Executing JS Code

Looking into the V8 engine

- Program
- Call Stack
- Node API
- Callback Queue
- Event Loop

Example 1

Code

console.log("hello");

Call Stack

Node API

Output

Callback Queue

Code

console.log("hello");

Call Stack

Main

Node API

Output

Callback Queue

Code

console.log("hello");

Call Stack

console.log("hello");
Main

Node API

Output

Callback Queue

Code

console.log("hello");

hello

Output

Call Stack

console.log("hello");
Main

Node API

Callback Queue

Code

console.log("hello");

Call Stack

Main

Node API

hello

Output

Callback Queue

Code

console.log("hello");

Call Stack

Node API

hello

Output

Callback Queue

Code

console.log("hello");

Call Stack

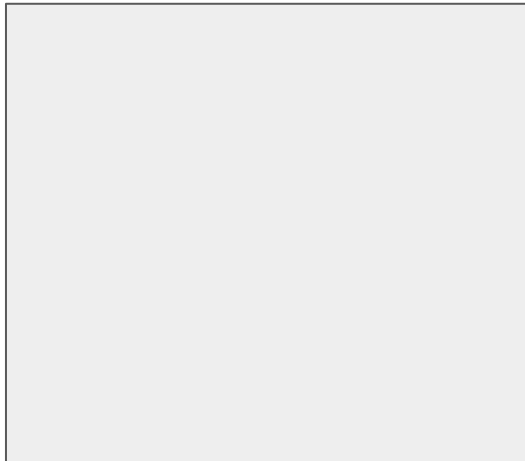## Node API

Output

Callback Queue
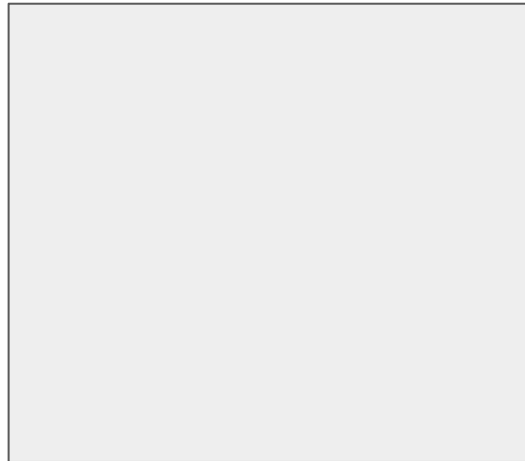
Example 2

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

Node API

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```
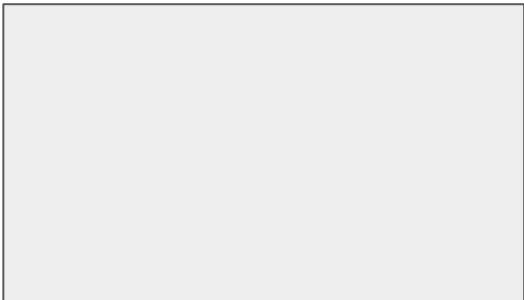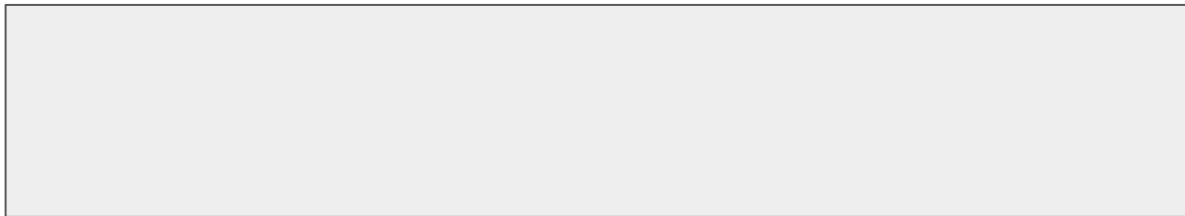
Call Stack

Node API

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

Main

Node API

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

```
foo();
Main
```

Node API

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

```
console.log("hello");
foo();
Main
```
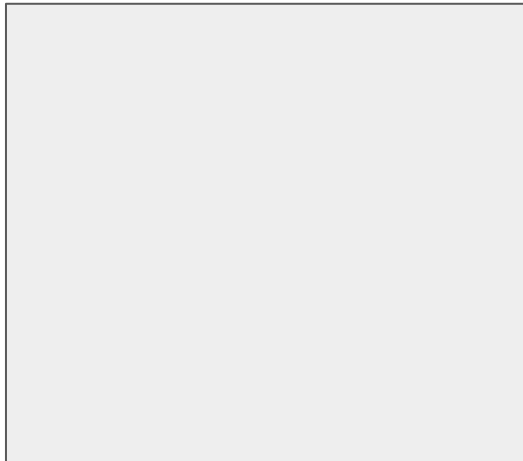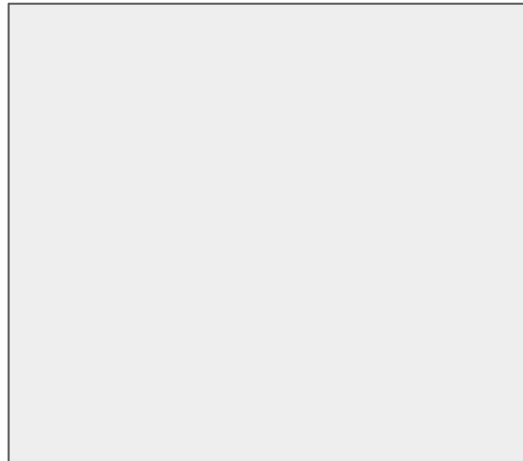
Node API

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

```
console.log("hello");
foo();
Main
```

Node API

hello

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

```
foo();
Main
```
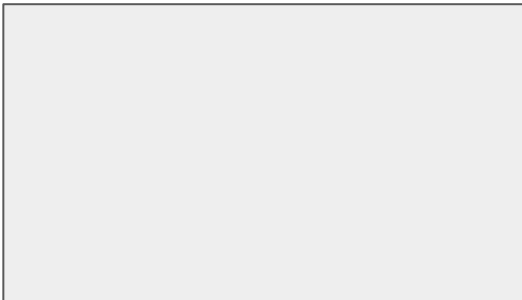
Node API

hello

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```
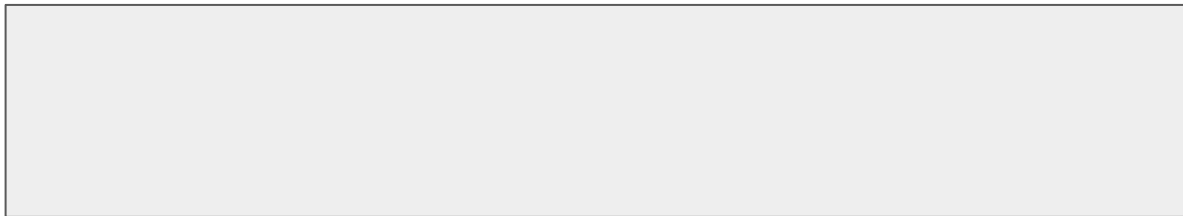
Call Stack

Main

Node API

hello

Output

Callback Queue

Code

```
foo() {
    console.log("hello");
    };

foo();
```

Call Stack

Node API

Output

hello

Callback Queue

Example 3

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Node API

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
        console.log("2");
},2000);

setTimeout(()=> {
        console.log("3"); },0);

console.log("4");
```

Call Stack

Main

Node API

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Output

Call Stack

```
console.log("1");
Main
```

Node API

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

console.log("1");
Main

Node API

1

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```
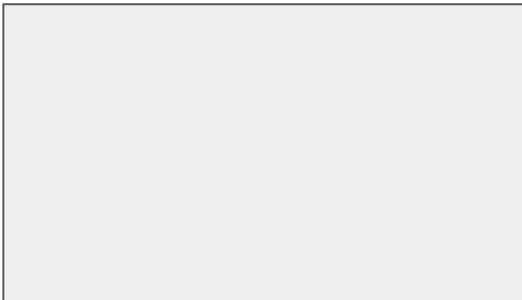
1

Output

Call Stack

Main

Node API

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
     console.log("2");
},2000);

setTimeout(()=> {
     console.log("3"); },0);

console.log("4");
```

Call Stack

Main

Node API

Output

1

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

```
setTimeout(()=> {
      console.log("2");
},2000);
Main
```

Node API

1

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

1

Output

Call Stack

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

1

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
     console;log ("2");
},2000);

setTimeout(()=> {
     console.log("3"); },0);

console.log("4");
```

Call Stack

```
setTimeout(()=> {
     console.log("3"); },0);

Main
```

Node API

```
setTimeout(()=> {
     console.log("2");
},2000);
```

1

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);
```

1

Output

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

1

Output

Call Stack

```
console.log("4");
Main
```

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

```
console.log("3");
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

1

Output

Call Stack

console.log("4");

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

console.log("3");

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

```
1
4
```

Output

Call Stack

console.log("4");

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

console.log("3");

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

```
1
4
```

Output

Call Stack

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```



```
console.log("3");
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

1
4

Output

Call Stack

Main

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

```
console.log("3");
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

1
4

Output

Call Stack

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Callback Queue

```
console.log("3");
```

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

```
console.log("3");
```

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Output

```
1
4
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

```
1
4
3
```

Output

Call Stack

```
console.log("3");
```

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Output

```
1
4
3
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Node API

```
setTimeout(()=> {
      console.log("2");
},2000);
```

Output

```
1
4
3
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

Node API

```
1
4
3
```

Output


```
console.log("2");
```

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Call Stack

console.log("2");

Node API

Output

1
4
3

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
      console;log ("2");
},2000);

setTimeout(()=> {
      console.log("3"); },0);

console.log("4");
```

Output

```
1
4
3
2
```

Call Stack

```
console.log("2");
```

Node API

Callback Queue

Code

```
console.log("1");

setTimeout(()=> {
        console;log ("2");
},2000);

setTimeout(()=> {
        console.log("3"); },0);

console.log("4");
```

Call Stack

Node API

```
1
4
3
2
```

Output

Callback Queue