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# NODE.JS, EXPRESS & MONGODB

## THE COMPLETE BOOTCAMP

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SECTION

HOW NODE.JS WORKS: A LOOK BEHIND THE SCENES
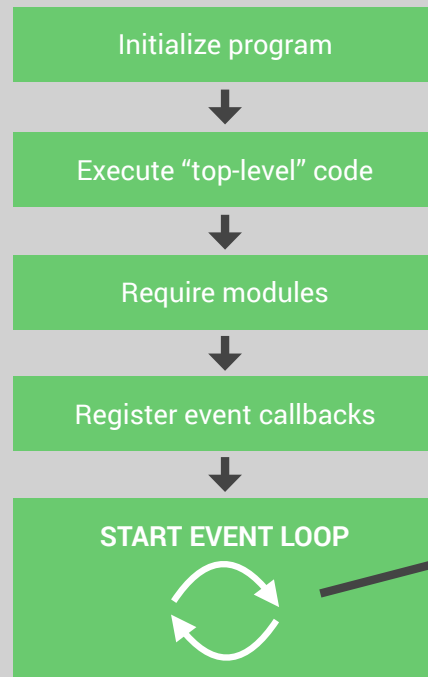
LECTURE

PROCESSES, THREADS AND THE THREAD POOL
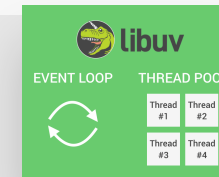
# NODE PROCESS AND THREADS

## NODE.JS PROCESS    (Instance of a program in execution on a computer)

**libuv**

EVENT LOOP    THREAD POOL

| Thread #1 | Thread #2 |
| Thread #3 | Thread #4 |

### SINGLE THREAD    (Sequence of instructions)

Initialize program

↓

Execute "top-level" code

↓

Require modules

↓

Register event callbacks

↓

**START EVENT LOOP**

OFFLOADING →

Node.JS has one single thread, but because is easy to get blocked with heavy tasks, libuv provides 4 additional thread pool (up to 128) so the event loop can offload (delegate heavy tasks) to other threads.

### THREAD POOL

| Thread #1 | Thread #2 |
| Thread #3 | Thread #4 |

## THREAD POOL:

👉 Additional 4 threads (or more)

👉 Offload work from the event loop

👉 Handle heavy ("expensive") tasks:

   👉 File system APIs

   👉 Cryptography

   👉 Compression

   👉 DNS lookups