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NODE JS CHEATSHEET

Running NODE JS

node - Run Node REPL In terminal

node - version - print current node version

node filename.js - Execute node code
in js

Node Js Global Object

In node we have a global object that we can always access

Features that we expect to be available everywhere live in Global Object.



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Foreg - `setTimeout(() => {
 console.log("Hello");
}, 5000);`

probably the most famous
global is `global`, `console.log`

which we write as `console.log`

NodeJs Module System

In nodejs, Each file is
treated as separate module

Modules provide us way of
reusing existing code.



The require Function.

We can re-use existing code by using Node built-in `require()` function:

This function imports code from another module

Eg → `const fs = require('fs');`
`fs.readFileSync('hello');`

Built In Modules

Some modules are built in to Node. These module contains Node specific features



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Key build in modules Include

- * fs — read and write file
- * path — combines path regardless of which OS you're using
- * process — information about current running process.

Eg → process.argv for arguments passed in or process.env for environment variables.

* http → make request and create http servers

* https → work with secure HTTP servers using SSL/TLS

* events → work with event emitter

* crypto → cryptography tools like encryption and hashing



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Creating Modules

We can create our own module by exporting a function from a file and importing it in another module

// In Src / fileModule.js

```
function read (filename) { }
```

```
function write (filename, data) { }
```

```
module . exports = {
```

```
  read,
```

```
  write
```

```
};
```

// In Src / ~~FileModule~~. SayHello.js

```
const { write } = require ('./fileModule.js')  
write ('hello.txt', 'Hello World');
```





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Some Node Modules may instead use short hand syntax to export functions

// In src / FileModule.js

```
exports.read = function read(filename){  
  exports.write = function write(filename, data){  
    { }  
  }  
}
```

ECMAScript Modules

The Imports above use a syntax known as Common JS (CJS) modules.

Node treats Javascript code as common Js module by default.

More-recently, you may have seen the ECMAScript module (ESM) syntax.

This is syntax used in Typescript

// In src / FileModule.mjs

```
function read (filename) { }
```

```
function write (filename, data) { }
```

```
export { read, write };
```

// In src / sayHello.mjs

```
import { write } from './response.mjs';
```

```
write ('hello.txt', 'Hello world');
```

We tell node treat JS code as

ECMAScript module by using

• .mjs file extension.



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NODE JS PACKAGES

A package is collection of Node modules along with package.json file describing the package.

NPM COMMANDS

- * `npm start` - executes current Node package defined by package.json - Defaults to executing node server.js
- * `npm init` - Initialize a fresh package.json file
- * `npm init -y` - Initialize a fresh package.json file, accepting all default options.

- deepa chaurasiya

* `npm install` - Equivalent to `npm i`
It will install all node modules

* `npm install <package>` - Install a package from NPM registry at www.npmjs.com.

* `npm install -D <package>`
Install a package ~~globally~~ as a development dependency

* `npm install -g <package>`
Install package globally

* `npm update <package>`
Update already installed package

* `npm uninstall <package>`
Uninstall a package from your node-modules



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* npm outdated - check for outdated package dependencies

* npm audit - check for security vulnerabilities in package dependencies

* npm audit fix - try to fix security vulnerabilities by automatically updating vulnerable packages.

package.json

Most node applications we create includes a package.json file

Which means our node applications are also Node packages

— deepa Chaurasia



The package.json file contains

- * Name, version, description, license of current package

- * Scripts to automate tasks like start, test and install

- * List of dependencies that are required to be installed by current package

node_modules

This folder gets installed when you run npm install. The package listed as dependencies in your package.json are downloaded from Npm registry and put in folder node_modules

It contains not only direct dependencies.

The entire dependency tree lives in node-modules.

package-lock.json

The package-lock.json is automatically created by NPM to track the exact versions of packages that are installed in node-module

Share your package-lock.json
If you want to ensure everyone is running same exact version of every package

— deepa Chaurasia

Node.js Event Emitter

Node.js provides a built in module to work with events

```
const EventEmitter = require('events');
const celebrity = new EventEmitter();
```

```
celebrity.on('success', () => {
  congrats
  console.log('success');
});
```

```
celebrity.emit('success');
```


Backend Concepts

* Client Side Architecture

Your Front-end is actually the client.

Your Back-end is usually the server.

In client-server architecture client gets access to data (or resource) from server.

The client can display data and interact with this data.

The client and server communicate with each other using the HTTP protocol.

★ API - Short for Application programming Interface

This is set of functions or operations that your backend server supports.

The frontend interacts with backend by only using these operations.

On the web, backend APIs are commonly defined by a list of URL's, corresponding Http methods, and queries and parameters.



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★ CRUD → short for create
Read Update Delete

These are basic operators that every API supports on collection of data.

Your API will usually save these collection of data in a database

★ Restful — Restful API's are those that follow certain constraints. These include

- client-server architecture.

Client gets access to resource from server using HTTP protocol

- Stateless Communication —
Each request contains all the information required by server to handle that request.

Every request is separate from other request

- Cacheable — The Stateless communication make caching easier.

CRUD operation	Http Method
-------------------	-------------

Create

Post

Read

Get

Update

Put

Delete

Delete



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Node Js Folder Structure

Node servers usually follow
Model View controller pattern
(i.e MVC)

Controllers are grouped together
based on which feature or
collection they are related to.

views are managed by front-end

CROSS-ORIGIN Resource Sharing

All developers come across CORS
error.



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Browser follows same Origin policy (SOP) which prevents request being made across different origins.

This is designed to stop malicious servers from stealing information that doesn't belong to them.

CORS allows us to allow or whitelist other origin that we trust, so that we can make request to servers that don't belong to us.