

Περιβάλλον NodeJS



Express



Νένα Μιχαηλίδου

Περιεχόμενα

- Τι είναι το NodeJS
 - Ιστορικό
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 - example

Τι είναι το NodeJS

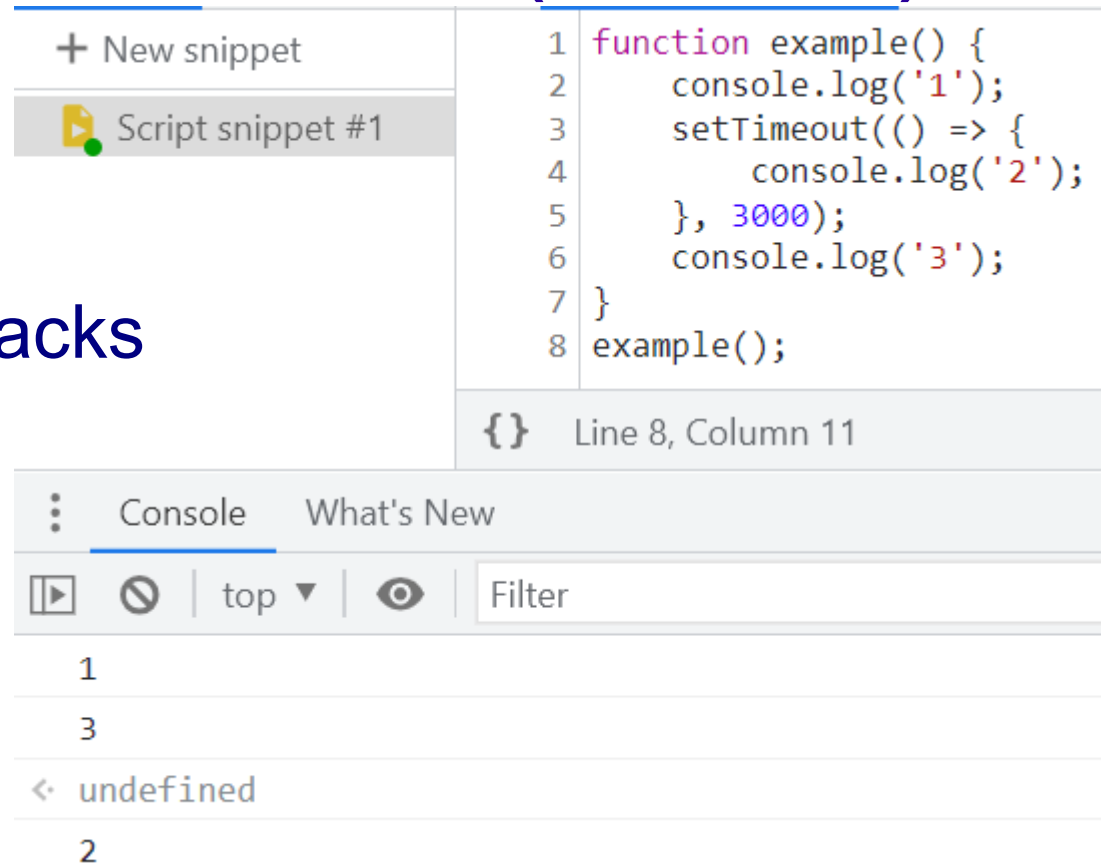
- Πλατφόρμα ανάπτυξης λογισμικού, συνήθως server side
 - Javascript
 - Open Source
 - Cross platform
 - Single Threaded
 - Asynchronous I/O (events)

Ιστορικό

- Πρώτη εφαρμογή 2009 (Ryan Dahl)
 - Linux , Mac OS
 - Windows (2011)
- Τελευταία έκδοση (2022) v19
- Εμφάνιση του npm 2010 (node package manager)

Asynchronous I/O (events)

- Ταυτοχρονισμός
 - Events/callbacks



The screenshot shows a code editor with a snippet titled 'Script snippet #1'. The code defines a function 'example()' that logs '1', then uses 'setTimeout' to log '2' after 3000ms, and finally logs '3'. The function is called at the end. Below the code, the console is open, showing the execution order: '1', '3', and then 'undefined' (likely a console.log of an undefined variable), with '2' appearing last, demonstrating asynchronous execution.

```
1 function example() {  
2     console.log('1');  
3     setTimeout(() => {  
4         console.log('2');  
5     }, 3000);  
6     console.log('3');  
7 }  
8 example();
```

{ } Line 8, Column 11

⋮ Console What's New

⏮ ⛔ top 👁 Filter

1

3

⏪ undefined

2

Asynchronous I/O (events)

- Promises

- Pending
- Fulfilled
- Rejected

```
1 function example() {  
2   const promise = new Promise((resolve, reject) => {  
3     resolve('1');  
4   });  
5   promise.then(value => console.log(`Asynchronous value: ${value}`));  
6   console.log('2');  
7 }  
8 example();
```

{ } Line 5, Column 70

⋮ Console What's New

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2

Asynchronous value: 1

npm (node package manager)

- εργαλείο για εγκατάσταση πακέτων
- npm registry
 - online db με δωρεάν/επι-πληρωμή πακέτα

Χρήση npm (2)

- `npm install [package_name]`
 - Εγκαθιστά το πακέτο απο το npm registry που έχει όνομα `package_name` (εφόσον υπάρχει)
 - Φάκελος `node_modules`

```
$ npm install lodash
npm notice created a lockfile as package-lock.json. You should commit this file.
npm WARN example@1.0.0 No description
npm WARN example@1.0.0 No repository field.

+ lodash@4.17.21
added 1 package from 2 contributors and audited 1 package in 1.007s
found 0 vulnerabilities
```

```
$ cat package.json
{
  "name": "example",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "",
  "license": "ISC",
  "dependencies": {
    "lodash": "^4.17.21"
  }
}
```

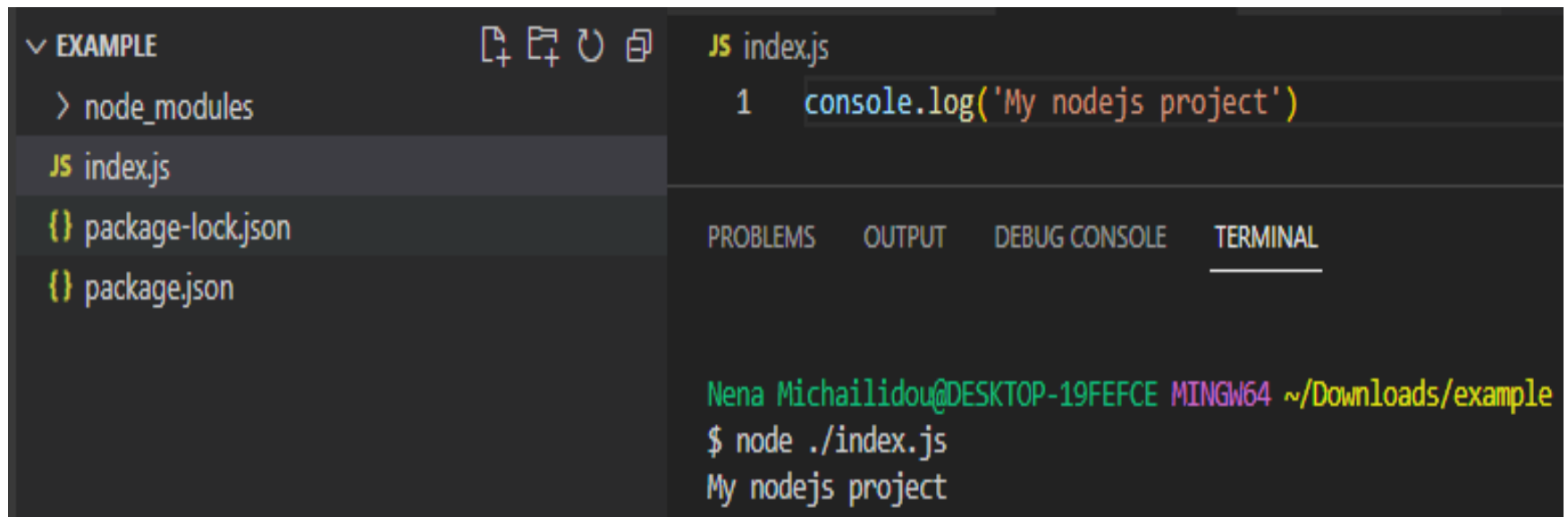

Χρήση npm (3)

- dependencies VS devDependencies
 - dependencies: όλα τα πακέτα που είναι απαραίτητα στο production
 - devDependencies: όλα τα πακέτα που είναι απαραίτητα μόνο στο development

```
$ npm install --save-dev jest  
  
added 275 packages, and audited 277 packages in 18s  
  
29 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities
```

```
$ cat package.json  
{  
  "name": "example",  
  "version": "1.0.0",  
  "description": "",  
  "main": "index.js",  
  "scripts": {  
    "test": "echo \\\"Error: no test specified\\\" && exit 1"  
  },  
  "author": "",  
  "license": "ISC",  
  "dependencies": {  
    "lodash": "^4.17.21"  
  },  
  "devDependencies": {  
    "jest": "^29.3.1"  
  }  
}
```

Example node project



The screenshot shows a code editor with a file explorer on the left and a terminal on the right. The file explorer shows a project named 'EXAMPLE' with a 'node_modules' directory and three files: 'index.js', 'package-lock.json', and 'package.json'. The 'index.js' file is open in the editor, showing a single line of code: `console.log('My nodejs project')`. The terminal shows the command `node ./index.js` being executed, resulting in the output `My nodejs project`.

```
EXAMPLE
├── node_modules
├── index.js
├── package-lock.json
└── package.json
```

```
JS index.js
1 console.log('My nodejs project')
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
Nena Michailidou@DESKTOP-19FEFCE MINGW64 ~/Downloads/example
$ node ./index.js
My nodejs project
```

ExpressJS

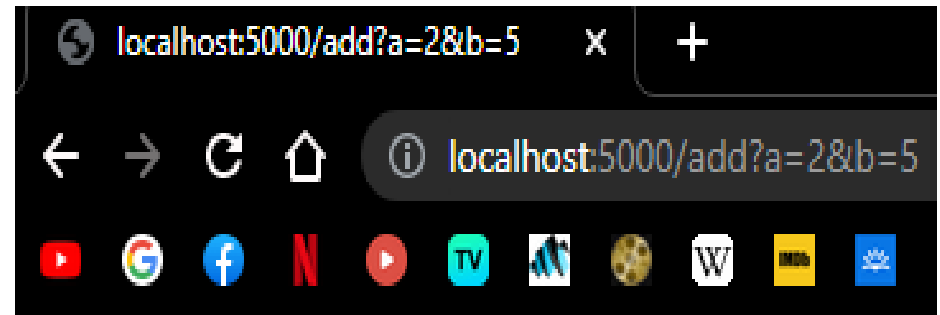
- γρήγορο και απλό web framework για το NodeJS
 - Χρήσιμο για τη δημιουργία ενός web application
 - Open source
- Πρώτη εμφάνιση 2010
 - TJ Holowaychuk
 - Τελευταία έκδοση v4

ExpressJS example

```
JS index.js > ...
1  const express = require('express');
2  const app = express();
3
4  app.get('/add', (req, res) => {
5    const a = req.query.a;
6    const b = req.query.b;
7    if (!a || !b) {
8      res.send({
9        "message": "a and b is not defined"
10     });
11     return
12   }
13   const newA = parseInt(a);
14   const newB = parseInt(b);
15   res.send({
16     "sum": `The sum of a and b is: ${newA + newB}`
17   });
18 });
19
20 app.listen(5000, () => {
21   console.log('Server is listening on port 5000 .');
22 });
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS C:\Users\Nena Michailidou\Downloads\example> node index.js
Server is listening on port 5000 .
```



```
{\"sum\": \"The sum of a and b is: 7\"}
```

Ευχαριστώ για την
προσοχή σας.

Ερωτήσεις?