JavaScript

A long journey in ES6

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Know your Course

Subject Name		WebTechnology
Subject Code		17ISL67
Teaching Hours	Lecture	0 Hours
	Tutorial	2 Hours
	Practical	2 Hours
Evaluation Method	CIE	50 Marks
	SEE	50 Marks
Credits		2
Course Type		Laboratory **Mandatory**

more info. about the Course

Evaluation Method	CIE	50 Marks	Course Project – 20 Marks Test – 20 Marks Contineous Evaluation – 10 Marks
	SEE	50 Marks – Test	
Test		Contains a problem statement, telling some set of tasks to be carried out.	
Test type in SEE		Contains two Parts Part A Part B One program form each should be executed	
Resourse		http://speakingjs.com/es5/index.html http://exploringjs.com/es6/index.html	
Anything Missing here ?			

Course Outcome

Students will be able to

CO1	Implement Functions, Recursion, Conditional Statements and loops in javascript
CO2	Implement Array, Date, String, Math, Validation with regular expressions using javascript
CO3	Implement HTML DOM, Drawing, Object, Events, Searching and Sorting Algorithm using javascript
CO4	Demonstrate NodeJs modules, Http, express, Mongodb, promise

About the Course

What are the prerequisites for this Course?

- NO JavaScript knowledge is required - you'll learn it from scratch!
- You also need NO programming experience other than basic web development knowledge (e.g. how the web works? If don’t know – lets see that too!!!)
- Basic HTML and CSS knowledge is recommended but not a must-have.

To whome this Course is for?

- Beginner web development students who have no or only little JavaScript experience
- Everyone interested in learning JavaScript and all about how it works

Course Project

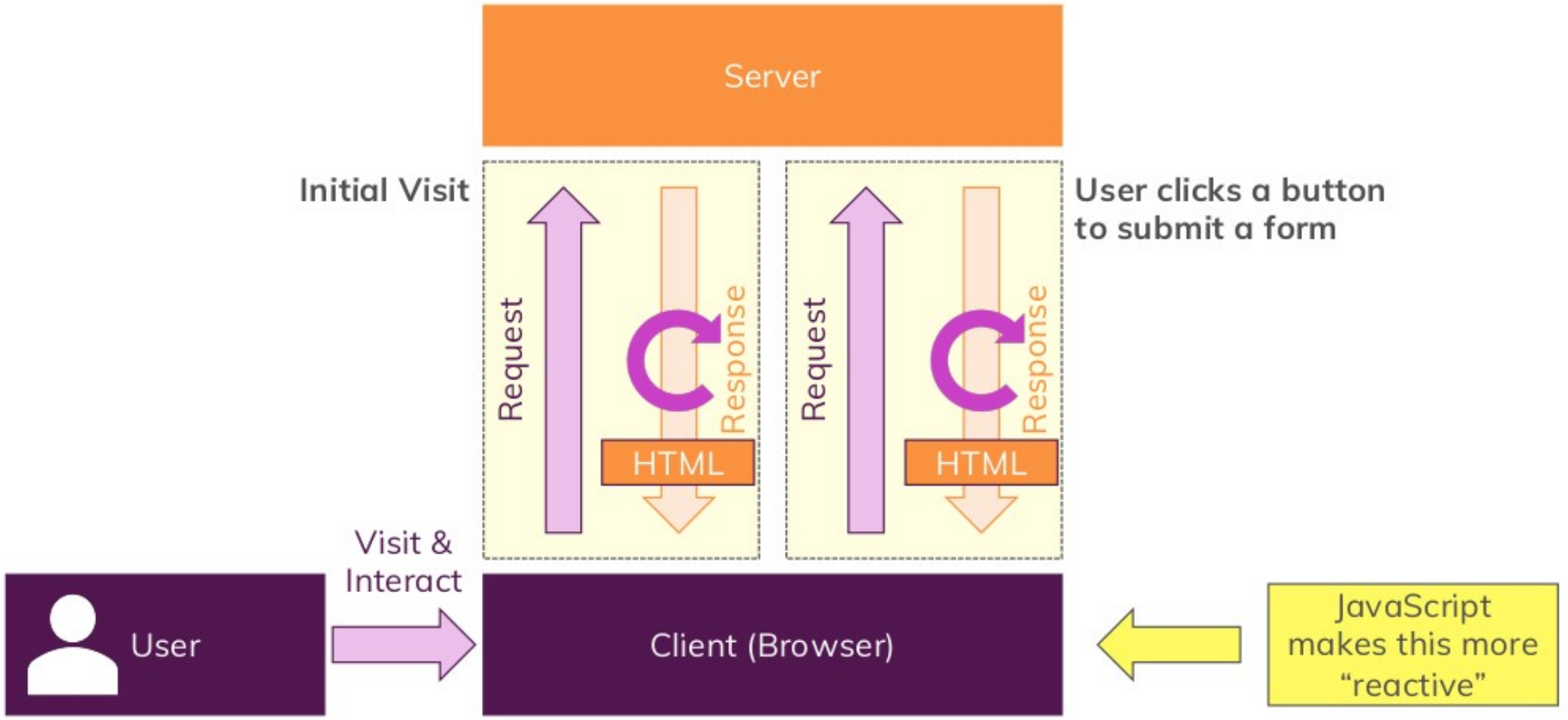
Too far to go

Lets Start

JavaScript

- A cross-platform, object-oriented scripting language developed by Netscape.
- Created by Netscape programmer **Brendan Eich**
- JavaScript is a dynamic, weakly typed programming language which is compiled at runtime. It can be executed as part of a webpage in a browser or directly on any
- machine (“host environment”).
- Weakly typed languages assign types (like 'number') to variables (data containers) at runtime
- JavaScript was created to make webpages more dynamic (e.g. change content on a page directly from inside the browser). Originally, it was called LiveScript but due to the popularity of Java, it was renamed to JavaScript.
- Dynamic - code is not pre-compiled but instead evaluated, compiled and executed at runtime

How the web works?



JavaScript vs Java

JavaScript

- JavaScript is used for front-end web development (for example field level validation in a HTML form).
- Interpreted (not compiled) by the client.
- Object-oriented. No distinction between types of objects. Inheritance is through the prototype mechanism, and properties and methods can be added to any object dynamically.
- Variable data types are not declared (loose typing).
- Cannot automatically write to hard disk.

Java

- Java is used as a back-end language within a web environment.
- Compiled bytecodes downloaded from the server, executed on the client.
- Class-based. Objects are divided into classes and instances with all inheritance through the class hierarchy. Classes and instances cannot have properties or methods added dynamically.
- Variable data types must be declared as Java maintains strong type checking.
- Cannot automatically write to hard disk.

JavaScript Engine

- A JavaScript engine is a computer program that executes JavaScript (JS) code. The first JavaScript engines were mere interpreters, but all relevant modern engines utilize just-in-time compilation for improved performance. - Looper, Jen
- Typically developed by web browser vendors.
- It runs in concert with the rendering engine via the Document Object Model.
- Since ECMAScript (ES) is the standardized specification of JavaScript, ECMAScript engine is another name for these engines.

JavaScript Engine

- **V8** from **Google** is the most used JavaScript engine. Google Chrome and the many other Chromium-based browsers use it, as do applications built with CEF, Electron, or any other framework that embeds Chromium. Other uses include the Node.js runtime system.
- **SpiderMonkey** is developed by **Mozilla** for use in Firefox and its forks. The GNOME Shell uses it for extension support.
- **JavaScriptCore** is **Apple's** engine for its Safari browser. Other WebKit-based browsers also use it. KJS from KDE was the starting point for its development.
- **Chakra** is the current engine of the **Microsoft Edge** browser, forked from the same-named engine of Internet Explorer.
- **Facebook** created the **Hermes** engine for Android apps using the React Native framework.

ECMA Script

- ECMA is an international standards association for information and communication systems. It acquired its current name in 1994.
- The organization was founded in 1961 to standardize computer systems in Europe.
- This standardized version of JavaScript, called ECMAScript.
- Netscape was working with European Computer Manufacturers Association (ECMA) to deliver a standardized, international programming language based on core JavaScript.
- Companies can use the open standard language to develop their implementation of JavaScript.
- The first version of the ECMA standard was documented in the ECMA-262 specification.
- The ECMA-262 standard is also approved by the ISO (International Organization for Standardization) as ISO-16262.

Relation of JavaScript with ECMA Script

Javascript is the language. ES (Ecmascript) is the standard governing Javascript.

JavaScript version	Relationship to ECMA version
JavaScript 1.1	ECMA-262 is based on JavaScript 1.1.
JavaScript 1.2	ECMA-262 was not complete when JavaScript 1.2 was released.
JavaScript 1.3	JavaScript 1.3 is fully compatible with ECMA-262.
JavaScript 1.4 (Works on Netscape server only)	-
JavaScript 1.5	JavaScript 1.5 is compatible with ECMA-262 Edition 3

Is there new Esxs?

- Each version of ES contains newer features and implementations than the previous ones.

ES6

- With this release, JS has made the developers life easy in many ways and reached the expectations of a modern programming language. Features in this include :-
- Let and Const keywords
- For..of
- Default Parameters
- Rest and Spread operators (...)
- Arrow functions
- Promises
- Classes, and more

Hi, Anyalternative?

1. **CoffeeScript**
2. **Dart**
3. **TypeScript**
4. **ClojureScript**
5. **Opal**
6. **Elm**
7. **Kaffeine**
8. **Roy**