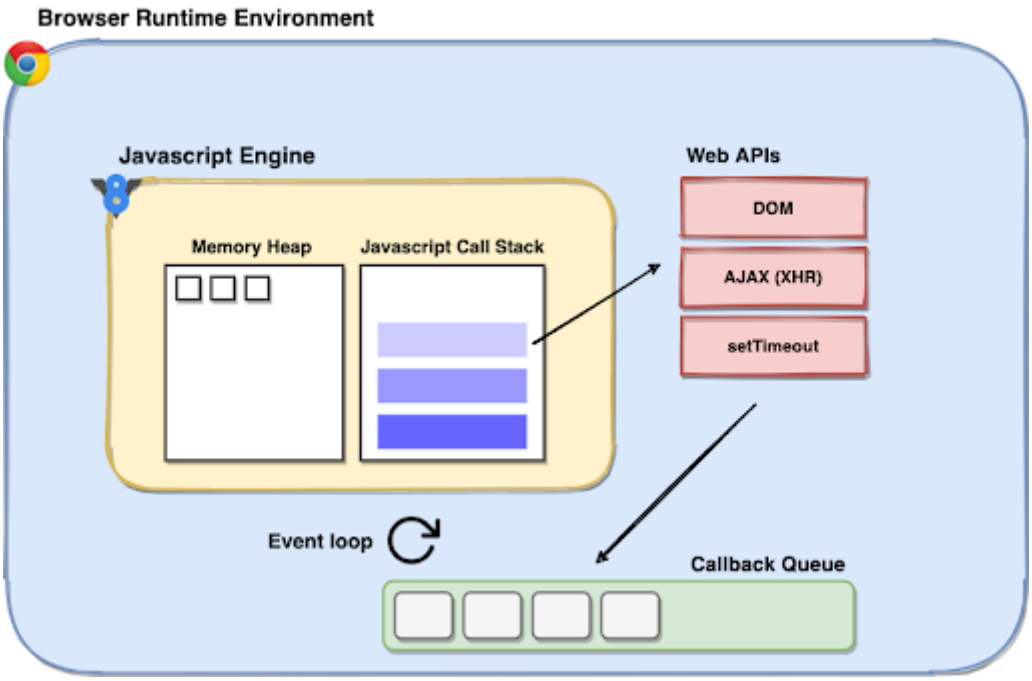
Event Loop - Browser

IMPORTANT CONCEPT that every javascript developer shoud know.



> Source: https://scoutapm.com/blog/async-javascript

AGENDA

1. Javascript Engine
2. Event loop components
3. Event loop visualizer

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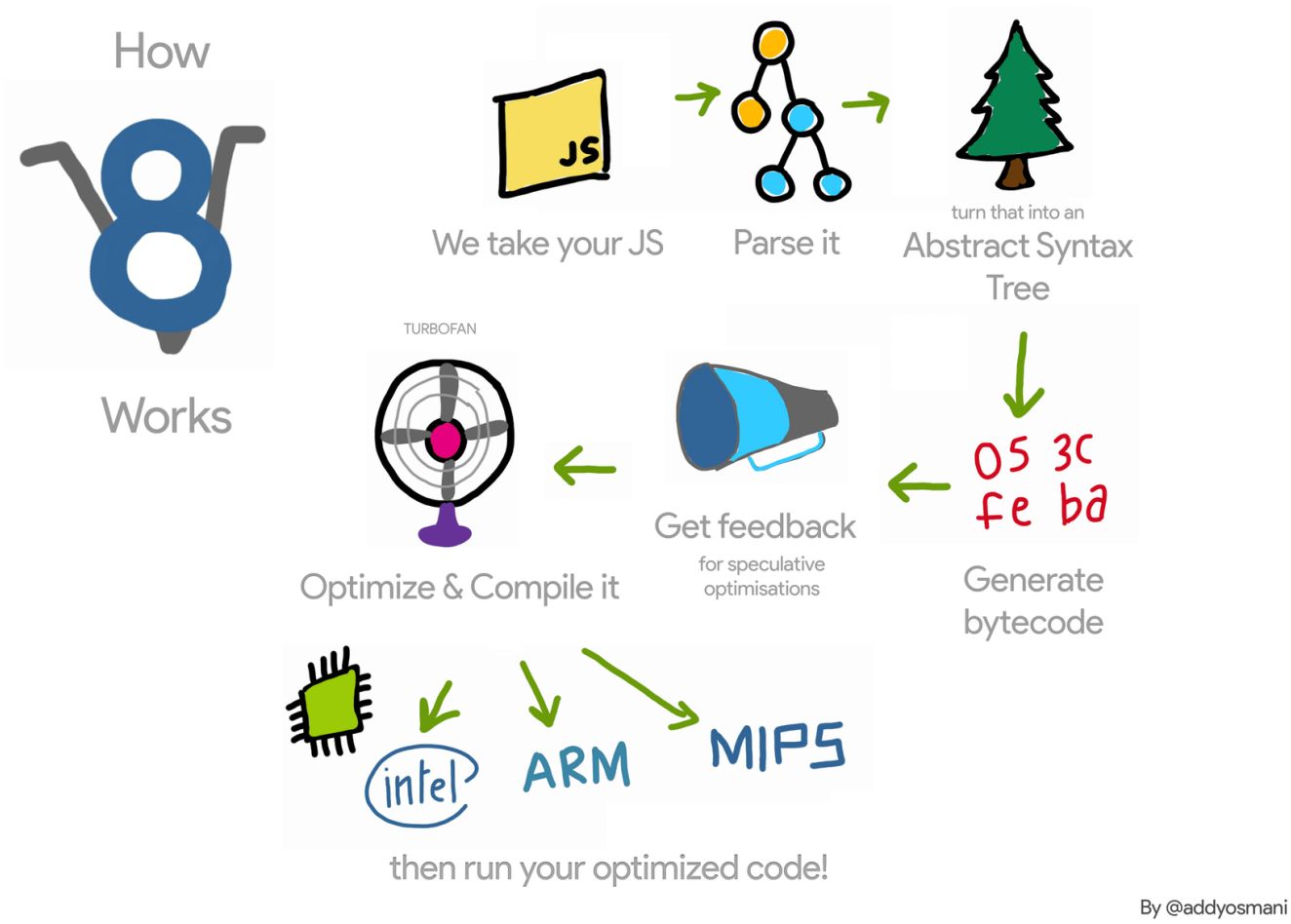
1. Javascript Engine



> Source: https://dzone.com/articles/v8-javascript-engine-the-non-stop-improvement

#	Name	Desc
1	Javascript Engine	computer program that exec js code
2	Ecmascript Engine	computer program that exec code that implements ECMAScript
3	Compiler	AoT (Ahead of Time), compile all -> exec
4	Interpreter	line by line, read and exec
5	Just-in-time (JIT) compiler	use the best of Compiler + Interpreter (modern browsers)

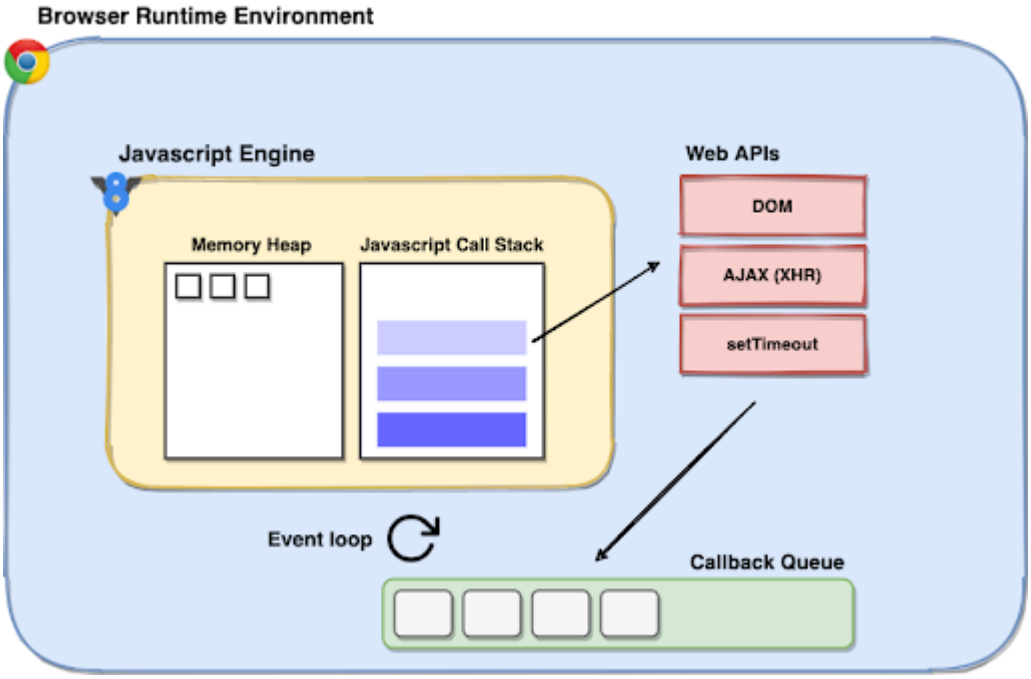
> Source: https://hacks.mozilla.org/2017/02/a-crash-course-in-just-in-time-jit-compilers/

ECMAScript Engines

#	Environment	Engine
1	Chrome	V8 - Google open source
2	NodeJS	V8
3	Microsoft Edge	V8 (v79)
4	Firefox	Spider Monkey
5	Safari	JavascriptCore

> Source: https://en.wikipedia.org/wiki/List_of_ECMAScript_engines

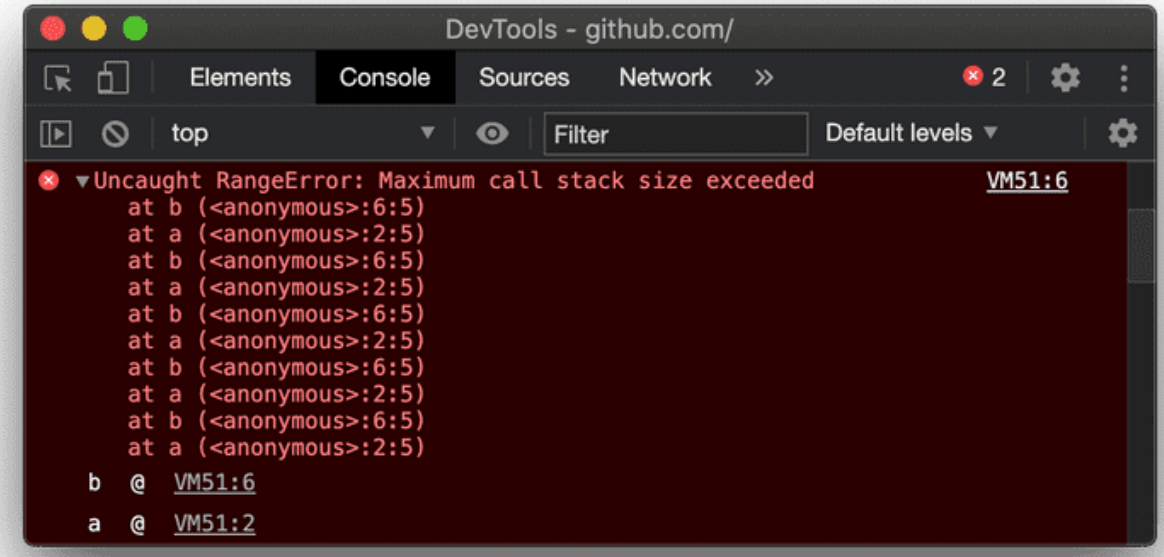
2. Event loop components



> Source: https://scoutapm.com/blog/async-javascript

#	Name	Desc
1	Heap	where to store objects and functions read more
2	Call Stack	keep track of the functions that a script calls
3	Web API	APIs of web browsers to help you make AJAX request, DOM manipulation, do things concurrently, ...
4	Callback Queue	run code after the execution of the Web API call has finished
5	Event Loop	run-to-complete, add call from Queue when the call stack is empty.

Maximum call stack size exceeded - 10k -> 50k



> Source: https://felixgerschau.com/javascript-event-loop-call-stack/

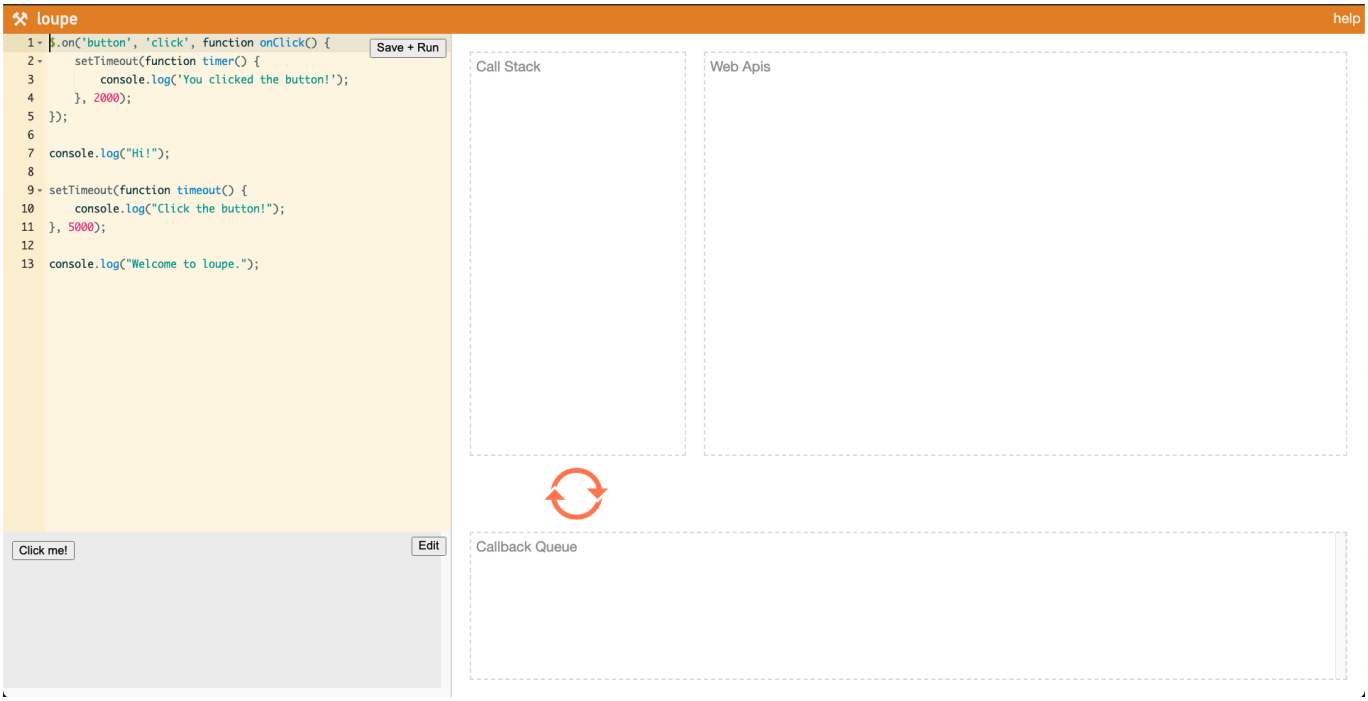
Callback Queue vs Promise Queue (Macrotask vs Microtask)

- Promise Queue has higher priority than callback queue
- Or we can say: Microtask has higher priority than macrotask.

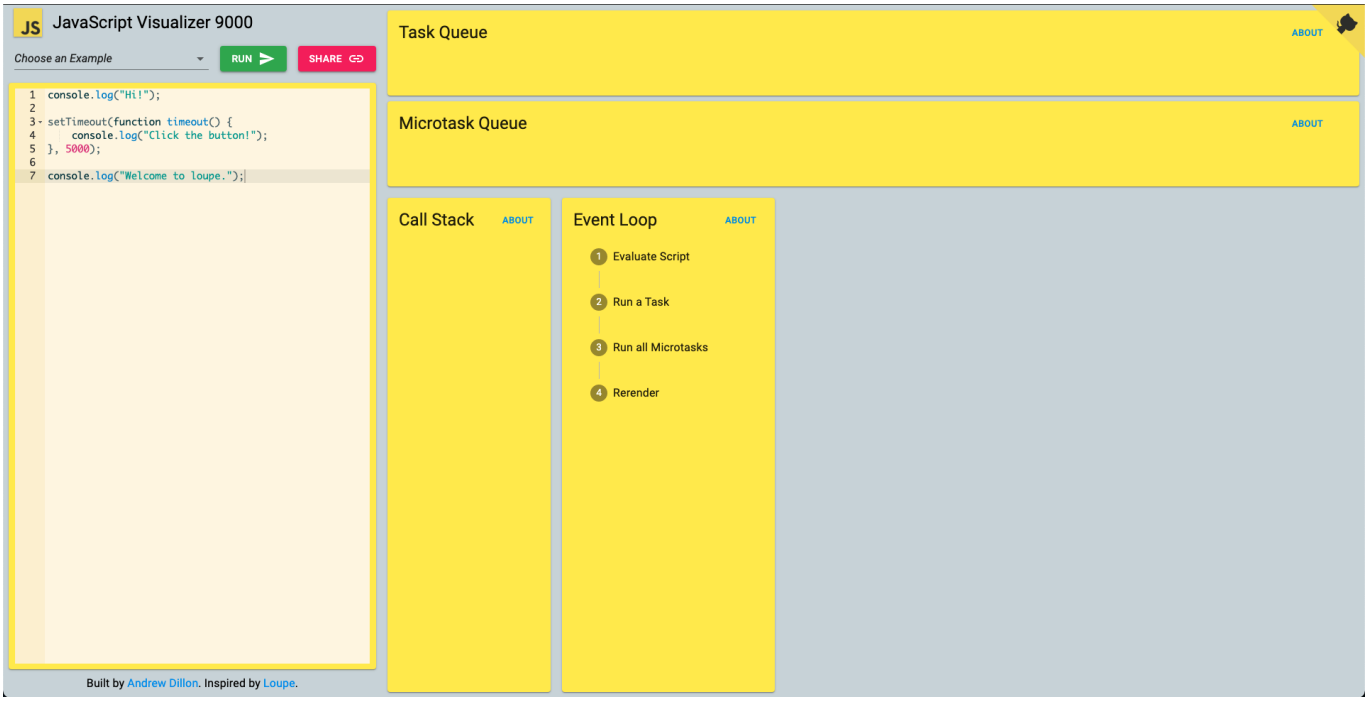
```
console.log('a');

setTimeout(() => console.log('b'), 0);

new Promise((resolve, reject) => {
  resolve();
})
.then(() => {
  console.log('c');
});

console.log('d');
// a -> d -> c -> b
```

3. Event loop visualizer

http://latentflip.com/loupe



https://www.jsv9000.app/



Tham khảo

- https://developer.mozilla.org/en-US/docs/Web/JavaScript/EventLoop
- https://scoutapm.com/blog/async-javascript

Khoá học Javascript cho người mới bắt đầu 2021 🎉

- Tác giả: **Hậu Nguyễn** - Founder Easy Frontend
- Khoá học chỉ được published trên Udemy, không thông qua trung gian.
- Khoá học không bán dạng videos upload trên Google Drive hay bất cứ hình thức nào tương tự.
- Khoá học có nhóm discord để hỗ trợ trong quá trình học tập.

☎️ Liên hệ tác giả để được hỗ trợ:

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