



DOM MANIPULATION WITH JAVASCRIPT AND JQUERY

Bernard Suen
Center for Entrepreneurship
Chinese University of Hong Kong



Center for
Entrepreneurship

VERB

JS

JavaScript = act on a HTML tag, CSS property or respond to an event triggered by user action

Decomposition

Pattern

Abstraction

Algorithm

Automation &
Testing

**Computational thinking is about
system and data.**

JavaScript provides us with the capabilities to build system and transform data.

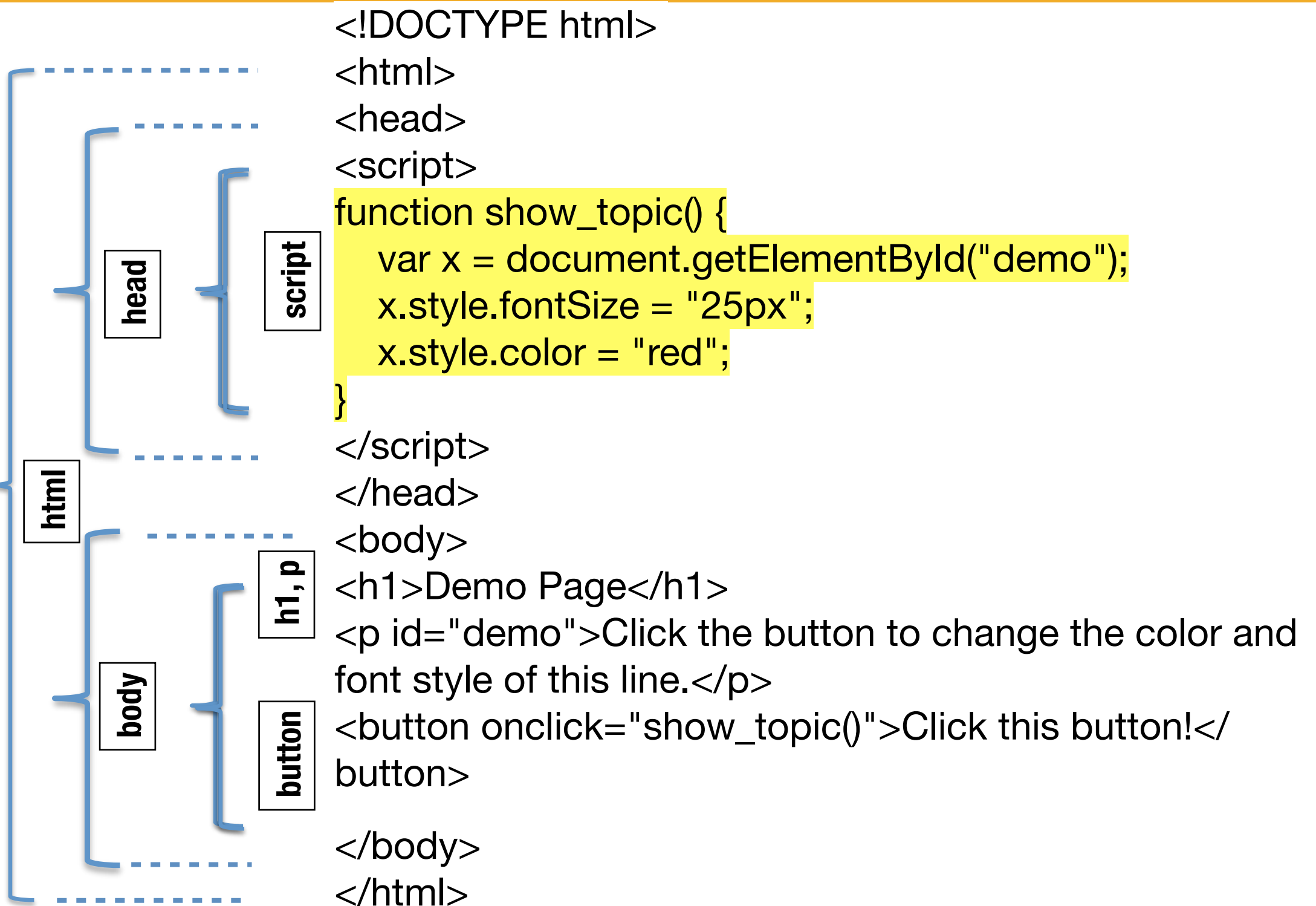
JavaScript Functions that Transform Input into Output

Basic Structure of a JavaScript Function

optional parameters
↓

```
<head>  
<script>  
function function_name(parameter1, parameter 2...) {  
    Embed data type variables, input/output commands  
    and logical and mathematical operators in the function to  
    compute and return values.  
}  
</script>  
</head>
```

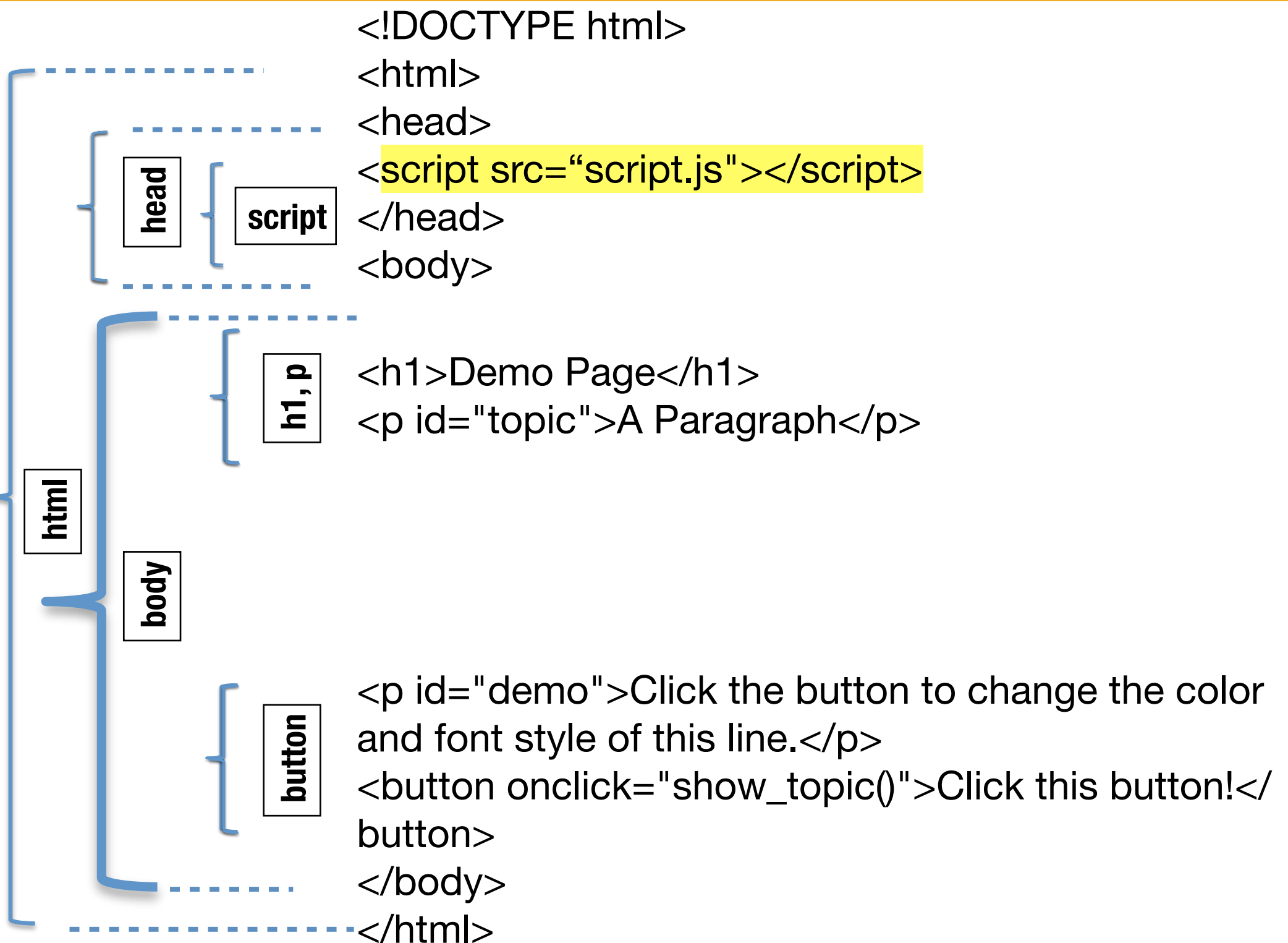
Code View



**Similar to CSS, JS can be placed in
an External File**

See an Example

Code View



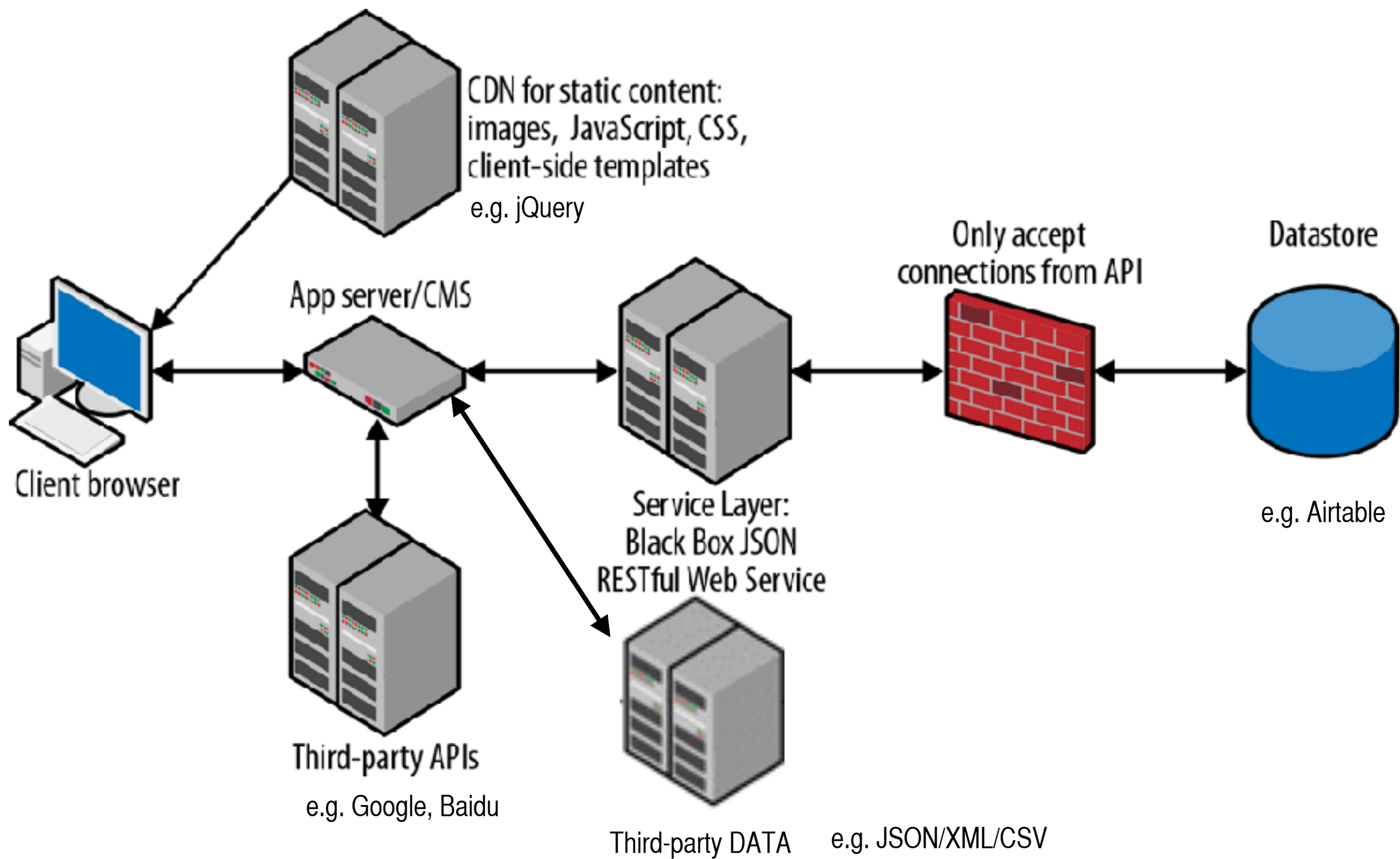
Functions in JavaScript Programming

- You can look at a function as a mini-system.
- A function is designed to transform input into output.
- You can execute a function within another function.
- A program can be viewed as a collections of functions decomposed into hierarchy of functions to get things done.
- Good programmer looks for patterns in job to be done and abstract common parameters, algorithms, and outcomes to be placed inside a function for code reuse (automation).

JavaScript Has Become the Most Popular Front-end Language with Pre-packaged Framework and Library Support

e.g. jQuery,
AngularJS, React,
Vue

e.g. jQuery
DataTable, D3,
C3D3, Leaflet



Source: <http://chimera.labs.oreilly.com>



Your donations help fund the continued development and growth of jQuery.

[SUPPORT THE PROJECT](#)[Download](#) [API Documentation](#) [Blog](#) [Plugins](#) [Browser Support](#)

Lightweight Footprint

Only 50KB minified and gzipped. Can also be included as an AMD module.



CSS3 Compliant

Supports CSS3 selectors to find elements as well as in-style property manipulation.



Cross-Browser

[Chrome](#), [Edge](#), [Firefox](#), [IE](#), [Safari](#), [Android](#), [iOS](#), and more.



Download jQuery

v3.3.1

The 1.x and 2.x branches no longer receive patches.

[View Source on GitHub →](#)[How jQuery Works →](#)

What is jQuery?

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript.

Other Related Projects



Resources

- [jQuery Core API Documentation](#)
- [jQuery Learning Center](#)
- [jQuery Blog](#)
- [Contribute to jQuery](#)
- [About the jQuery Foundation](#)
- [Browse or Submit jQuery Bugs](#)

A Brief Look

Basic jQuery Structure & Syntax

This means:

When the HTML document (i.e. DOM) is loaded, add the following jQuery functions (in orange) to your javascripts

```
$(document).ready(function() {
```

Your jQuery functions go inside here.

```
});
```

The following code demonstrates the basic structure of a jQuery function. The **selector** and **method** are two ingredients used to define a jQuery function:

```
$(“<selector>”).<method>('event',function(){  
    The actual script goes here.  
});
```

Example:

```
$(“button#hide_h2”).on('click',function(){  
    $("h2").hide();  
});
```

ADJECTIVE

CSS

Base
Selector

body

Declaration

Declaration

{ color:purple; font-size:12px; }

Property

Value

Property

Value

ADJECTIVE

CSS

Custom (e.g. class or id)
Selector

Declaration

Declaration

.box

class

#nav

id

{ color:blue; font-size:12px; }

Property

Value

Property

Value

Putting Everything Together

```
$(document).ready(function() {  
    $("button#hide_h2").on('click',function(){  
        $("h2").hide();  
    });  
    $("button#show_h2").on('click',function(){  
        $("h2").show();  
        $("h2").css("color","blue");  
        $("h2").html("You clicked me.");  
    });  
});
```

The HTML Form Object(Tag) for Input

The Grammar of JavaScript

- JavaScript is a programming language that can be used to write functions placed inside html or an external file.
- JavaScript can be placed between the <script> and </script> tags inside the <head> section or link to an external file through the script src link.
- JavaScript codes can be understood as a collection of functions that respond to events triggered by internal browser activities and external user interactions.
- JavaScript can be used to manipulate HTML elements and CSS styles.

Problem Set #2

Write a JavaScript program to create a puzzle (feel free to design a math or word puzzle as you wish). Ask the player to input values through HTML form and display the result inside a box (with an ID selector) positioned inside the browser.

Problem Set #3

- Scrape a website with ParseHub and download the CSV.
- Pick a open dataset and download it for cleaning with Refine.

OR

- Scrape a website with ParseHub and bring it into Refine for cleaning.

Thank You!