



ST0523 Fundamentals of Programming

Topic 1b :
Introduction to JavaScript



Topic 1b

Introduction to JavaScript

This is a self-study unit, you are required to complete the reading before attending the lesson on Topic 1c.



Introduction To JavaScript

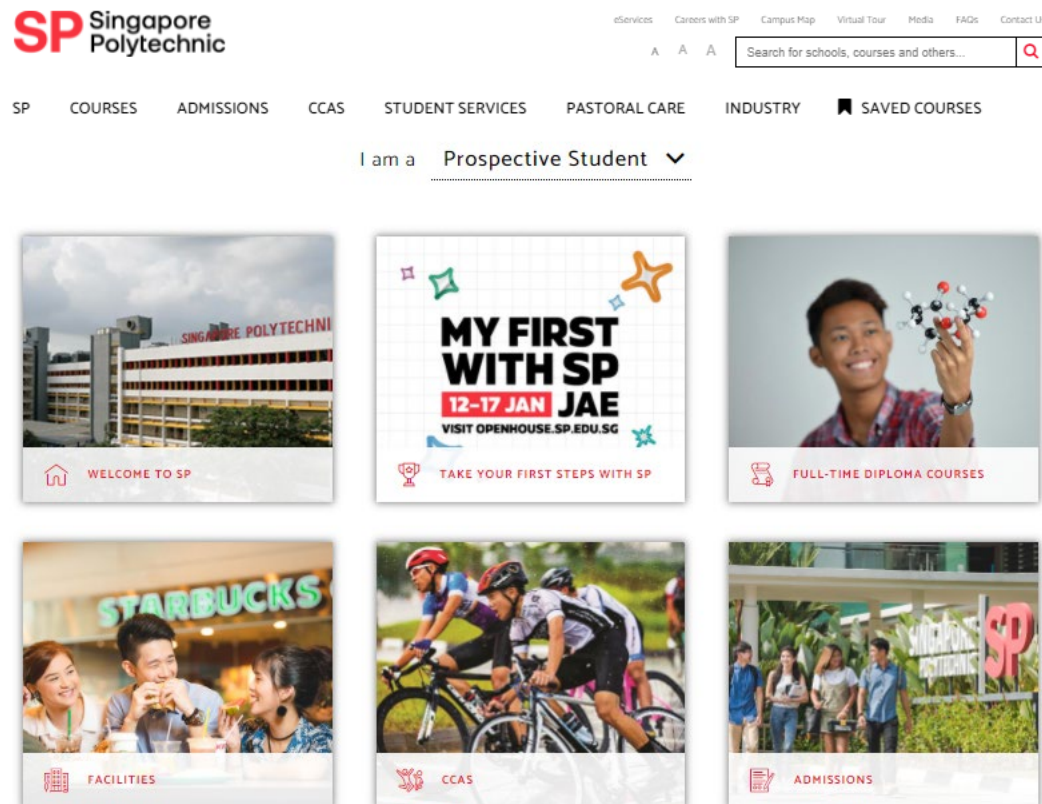
- To learn an overview of JavaScript
- To learn basic knowledge of nodejs
- To learn basic knowledge on Integrated Development Environment (IDE) Tools

Why JavaScript?

- JavaScript, although it was originally introduced as a scripting language for the WWW, is now a full featured, general purpose programming language.
- It has low barrier to entry (easy to get started with)
- Visible results can be seen with the minimum amount of code compared to other languages
- JavaScript can be used to develop various type of software applications such as:
 - Web Application (angularJS)
 - Server applications (node.js)
 - Mobile Applications for hand-held devices (Apache Cordova)
 - Desktop Application (Electron, AppJS)

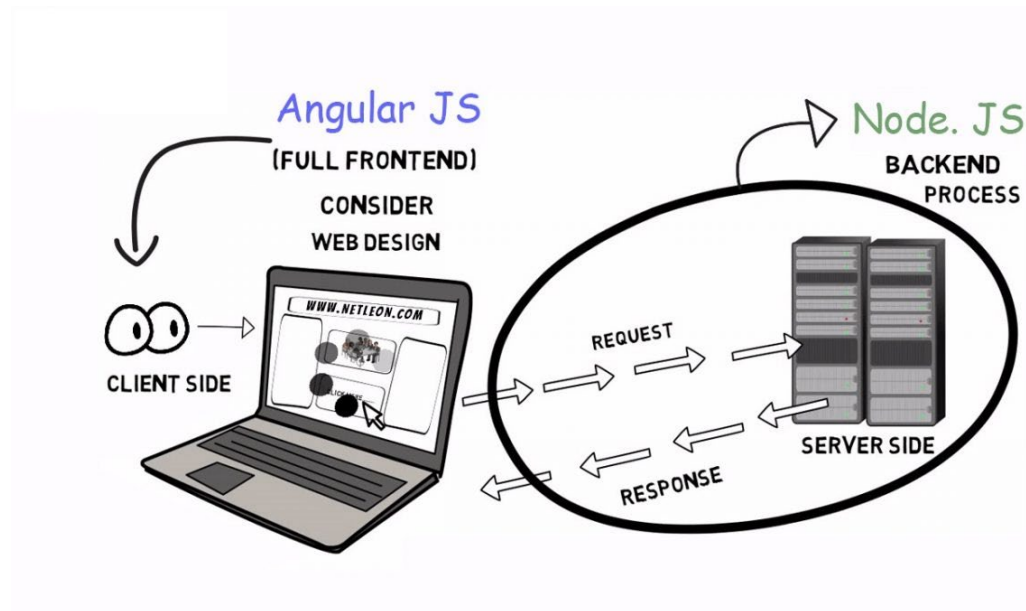
Examples of JavaScript's Versatility

Web Application



Examples of JavaScript's Versatility

Server Application



Examples of JavaScript's Versatility

Mobile Applications



Examples of JavaScript's Versatility

Desktop Application: Wayward Game (<https://www.wayward.com>)



Introducing node.js

- node.js is an open-source, cross-platform **JavaScript run-time environment**, built on Chrome's V8 **JavaScript Engine**, that executes JavaScript code outside of a browser.
- A **JavaScript Engine** is simply a program (an interpreter) that executes JavaScript code. It helps to translate JavaScript source code into bytecode i.e. something that can be understood by computer devices.
- A **JavaScript run-time environment** provides the built-in libraries/objects that are available to the program or needed by the program at runtime (during execution).

Analogy for node.js

Imagine you are asking a robot to help you clean your house.

- A **JavaScript source code** would be the instructions you give to the robot in your own language (e.g. English, Chinese, Malay, Tamil, Hindi) on how you want your house to be cleaned.
- A **JavaScript Engine** would be the robot which can understand your language and is able to act on it.
- A **JavaScript run-time environment** would be the cleaning tools such as a broom, mop, vacuum cleaner, etc that are used by the robot to complete the cleaning tasks for you.

Integrated Development Environment (IDE) Tools

- An IDE is a software that consolidates all tools required to write, test and debug computer program.
- These are some of the most popular free development tools (**IDE**) for JavaScript (and also other languages such as Python, HTML, CSS):
 - Microsoft Visual Studio Code
 - Atom by Github
 - Komodo IDE



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