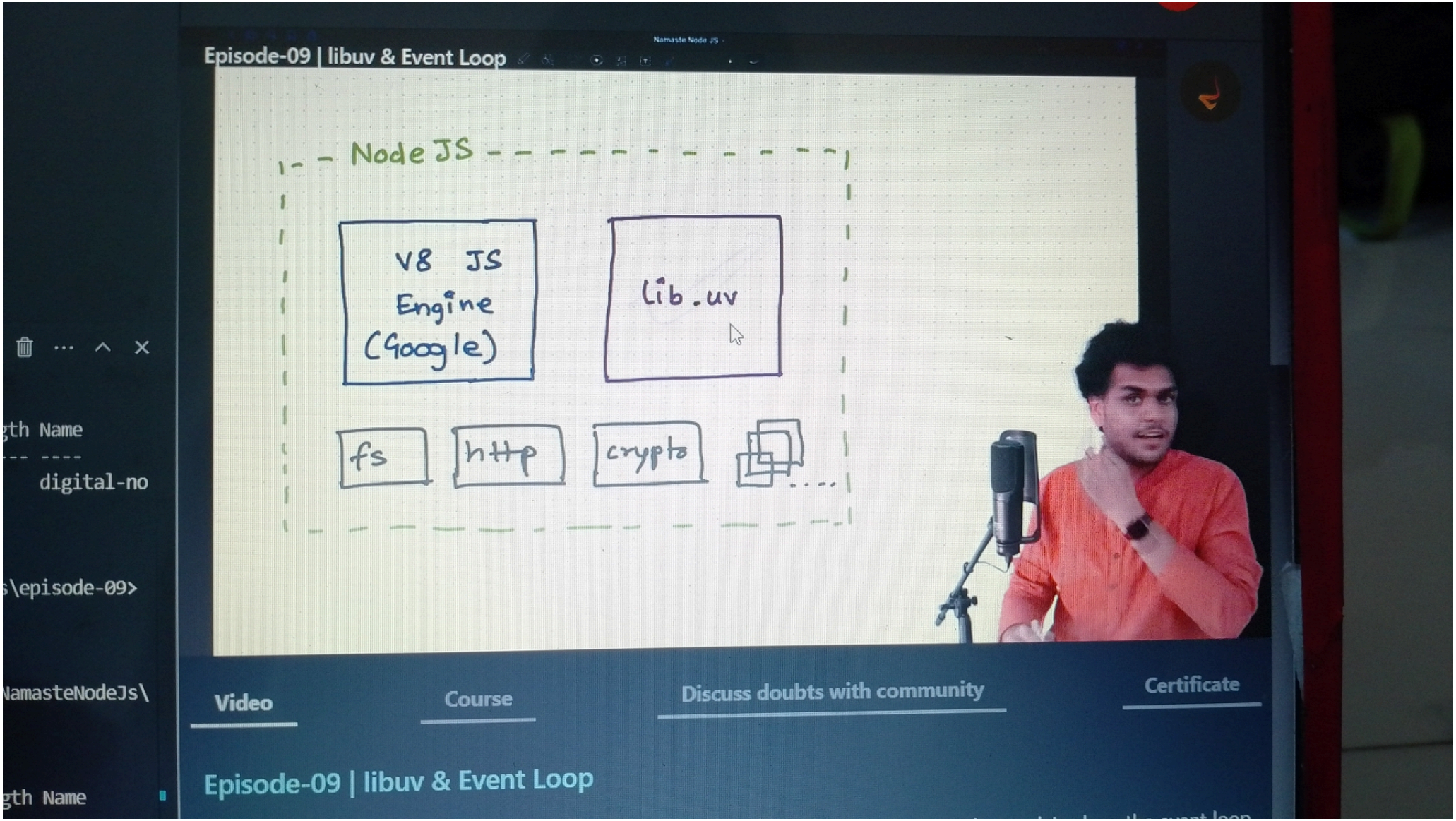
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V8 JS Engine (Google)
lib.uv
fs
http
crypto
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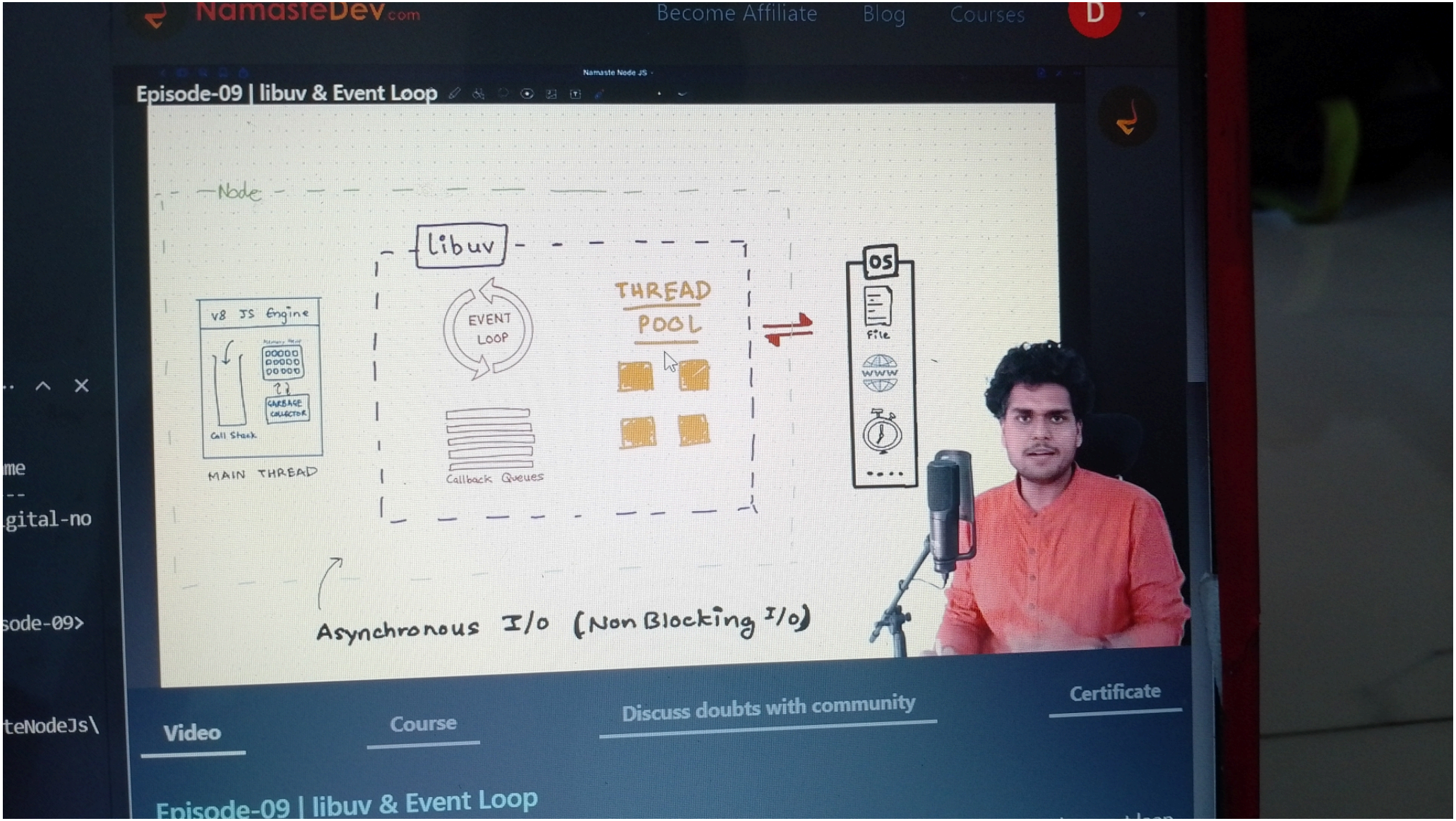
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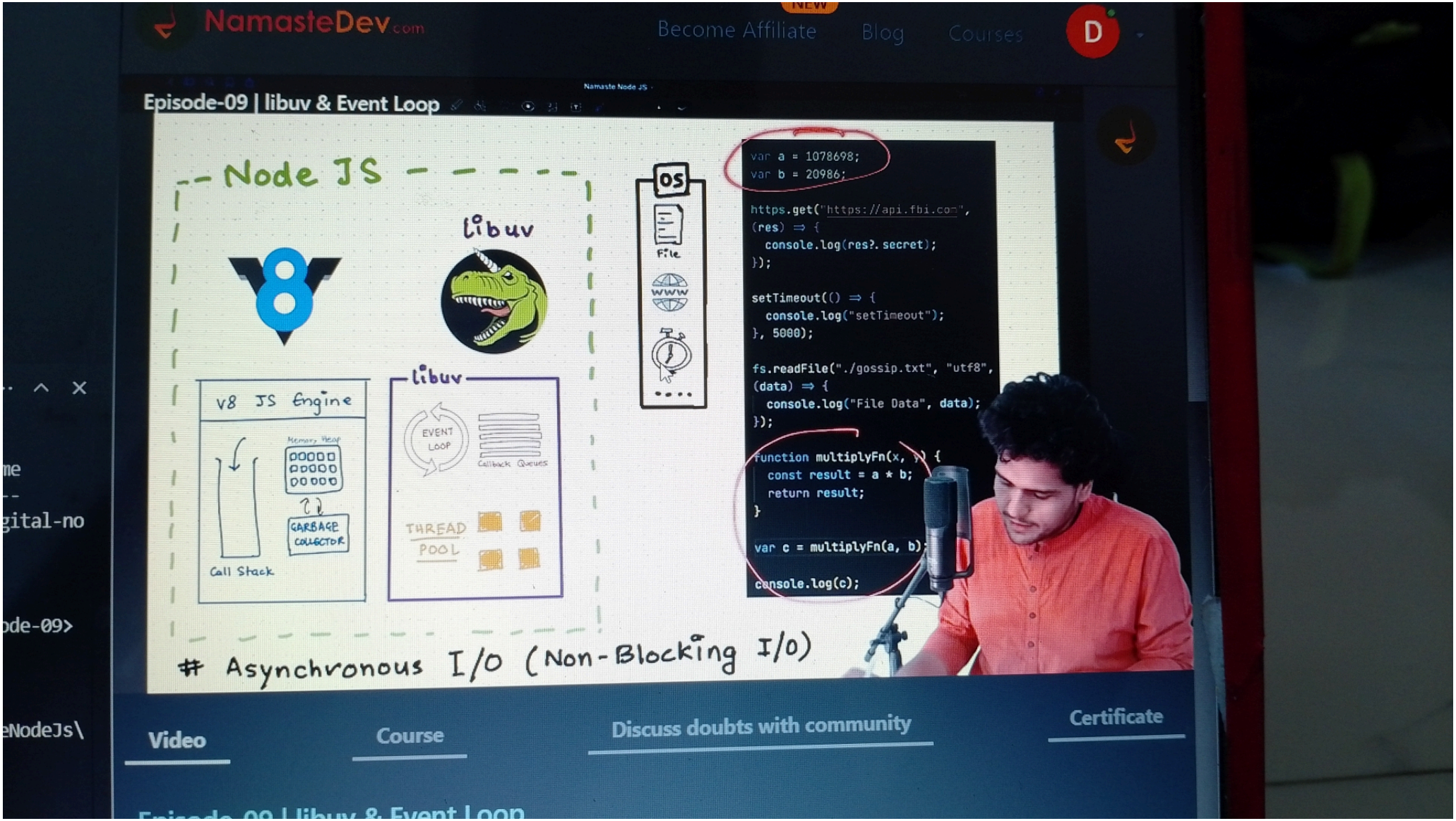
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libuv
V8 JS Engine
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GARBAGE COLLECTOR
Call Stack
libuv
EVENT LOOP
Callback Queues
THREAD POOL
OS
File
var a = 1078698;
var b = 20986;
https.get("https://api.fbi.com",
(res) => {
console.log(res?.secret);
});
setTimeout(() => {
console.log("setTimeout");
}, 5000);
fs.readFile("./gossip.txt", "utf8",
(data) => {
console.log("File Data", data);
});
function multiplyFn(x, y) {
const result = a * b;
return result;
}
var c = multiplyFn(a, b);
console.log(c);
# Asynchronous I/O (Non-Blocking I/O)
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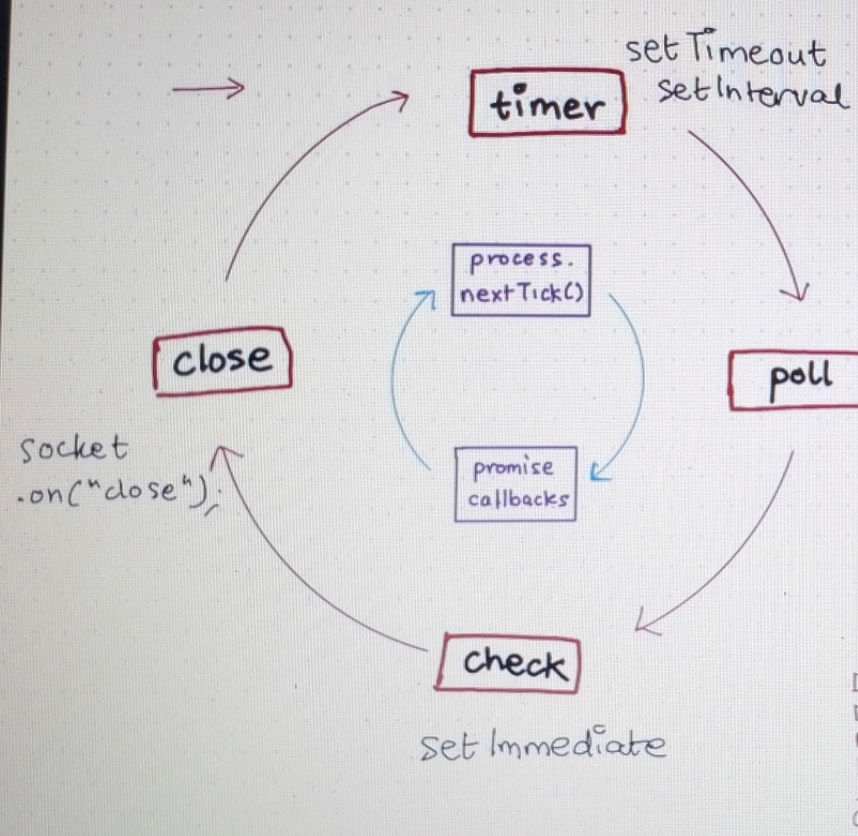
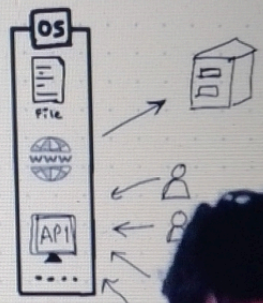
EVENT LOOP



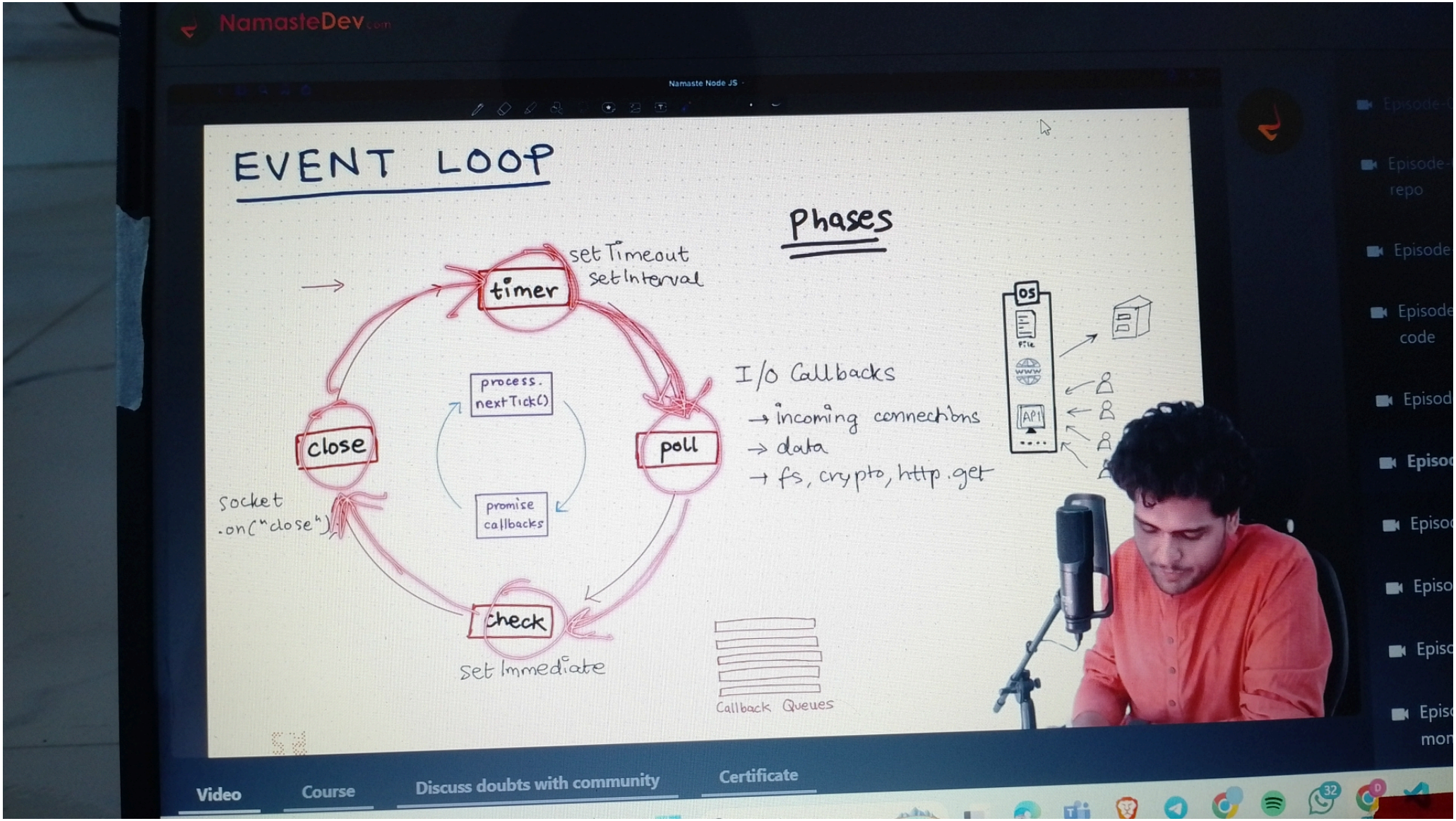
Phases

I/O Callbacks

→ incoming connections
→ data
→ fs, crypto, http.get



Callback Queues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EVENT LOOP
Phases
timer
set Timeout
set Interval
process.
nextTick()
poll
I/O Callbacks
→ incoming connections
→ data
→ fs, crypto, http.get
close
socket
.on("close")
promise
callbacks
check
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Callback Queues
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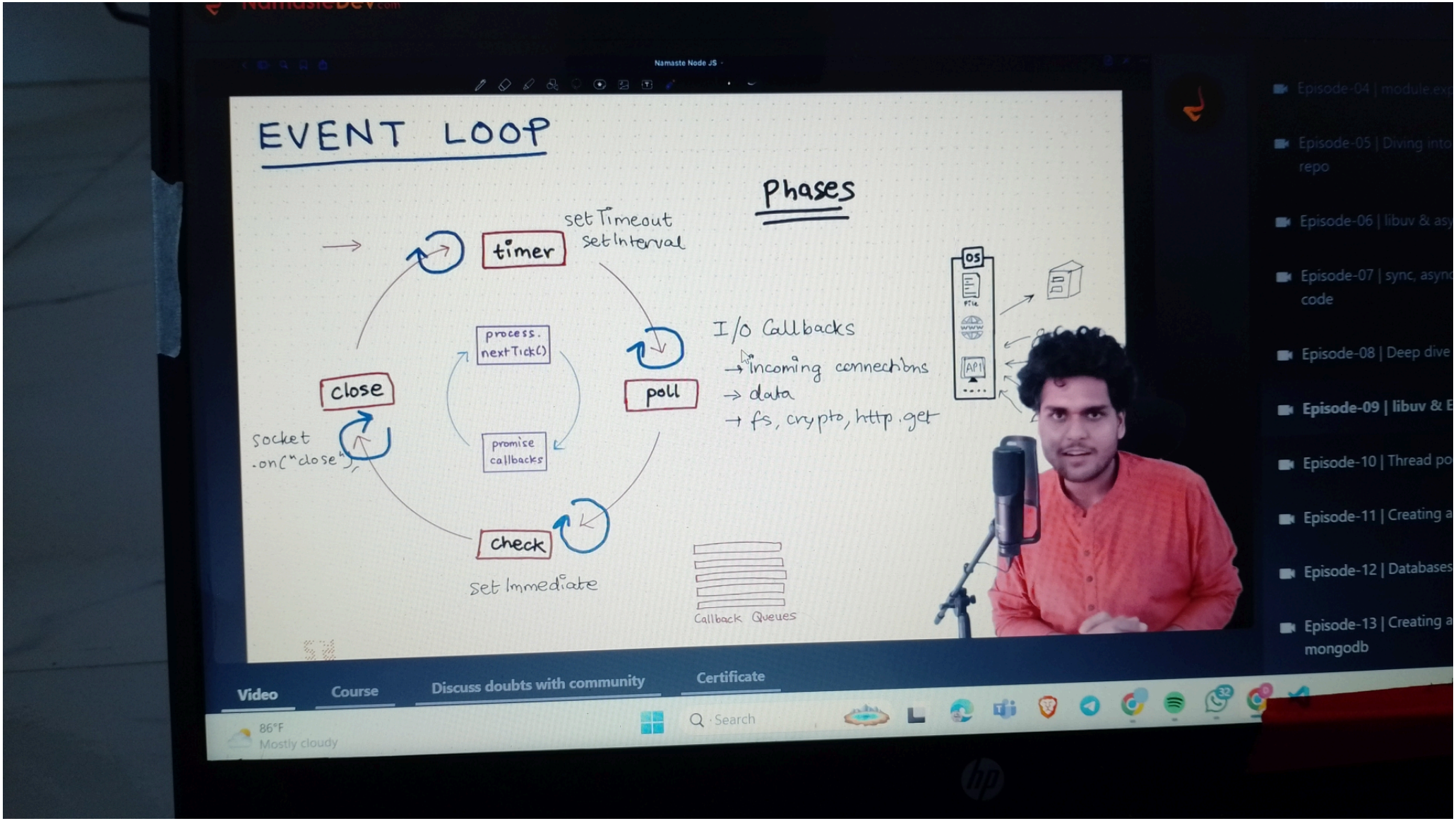
EVENT LOOP
Phases
timer
setTimeout
setInterval
poll
I/O Callbacks
→ Incoming connections
→ data
→ fs, crypto, http.get
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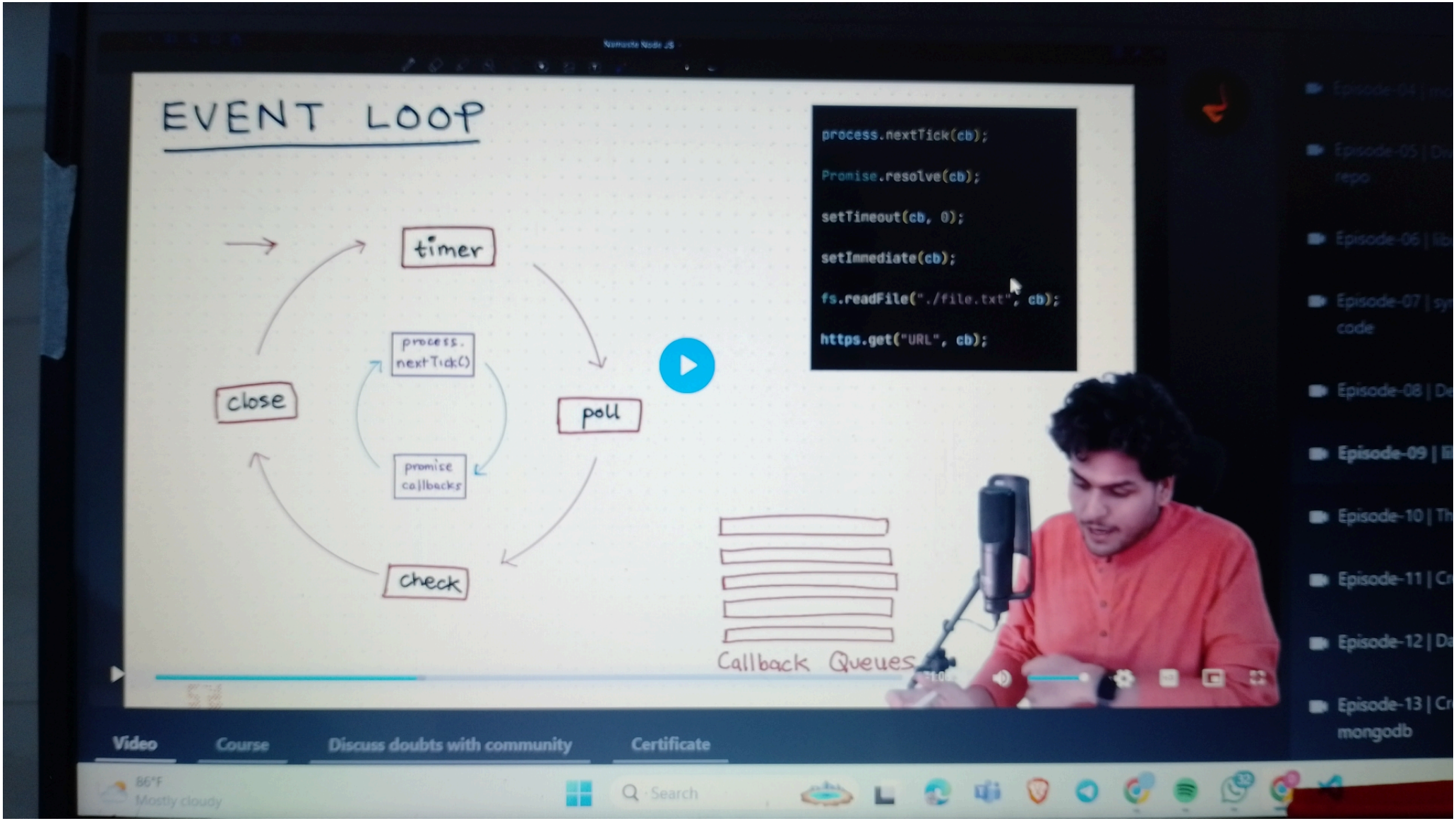
EVENT LOOP
timer
process.
nextTick()
promise
callbacks
poll
check
close
process.nextTick(cb);
Promise.resolve(cb);
setTimeout(cb, 0);
setImmediate(cb);
fs.readFile("./file.txt", cb);
https.get("URL", cb);
Callback Queues
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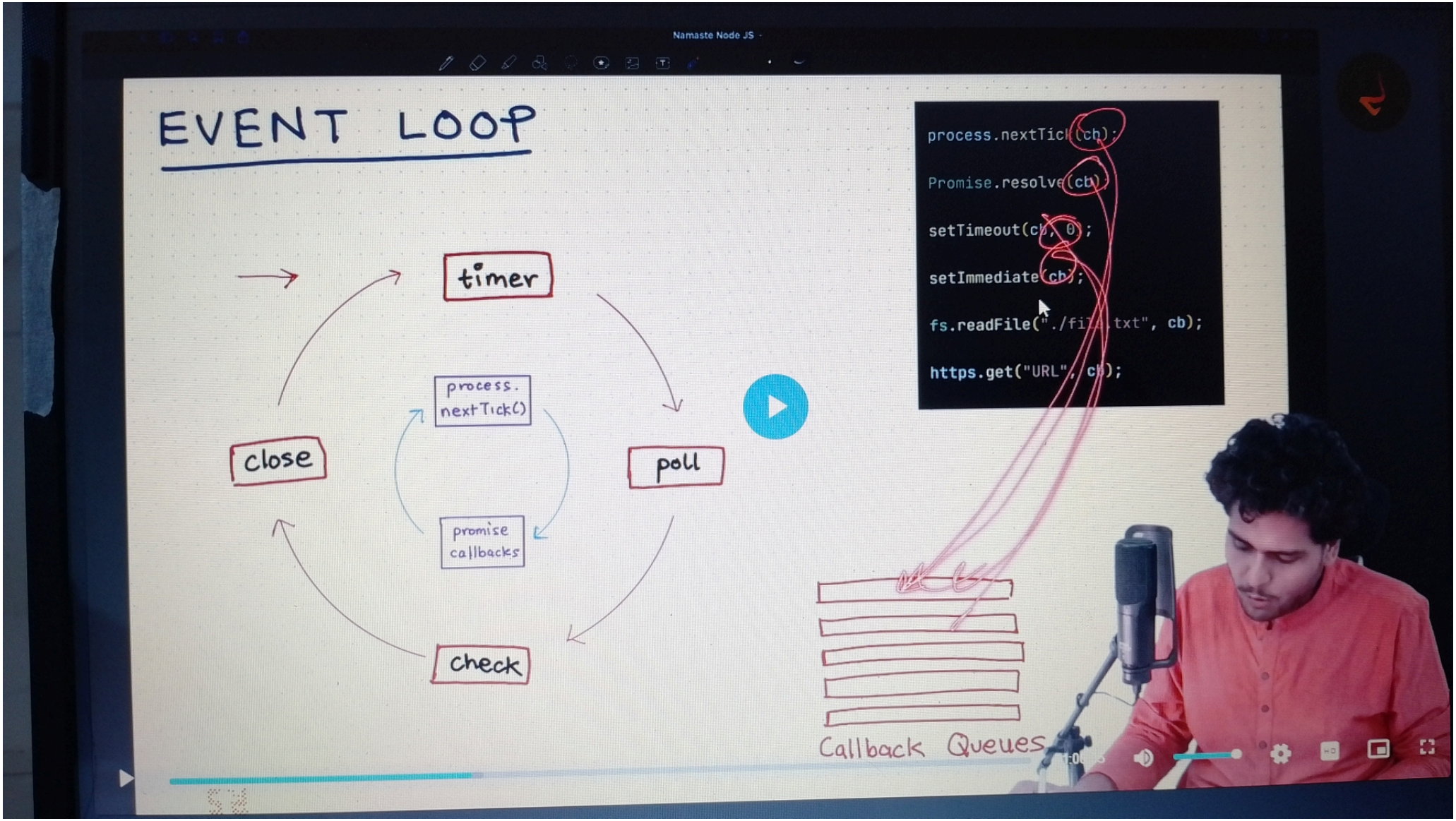
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EVENT LOOP
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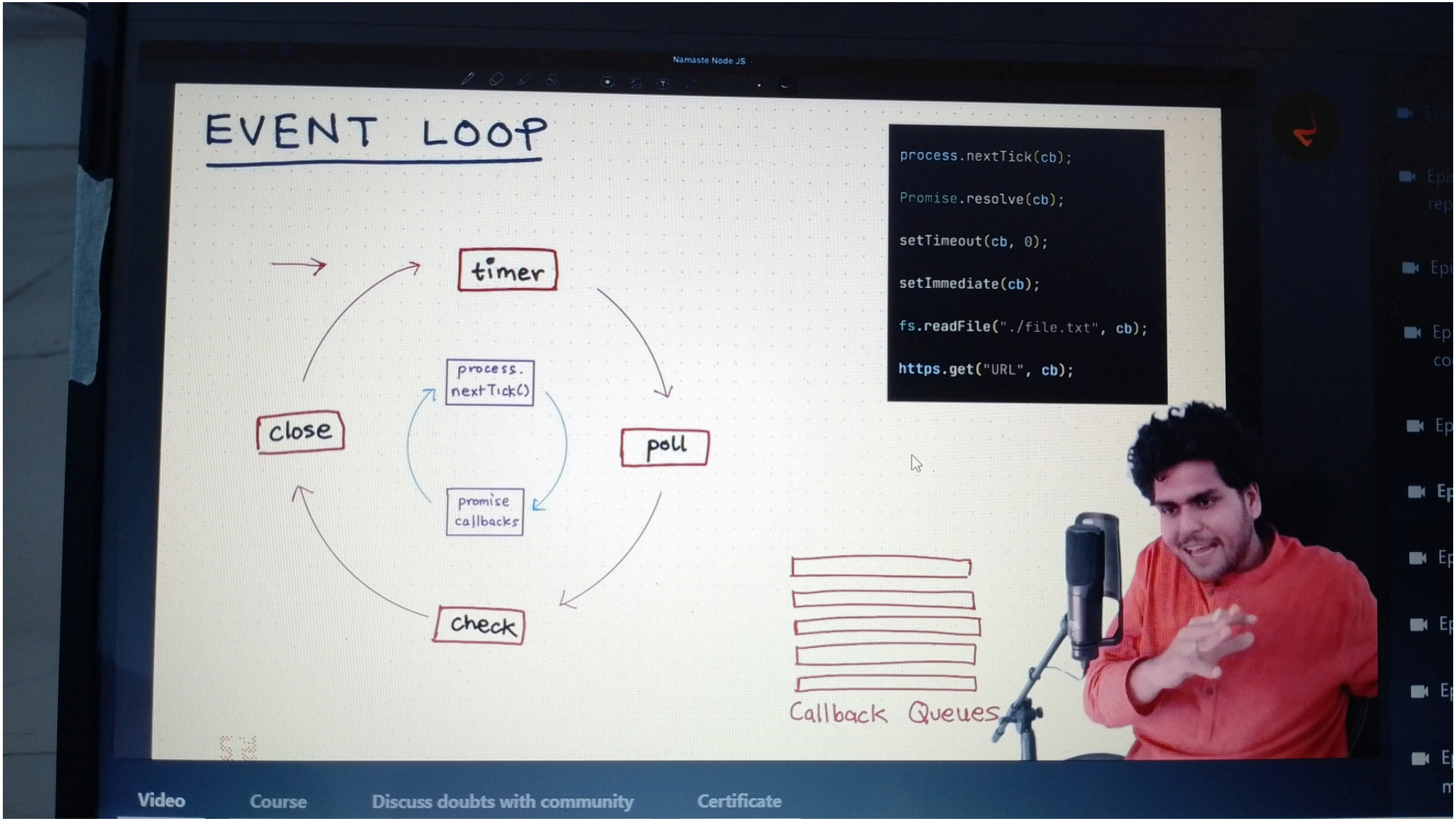
Callback Queues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setTimeout(cb, 0);
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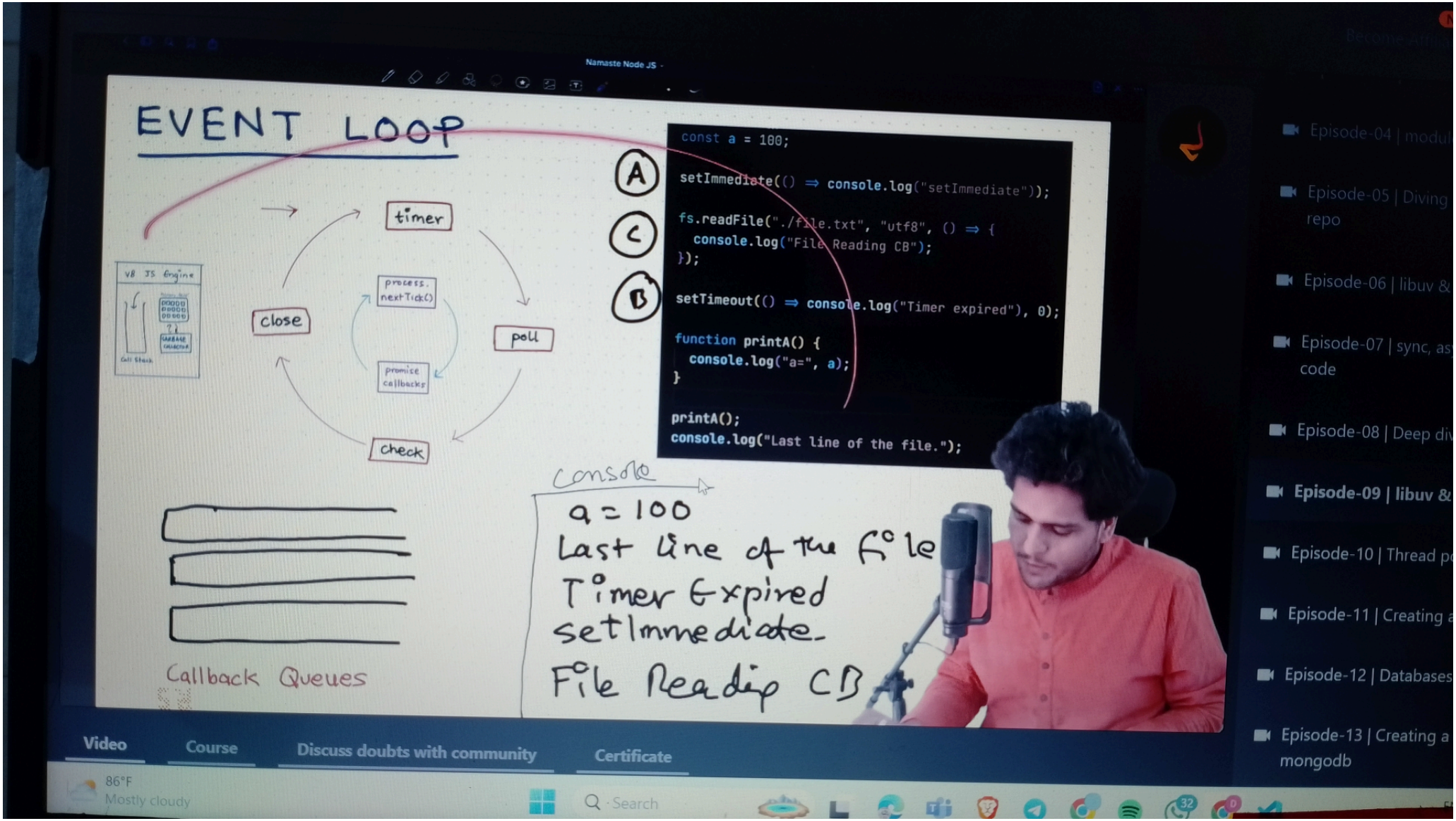
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EVENT LOOP
timer
process.nextTick()
poll
promise callbacks
check
close
V8 JS Engine
Call Stack
GARBAGE COLLECTOR
A
C
B
const a = 100;
setImmediate(() => console.log("setImmediate"));
fs.readFile("./file.txt", "utf8", () => {
console.log("File Reading CB");
});
setTimeout(() => console.log("Timer expired"), 0);
function printA() {
console.log("a=", a);
}
printA();
console.log("Last line of the file.");
Callback Queues
console
a = 100
Last line of the file
Timer Expired
setImmediate
File Reading CB
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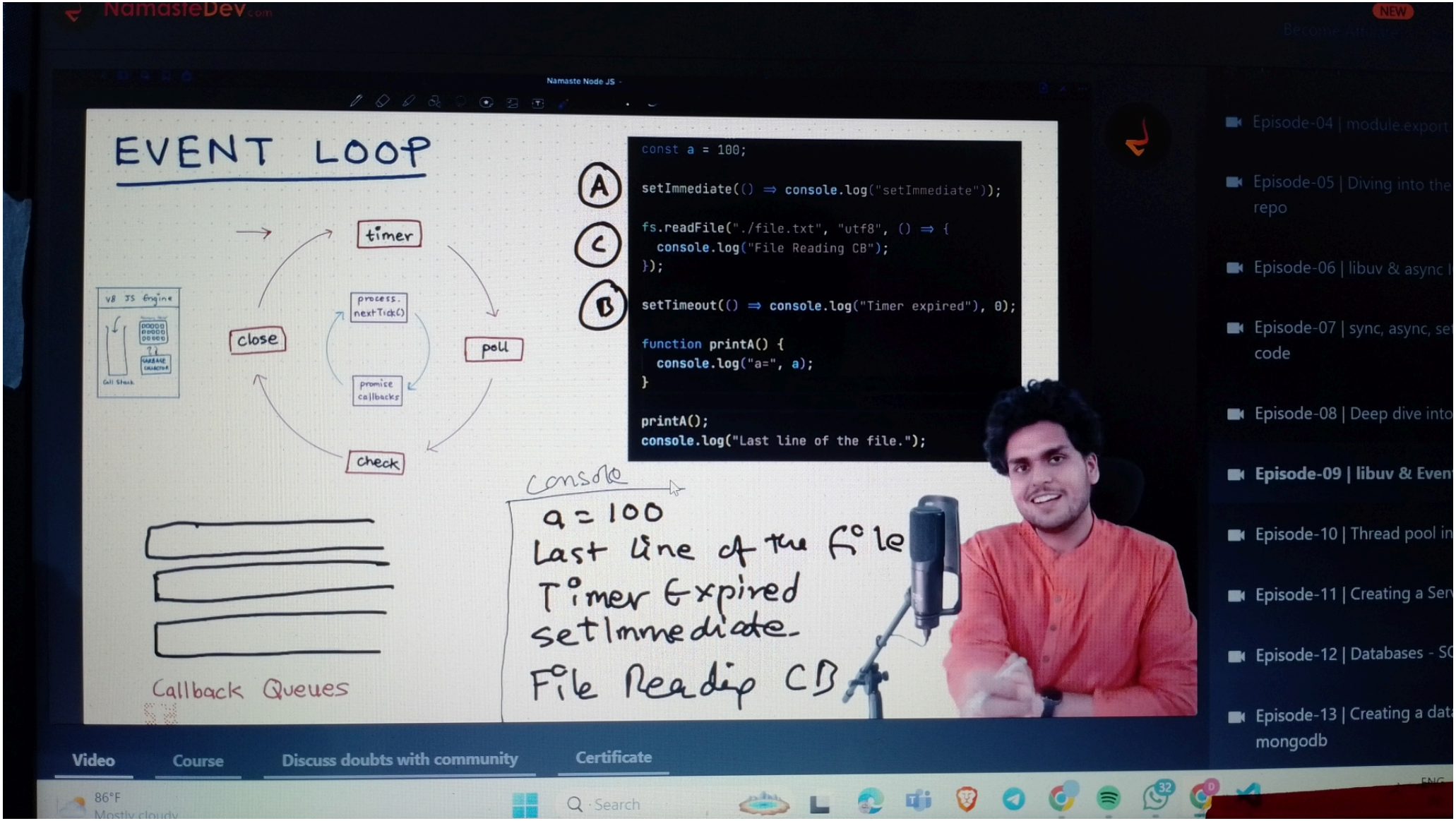
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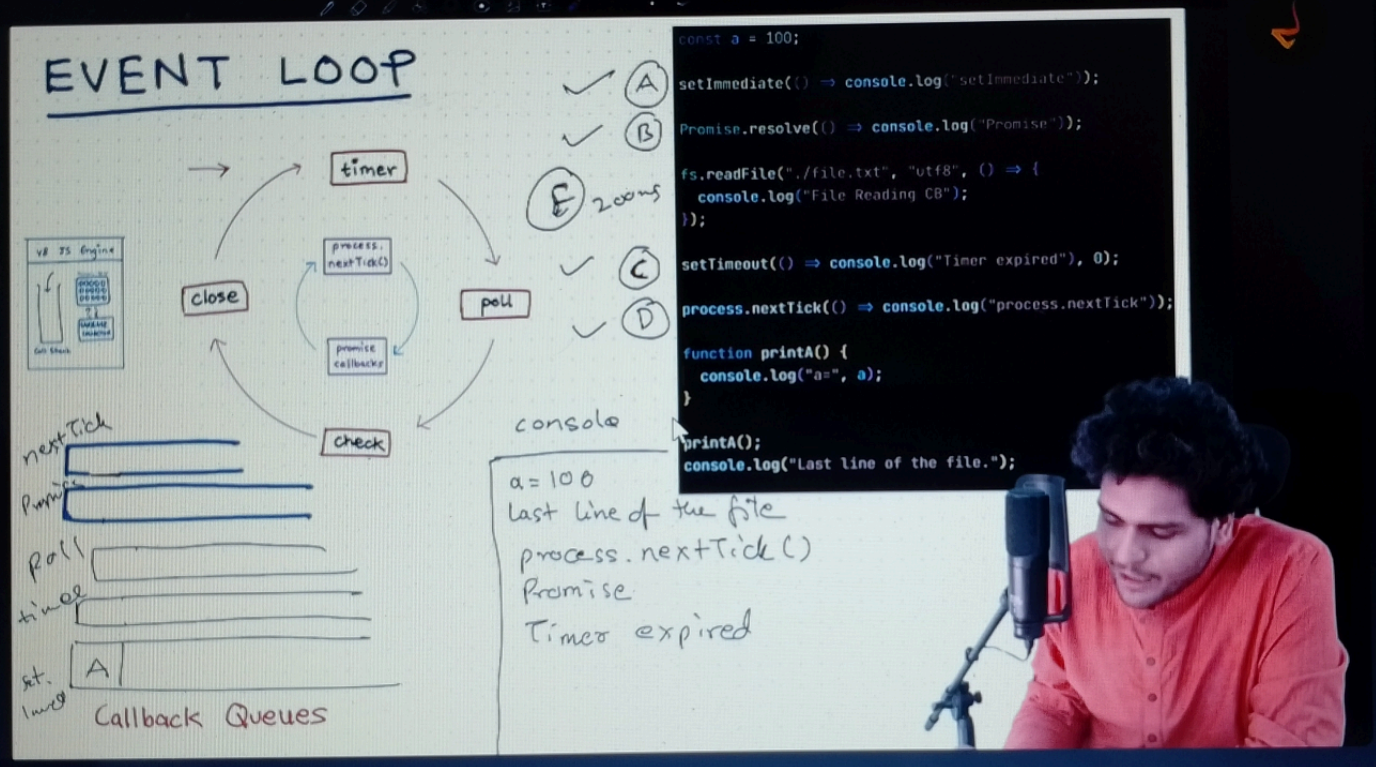

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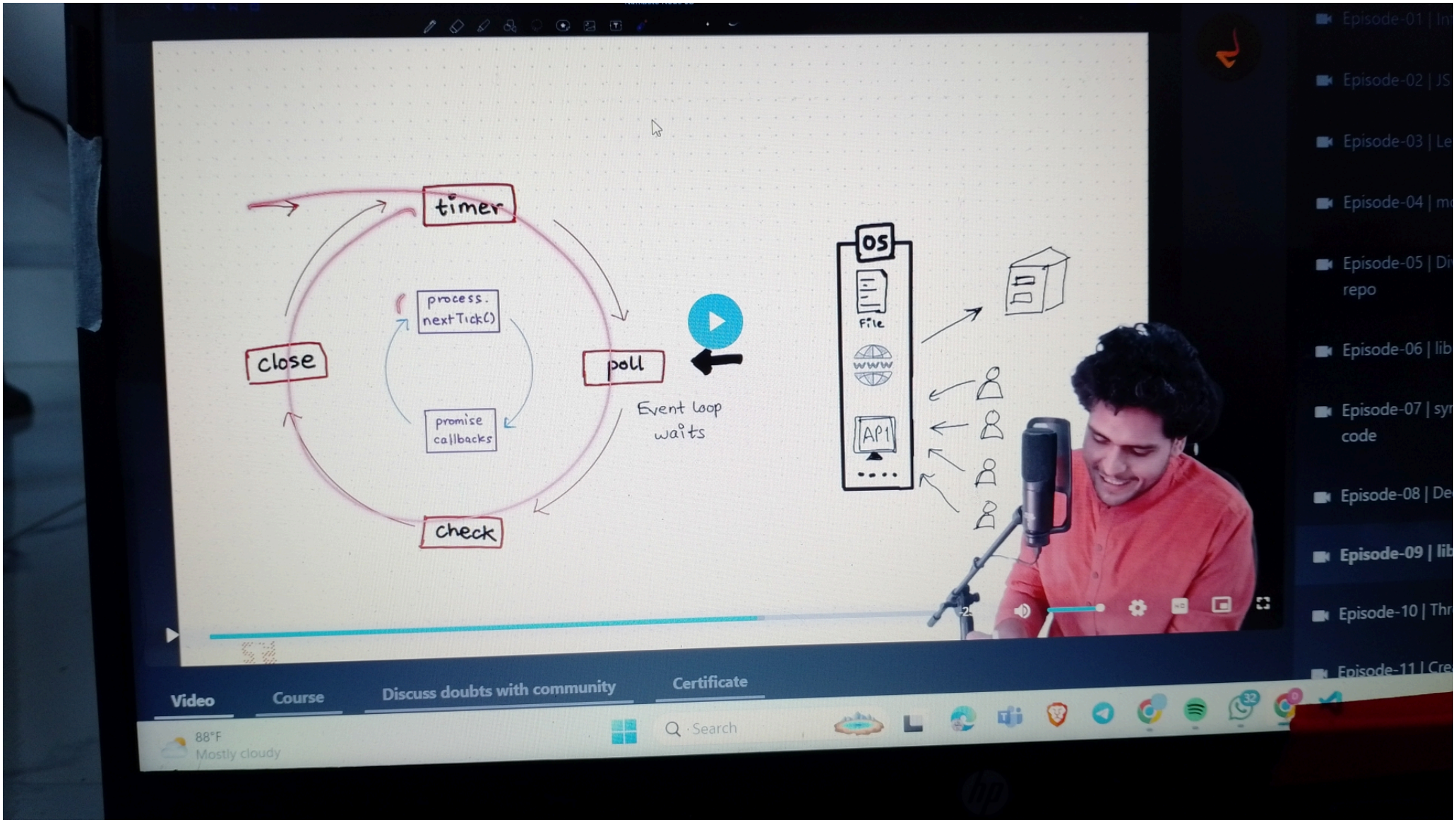
Episode-09 | libuv & Event Loop

Uncover the secrets of the NodeJS event loop and its integration with libuv. This video explains how the event loop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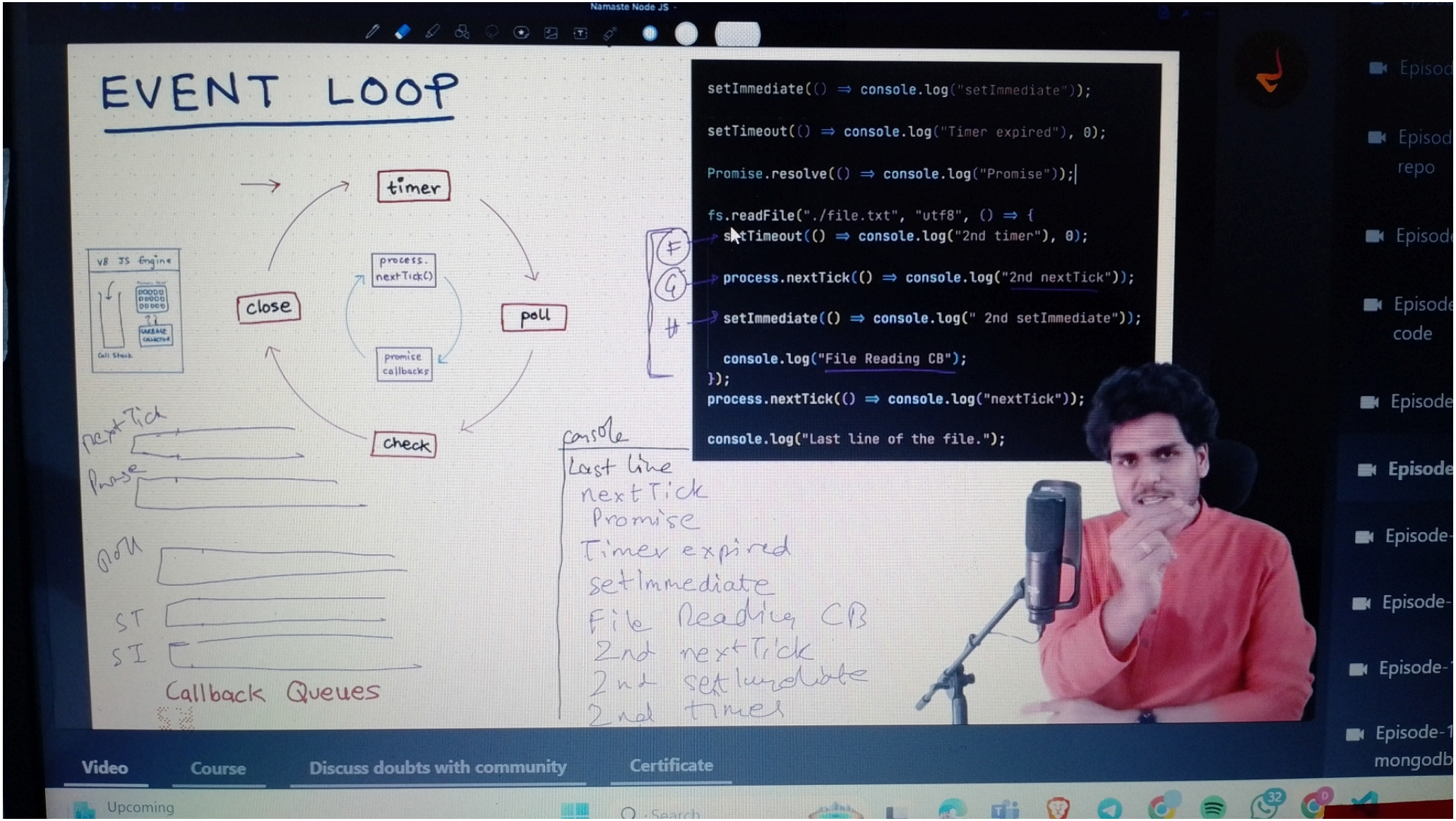
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process.nextTick()
poll
promise callbacks
check
close
V8 JS Engine
Call Stack
Memory Heap
GARBAGE COLLECTOR
nextTick
Promise
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Callback Queues
setImmediate(() ⇒ console.log("setImmediate"));
setTimeout(() ⇒ console.log("Timer expired"), 0);
Promise.resolve(() ⇒ console.log("Promise"));
fs.readFile("./file.txt", "utf8", () ⇒ {
setTimeout(() ⇒ console.log("2nd timer"), 0);
process.nextTick(() ⇒ console.log("2nd nextTick"));
setImmediate(() ⇒ console.log(" 2nd setImmediate"));
console.log("File Reading CB");
});
process.nextTick(() ⇒ console.log("nextTick"));
console.log("Last line of the file.");
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console
Last line
nextTick
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setImmediate
File Reading CB
2nd nextTick
2nd setImmediate
2nd Timer
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