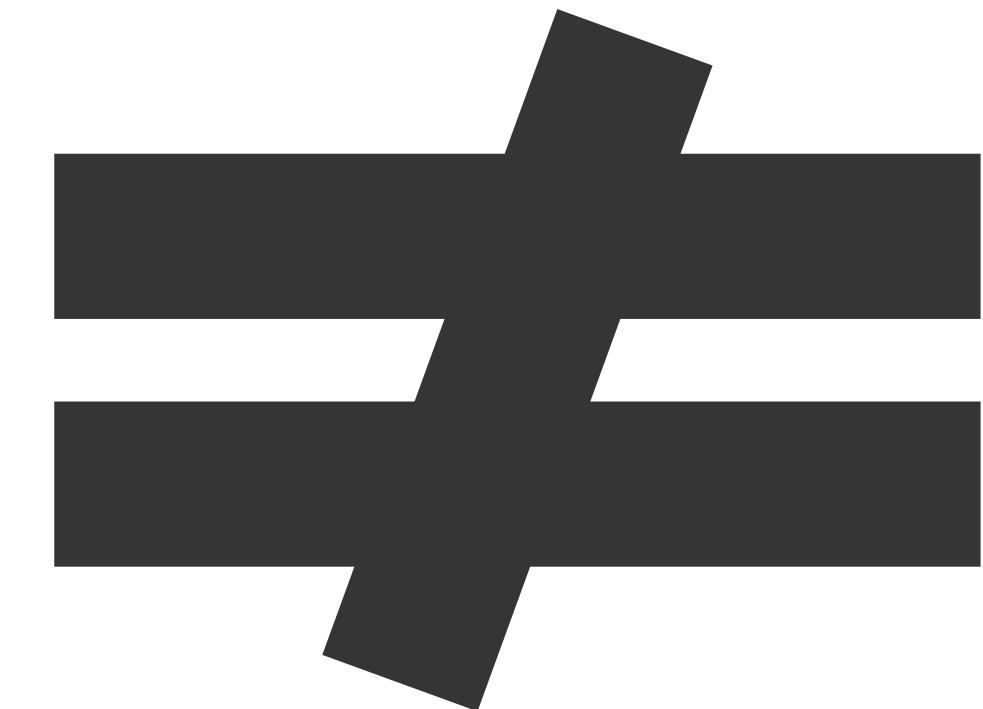




Introduction to **JavaScript**



First things first – JavaScript is not Java!



JavaScript vs. Java

- Two *totally* different programming languages
 - Only thing in common is that they are both computer programming languages

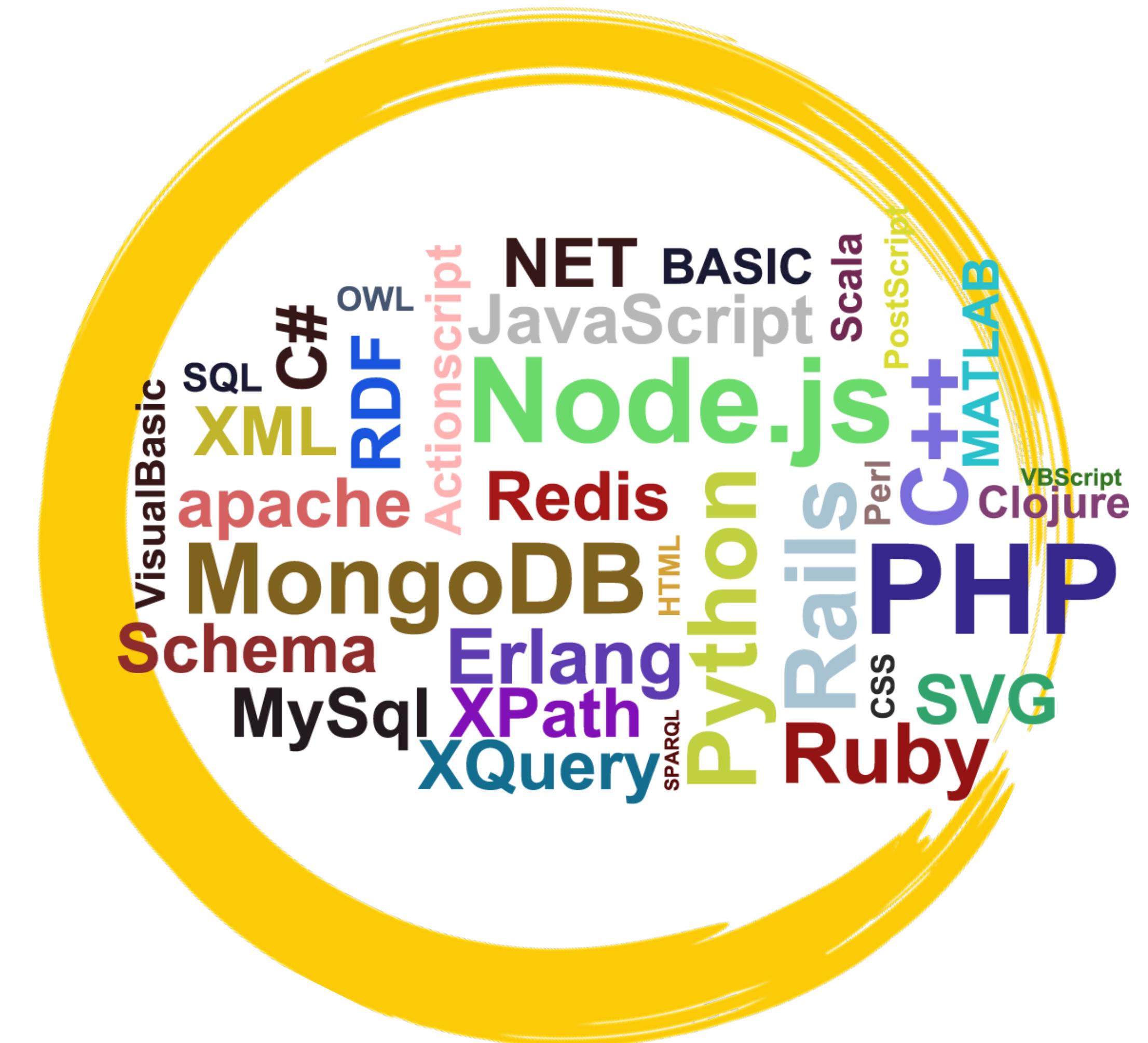
```
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml" xmlns:og="http://ogp.me/ns#>
<head>
    <title>What Happened to Plain Old Lego Bricks? | Mental Floss</title>
    <link rel="shortcut icon" href="/bundles/mfsite/images/favicon.ico">
    <link href="http://mentalfloss.com/rss.xml" type="application/rss+xml" />
```

```
<meta http-equiv="X-UA-Compatible" content="IE=Edge">
<meta name="description" content="Test your knowledge of HTML5 and CSS3 with this free online quiz.">
<meta name="copyright" content="Dennis Publishing">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
<link rel="canonical" href="http://mentalfloss.co  
<meta name="keywords" content="">  
<meta property="og:url" content="http://mentalflo  
<meta property="og:type" content="article"/>  
<meta property="og:title" content="What Happened  
<meta property="og:description" content="When I v  
pieces, and so on. We kept all our bricks in a gigar  
when you opened the bag, it actually laid out as a fi
```

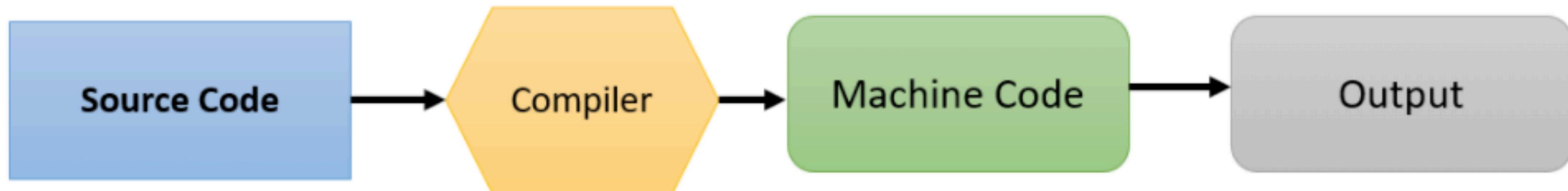
JavaScript Beginnings

- JavaScript started out as a **scripting language**
- A scripting language:
 - uses an **interpreter** instead of a **compiler**
 - controls an **environment**



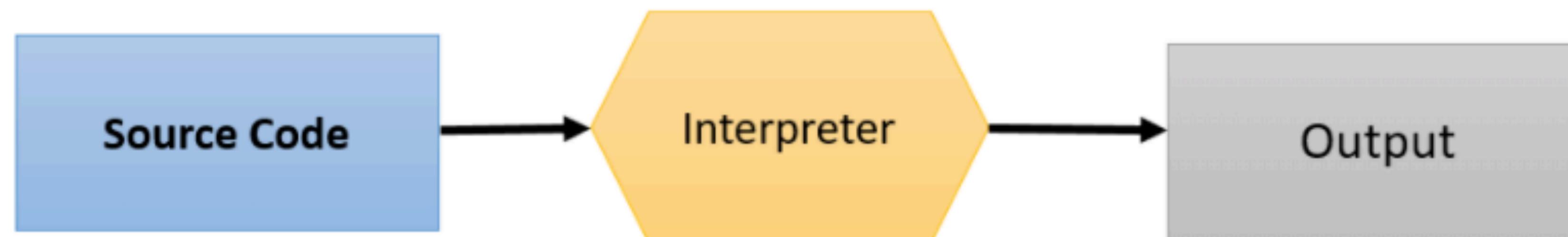
Interpreter vs. Compiler

How Compiler Works



© guru99.com

How Interpreter Works



JavaScript Environments

An Environment can mean:

- An **operating environment**
 - where the program runs and is available to the user
- A **developing environment**
 - where code is written and tested before it is published for the user



JavaScript Operating Environment

- Web Browsers are examples of **operating environments**:
 - Chrome
 - FireFox
 - Microsoft Edge
 - Safari



JavaScript Developing Environments

There are varying levels of developing environments:

Text Editors

- code can be written, but not tested
- Example Programs: Atom, Notepad, Brackets

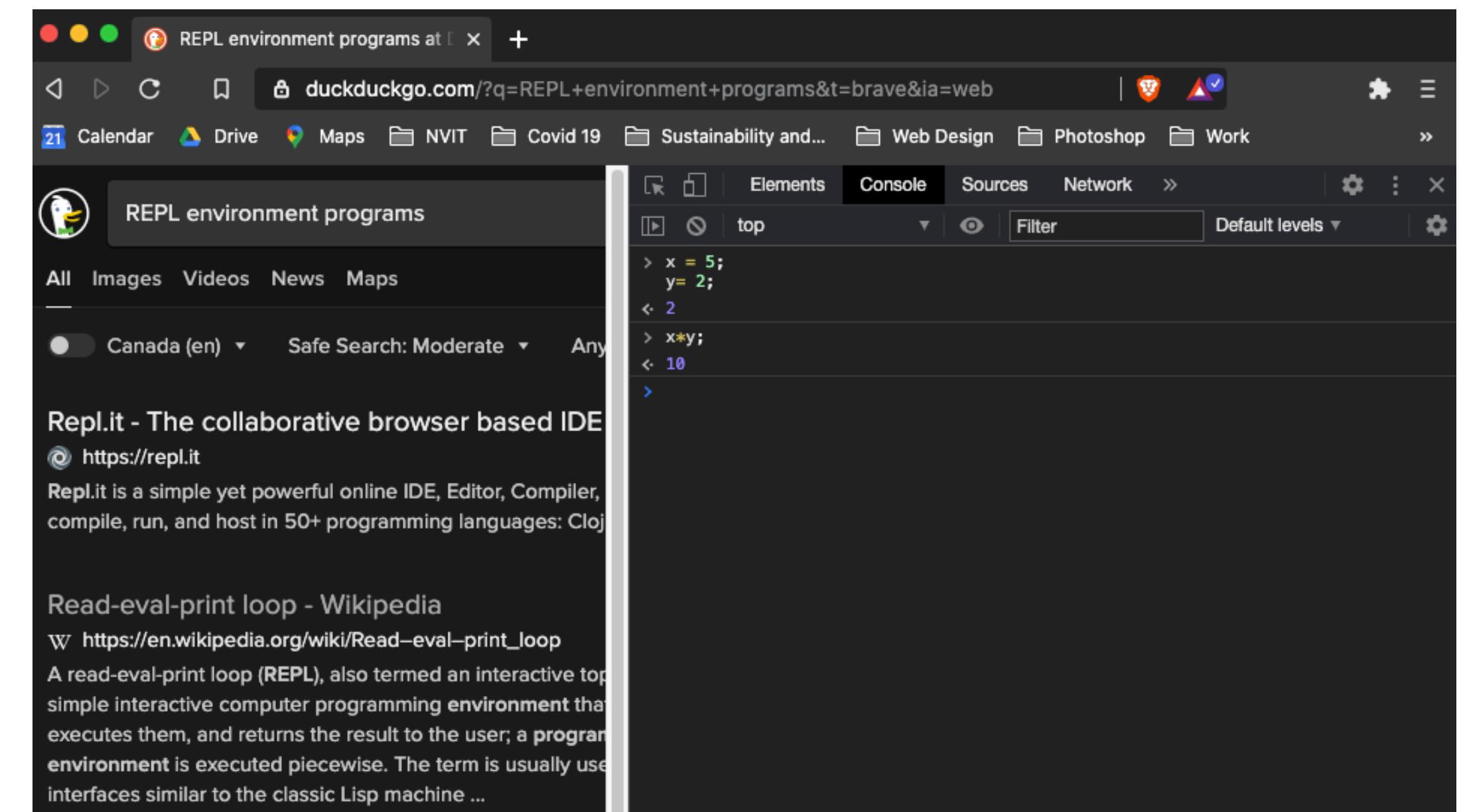


JavaScript Developing Environments

There are varying levels of developing environments:

Read-Evaluate-Print-Loop (REPL)

- small pieces of code can be written and tested
- good for debugging code
- Example Programs: command line, console

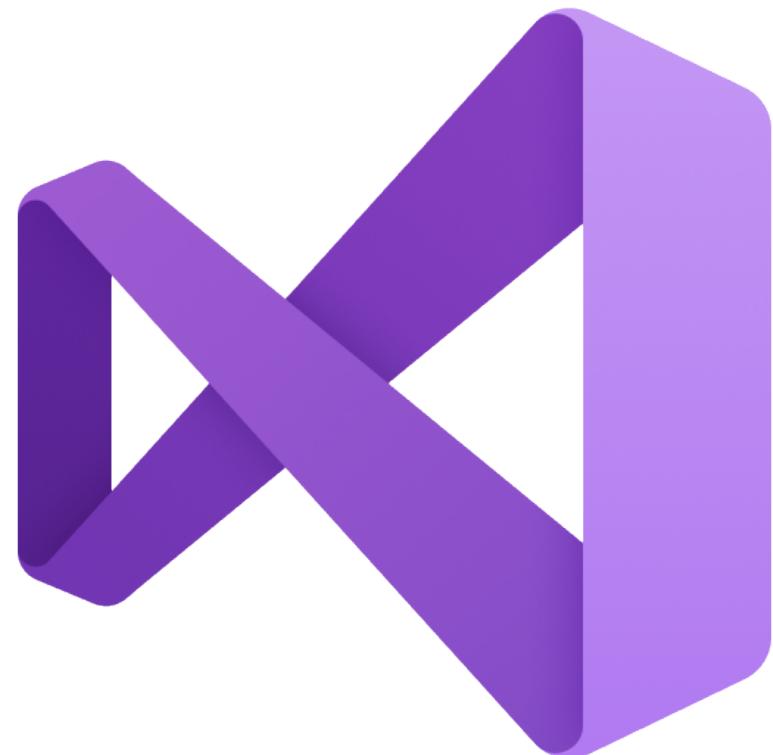


JavaScript Developing Environments

There are varying levels of developing environments:

Integrated Development Environment (IDE)

- code can be written, compiled, tested and debugged all with one program
- very efficient workflow
- Example programs: Visual Studio, PyCharm, Eclipse



JavaScript Beginnings

- Originally JavaScript was designed to control Web Browsers to animate/move objects such as text and images
 - this *was* its only Problem Domain... until recently...

1. Getting started

ASP.NET MVC gives you a powerful, patterns-based way to build dynamic websites that enables a clean separation of concerns and gives you full control over markup for enjoyable, agile development.

[Learn more »](#)

2. Get more libraries

NuGet is a free Visual Studio extension that makes it easy to add, remove, and update libraries and tools in Visual Studio projects.

[Learn more »](#)

3. Web Hosting

You can easily find a web hosting company that offers the right mix of features and price for your applications.

[Learn more »](#)

```
websockets rgba hsla multiplebgs background-size b  
textshadow opacity cssanimations csscolumns cssgr  
csstransforms3d csstransitions fontface generated  
sessionstorage webworkers applicationcache svg in  
▶ <head>...</head>  
▼ <body cz-shortcut-listen="true">  
  ▶ <div class="navbar navbar-inverse navbar-fixed-top">  
    ▶ <div class="container body-content">  
      ::before  
      ▶ <div class="jumbotron">...</div>  
      ▶ <div class="row">  
        ::before  
        ...  
        ▶ <div class="col-md-4">...</div> == $0  
        ▶ <div class="col-md-4">...</div>  
        ▶ <div class="col-md-4">...</div>  
        ::after  
      </div>  
      <hr>  
    <div>...</div>  
    ::after  
  </div>  
  <script src="/Scripts/jquery-3.3.1.js"></script>  
  <script src="/Scripts/bootstrap.js"></script>  
  <div id="screenleapDiv" style="position:fixed; z-index:1000; width:1px; height:1px;" installed="true" true=""></div>  
  ▶ <button id="tw_schedule_btn" style="padding: 141px; top: 840px; background: linear-gradient(240deg); border: 1px solid #ccc; color: #fff; font-weight: bold; text-shadow: #ccc 0px 0px 1px; outline: none; border-radius: 3px; font-size: 14px; width: 141px; height: 141px; position: absolute; right: 0px; bottom: 0px; transform: rotate(-45deg); transform-origin: center; transition: all 0.3s ease-in-out;">Schedule
```

Developer
Community

JavaScript Beginnings

Now, JavaScript is being used as a problem solver in many different Problem Domains



Discussion

Share your coding knowledge



What do you think the problem domain(s) of JavaScript is(are)?

JavaScript Problem Domains

Within the Problem Domain of Web Development there are two sub-Problem Domains:

- **Front End Web Development**
- **Back End Web Development**



JavaScript Front End Development

Front End Web Development

- creating code that controls what we see in the Web Browser
- is what JavaScript was originally developed for
- Examples: images moving, animating text, slide shows



JavaScript Back End Development

Back End Web Development

- creating code that adds functionality to a website
- getting information from a data base
- connecting to other websites
- processing data



JavaScript Beginnings

Historically, Front End Web Development used one programming language, and Back End Web Development used another



JavaScript Beginnings

To complete Front End Web Development
you would need to know:

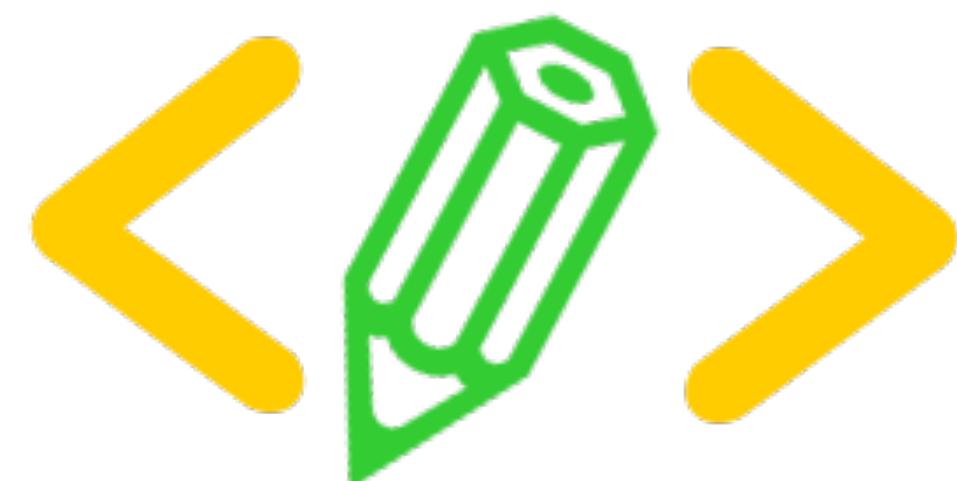
- HTML to create web pages
- CSS to style web pages
- JS for functionality



JavaScript Beginnings

To complete Back End Web Development you would need to know:

- MySQL or SQL to access the data from a data base
- Data base technologies to store data for the website
- PHP or another Back End Problem Domain language for Back End functionality



JavaScript Beginnings

In summary, *historically*, to complete Web Development you would need to know:

1. HTML
2. CSS
3. MySQL and SQL
4. DataBase technologies
5. JavaScript
6. PHP or another Back End Problem Domain language



JavaScript Beginnings

Now, for complete web development you
only need to know:

- HTML to create web pages (front end)
- CSS to style web pages (front end)
- JS for functionality (front and back end)





Discussion

Sharing your coding knowledge

Are you currently more interested in front end web development or back end web development?

ECMAScript

- European Computer Manufacturer Association (EMCA)
- JavaScript began as ECMAScript
- Originally developed by Netscape (one of the first widely used web browsers) to ensure standardization and compatibility for web browsers



ECMAScript Versions

ES3

- Many older websites still use this
- Used up until 2010

ES5

- many older websites use this still use this today

ES6 aka ES2015

- most commonly used today

ES7

- Currently being developed

We will be concentrating on techniques that are based on ES5 and that are compatible with most versions of JavaScript you will encounter in the field.

Watch the video A Brief History of JavaScript by the Creator of JavaScript.

<https://www.youtube.com/watch?v=3-9fnjzmXWA>

Create a word document and answer the following

1. Why was JavaScript created?
2. How long did it take to develop JavaScript?
3. What does JIT mean?

Activity 1

Brief history of JavaScript

Class Wrap-up

How was your day?

How are you finding the course so far?



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