npm (Node Package Manager)

npm is a package manager for the JavaScript programming language maintained by npm, Inc. npm is the default package manager for the JavaScript runtime environment Node.js and is included as a recommended feature in the Node.js installer.

○ **npm** is the world's largest **Software Registry**.
○ The registry contains over 800,000 **code packages**.
○ **Open-source** developers use **npm** to **share** software.
○ Many organizations also use npm to manage private development.

Software Package Manager

The name **npm** (Node Package Manager) stems from when npm first was created as a package manager for Node.js.
All **npm** packages are defined in files called **package.json**.
The content of package.json must be written in **JSON**.
At least two fields must be present in the definition file: **name** and **version**.

npm can manage **dependencies**.
npm can (in one command line) install all the dependencies of a project.
Dependencies are also defined in **package.json**.

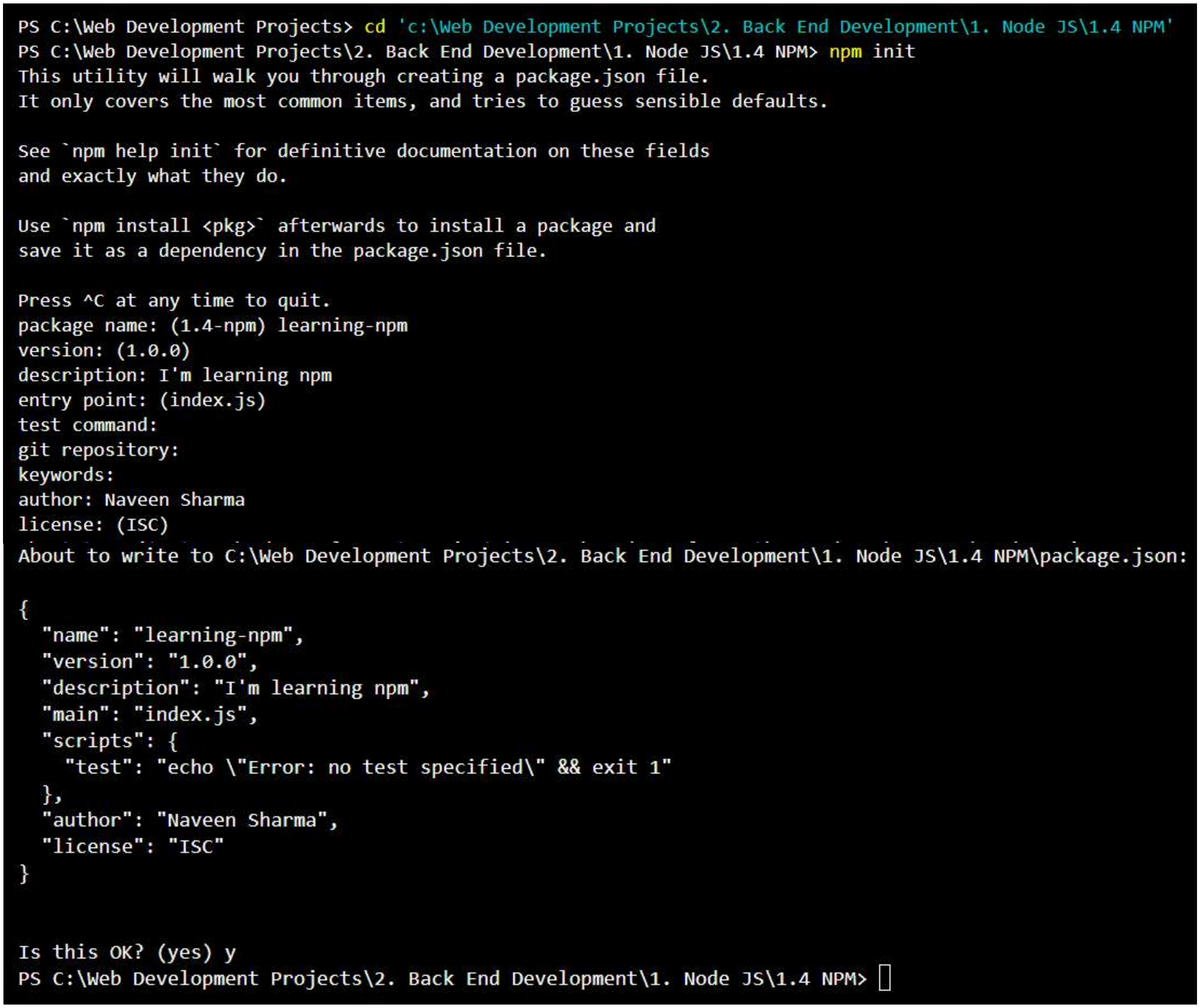
Getting Started With **npm**

npm comes pre bundled with node, so we don't need to install it separately

Commands

```
> npm init (Initialize npm)
```

This will create a package.json file with the following information shown below in images.



```
PS C:\Web Development Projects> cd 'c:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM'
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM> npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.
package name: (1.4-npm) learning-npm
version: (1.0.0)
description: I'm learning npm
entry point: (index.js)
test command:
git repository:
keywords:
author: Naveen Sharma
license: (ISC)
About to write to C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM\package.json:

{
  "name": "learning-npm",
  "version": "1.0.0",
  "description": "I'm learning npm",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "Naveen Sharma",
  "license": "ISC"
}


Is this OK? (yes) y
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM>
```

After this we can find a package.json file in our cd

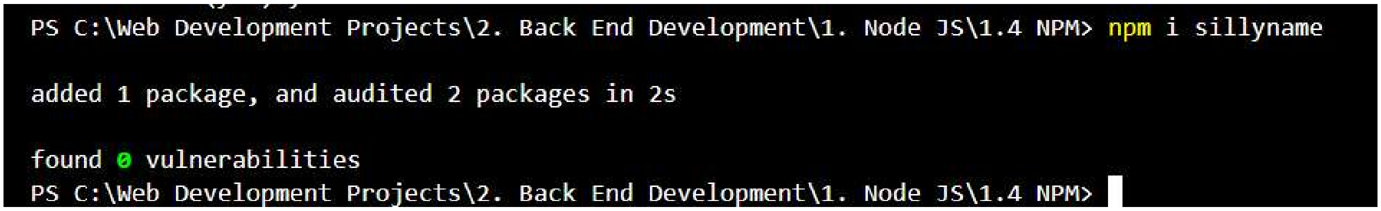
Installing Packages:

```
>npm install <package>
```

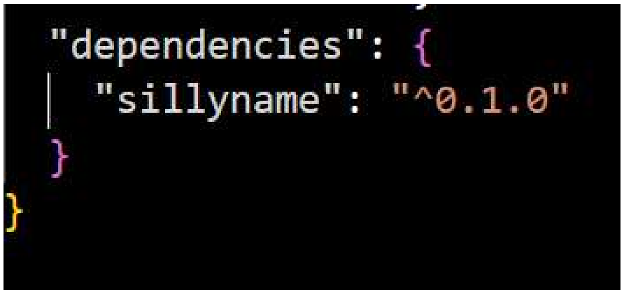
We can easily find npm packages in https://www.npmjs.com/ website.

To learn about npm packages, we are taking example of npm “sillyname” package which generates silly names for you.
Link to “Sillyname” - https://www.npmjs.com/package/sillyname

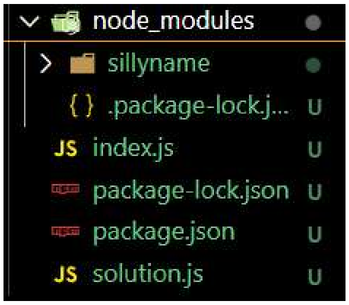
Copy the npm install command from website then run it on terminal of cd. After that see commands in images below.



```
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM> npm i sillyname

added 1 package, and audited 2 packages in 2s

found 0 vulnerabilities
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM>
```



```
  "dependencies": {
    "sillyname": "^0.1.0"
  }
}
```



```
node_modules
  sillyname
  .package-lock.j...  U
index.js             U
package-lock.json    U
package.json         U
solution.js          U
```

After installing “sillyname” package it’ll create Dependencies information in package.json file and also create a folder named with “npm_modules” which have all the package code written in it.

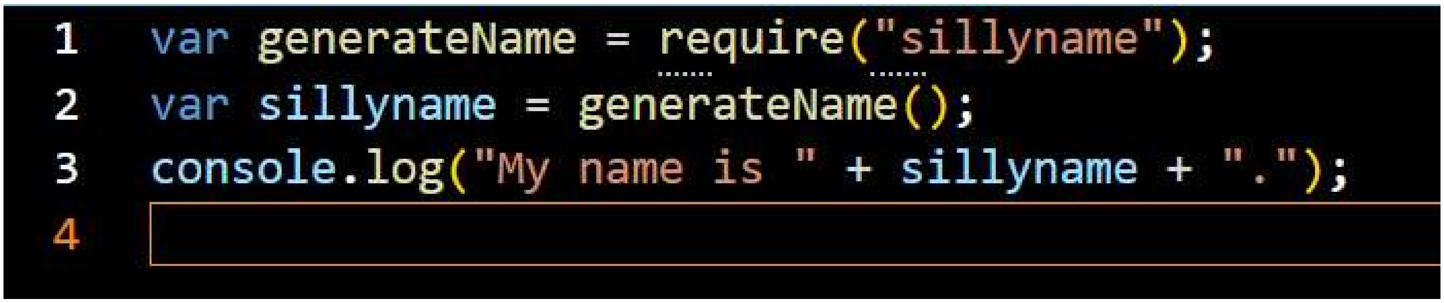
Using Packages: Go to the documentation of npm “sillyname” package and see the example here.

eg. First require the package by using following commands

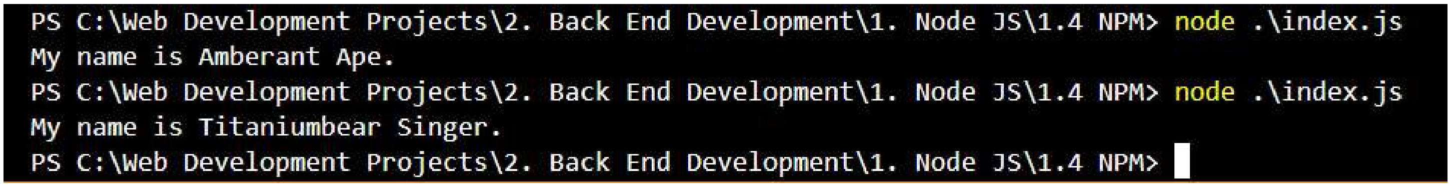
var generateName = require(“sillyname”);

var sillyname = generateName();

Code & Output:



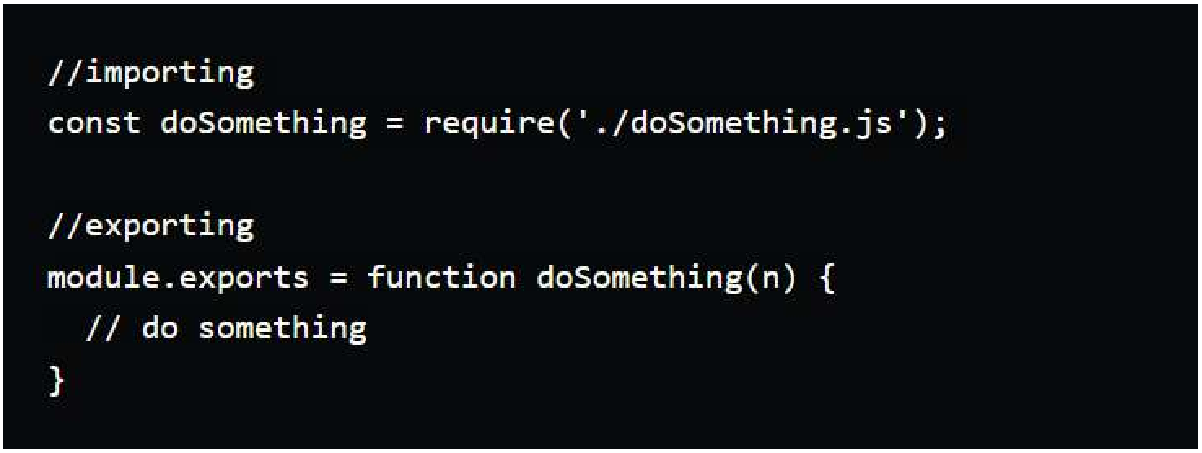
```
var generateName = require("sillyname");
var sillyname = generateName();
console.log("My name is " + sillyname + ".");

```



```
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM> node .\index.js
My name is Amberant Ape.
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM> node .\index.js
My name is Titaniumbear Singer.
PS C:\Web Development Projects\2. Back End Development\1. Node JS\1.4 NPM>
```

CJS

CJS is short for CommonJS. Here is what it looks like:



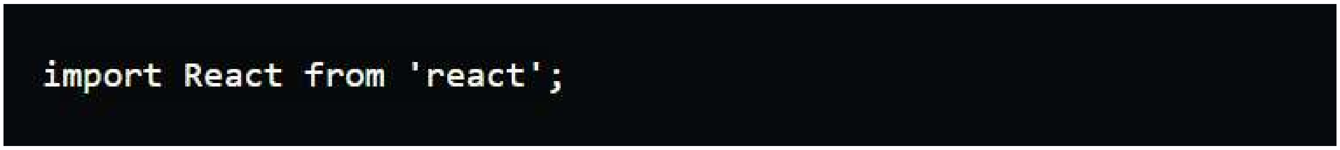
```
//importing
const doSomething = require('./doSomething.js');

//exporting
module.exports = function doSomething(n) {
  // do something
}
```

- Some of you may immediately recognize CJS syntax from node. That's because node uses CJS module format.
- CJS imports module synchronously.
- You can import from a library node_modules or local dir. Either by const myLocalModule = require('./some/local/file.js') or var React = require('react'); works.
- When CJS imports, it will give you a copy of the imported object.
- CJS will not work in the browser. It will have to be transpiled and bundled.

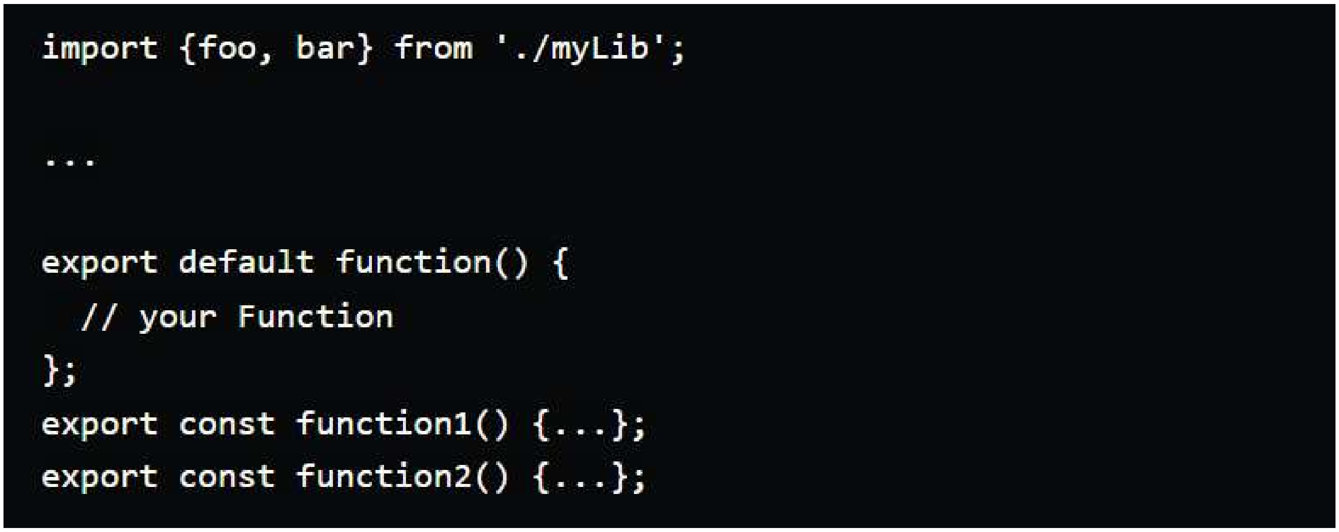
ESM

ESM stands for ES Modules. It is Javascript's proposal to implement a standard module system. I am sure many of you have seen this:

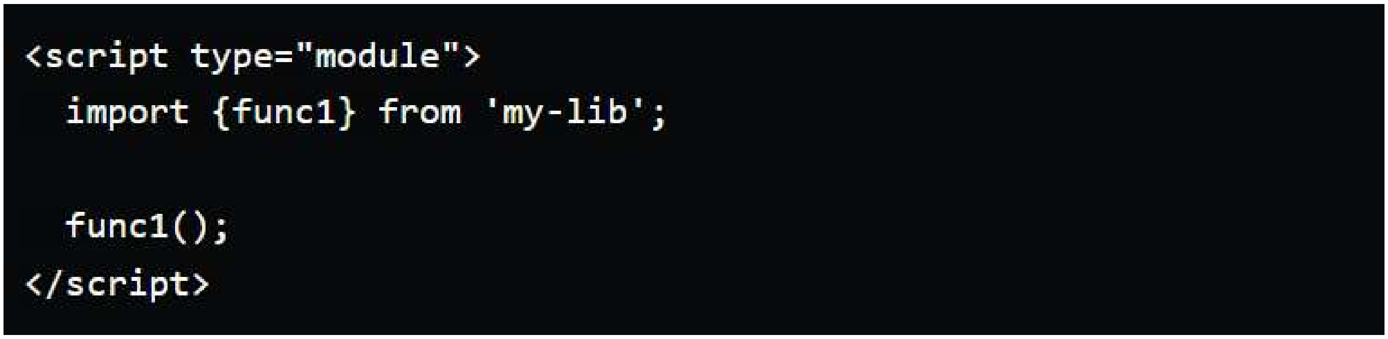
- Works in many modern browsers
- It has the best of both worlds: CJS-like simple syntax and AMD's async
- Tree-shakeable, due to ES6's static module structure
- ESM allows bundlers like Rollup to remove unnecessary code, allowing sites to ship less codes to get faster load.



```
import React from 'react';
```

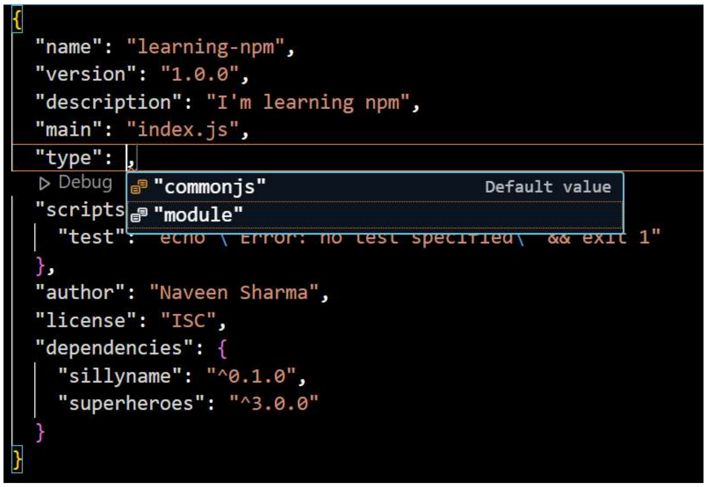


```
import {foo, bar} from './myLib';

...

export default function() {
  // your Function
};
export const function1() {...};
export const function2() {...};
```

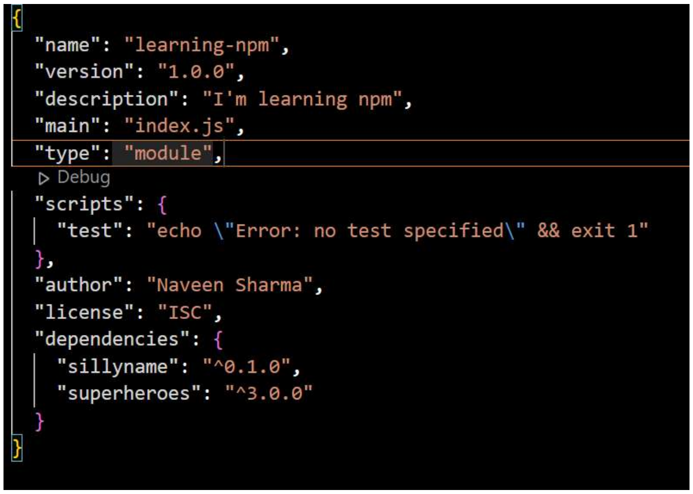


```
<script type="module">
  import {func1} from 'my-lib';

  func1();
</script>
```

Note:- To make sure ESM work in your index.js file make sure to do below changes in your “package.json” file.



```
{
  "name": "learning-npm",
  "version": "1.0.0",
  "description": "I'm learning npm",
  "main": "index.js",
  "type": ,
  ▷ Debug
  "scripts
    "test": echo \ Error: no test specified\  && exit 1"
  },
  "author": "Naveen Sharma",
  "license": "ISC",
  "dependencies": {
    "sillyname": "^0.1.0",
    "superheroes": "^3.0.0"
  }
}
```



```
{
  "name": "learning-npm",
  "version": "1.0.0",
  "description": "I'm learning npm",
  "main": "index.js",
  "type": "module",
  ▷ Debug
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "Naveen Sharma",
  "license": "ISC",
  "dependencies": {
    "sillyname": "^0.1.0",
    "superheroes": "^3.0.0"
  }
}
```