# P1 Learning goals

* **The differences between Java and JavaScript + node**

Java needs to be compiled into .class files to be executed, whereas JavaScript is a scripting language, which means it doesn’t need compilation, but is instead interpreted. In addition to being a programming language, Java is also a platform.

Node.js is a platform that is event driven and non-blocking. Blocking means that code must wait for operations to finish before executing the next unless the blocking operations are executed on different threads. Non-blocking means that there are no “queues” for code to wait in. Java is blocking.

* **Node.js and npm**

Node.js is based on Googles V8 Engine, which is a Virtual Machine. It can therefore run on multiple platforms. Npm is node.js’ package manager. It can be used as a command to install and develop node.js programs.

* **Event Loop and why it’s relevant**

It is relevant to understand the Event Loop to understand how node.js functions. Node.js runs on a single thread and therefore only one operation can be completed at a time. When functions are called, they enter a call stack, which is what the event loop continuously checks to see if there’s anything it can run. The call stack is Last In, First Out (LIFO) often represented as a stack of pancakes, because you eat the newest pancakes from the top first. If some function takes longer to execute, such as with setTimeOut(), the event loop will take it off the stack, when it reaches it, so it doesn’t block the next operation, then execute the following operations, and when the time counter hits 0, the event loop first checks the call stack for anything to run and then puts the function back on the stack to execute it. This way not all following operations had to wait until the timer hit 0, and that is why node.js in non-blocking.

* **Method in nodes API that ends with xxxxxxSync**

If a method ends with sync it is not asynchronous and would therefore be blocking.

* **Purposes of Babel and Webpack and how they are different**

Webpack is a static module bundler and Babel is a JavaScript compiler.

* **Code examples**

The exercises in this repository cover the JavaScript features included in the learning goals.