

## LAB 2

### MỤC TIÊU

Kết thúc bài thực hành sinh viên có khả năng:

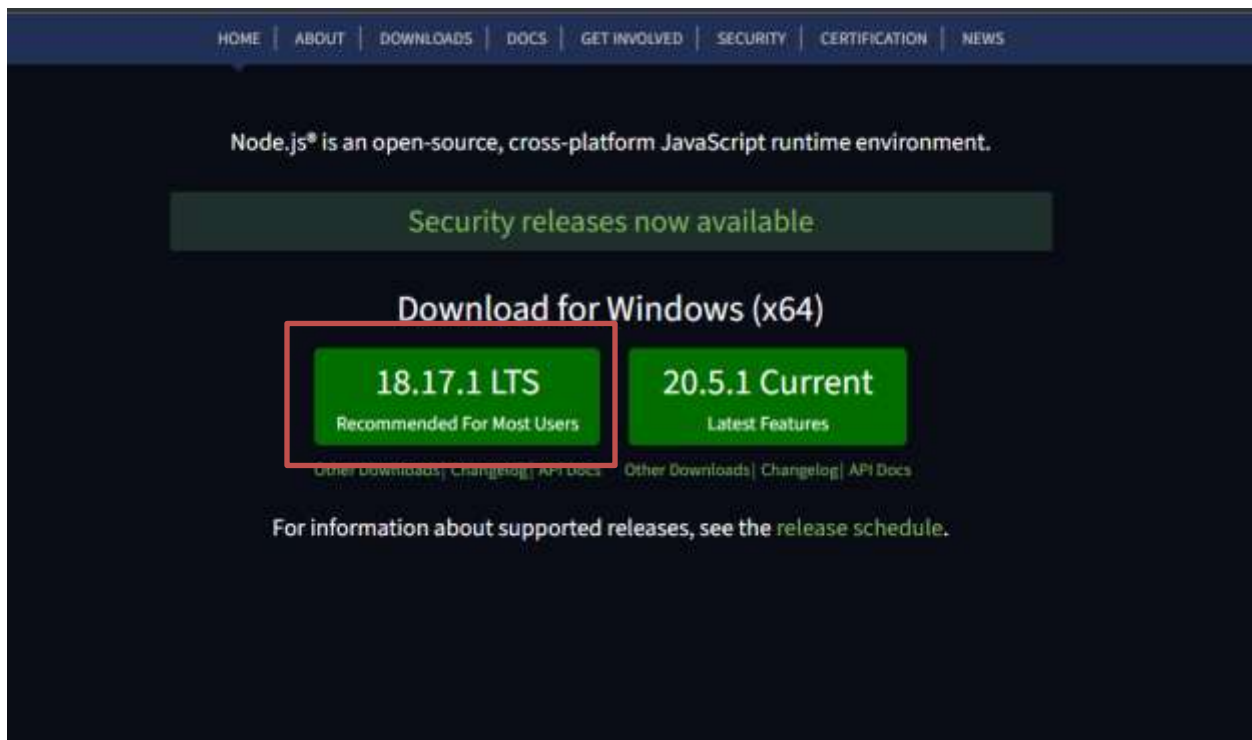
- ✓ Cài đặt NodeJS + MongoDB
- ✓ Tạo dự án bằng Express (hbs)
- ✓ Cấu hình dự án (Cài đặt Nodemon, route)

### NỘI DUNG

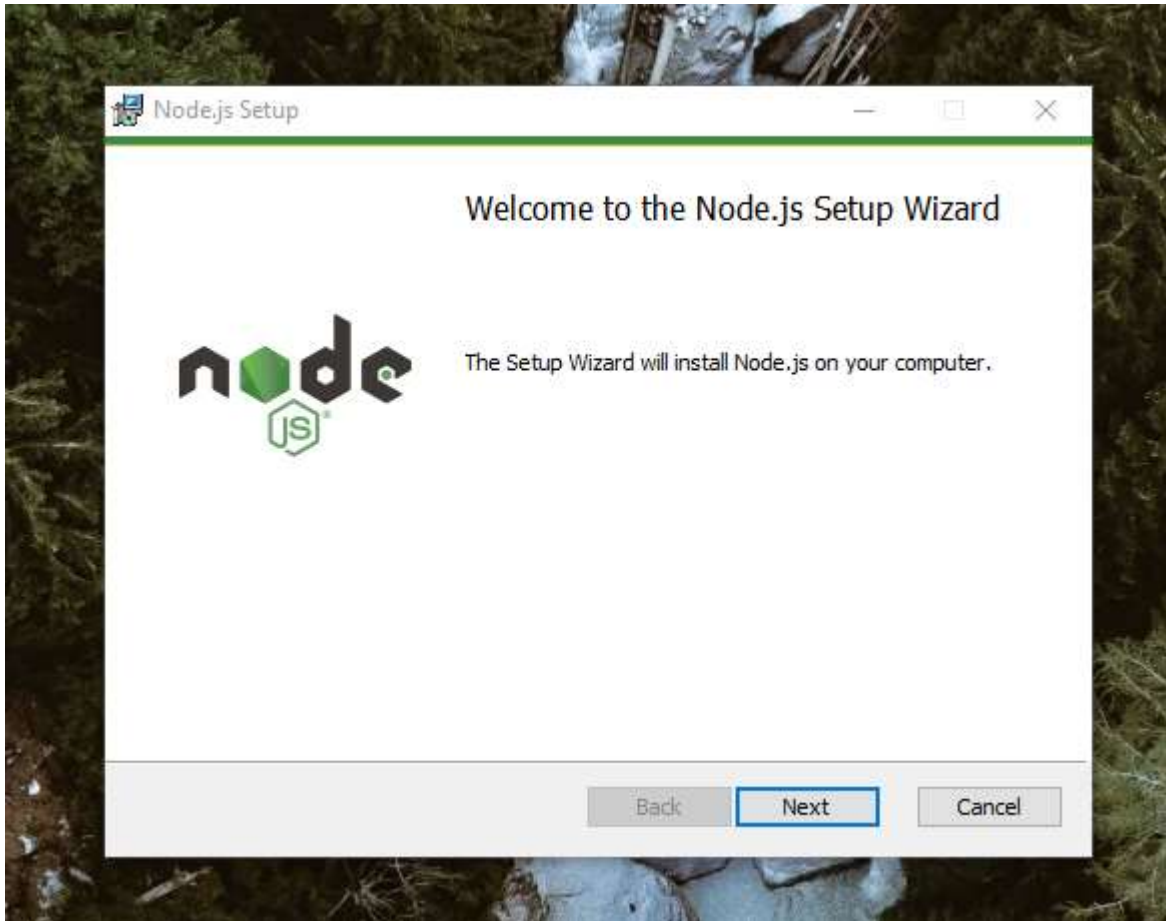
#### BÀI 1: THỰC HIỆN CÀI ĐẶT NODEJS VÀ MONGODB

##### \*Cài đặt Nodejs

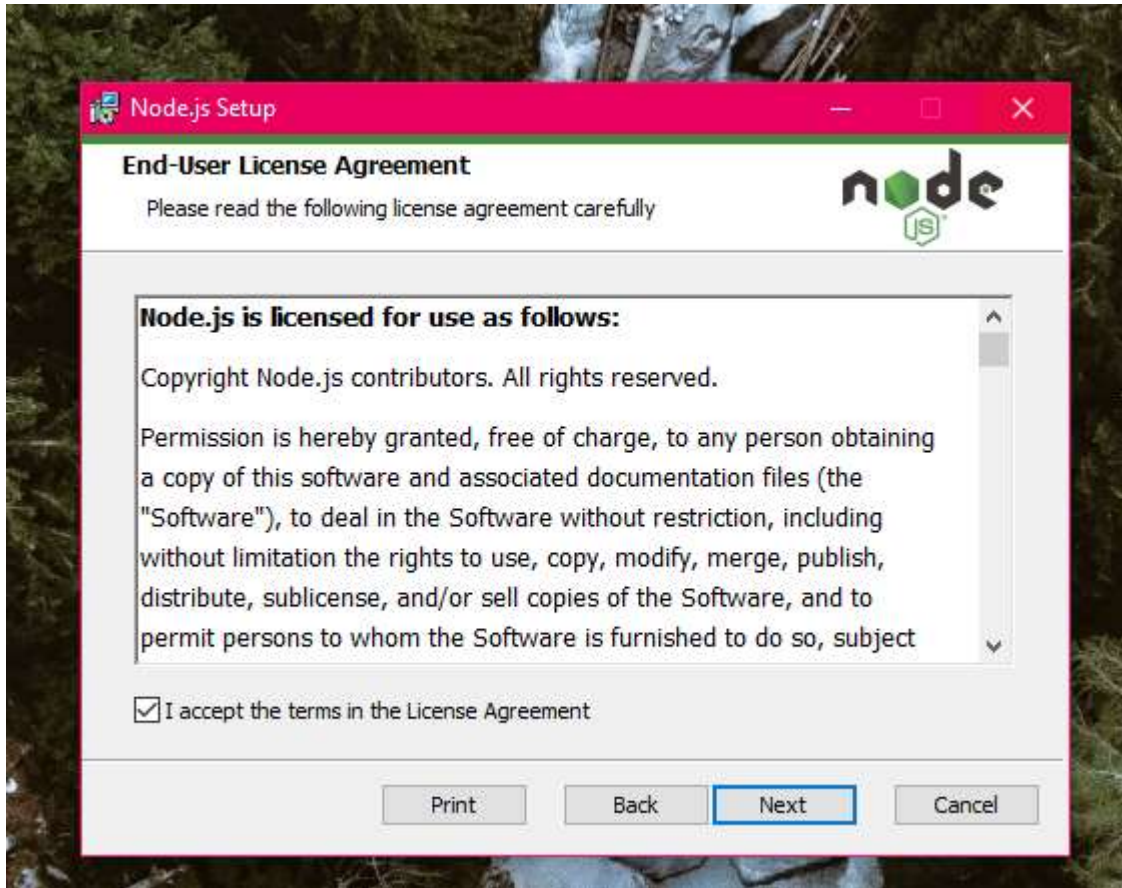
**Bước 1:** Truy cập vào <https://nodejs.org/en>. Chọn vào phiên bản LTS



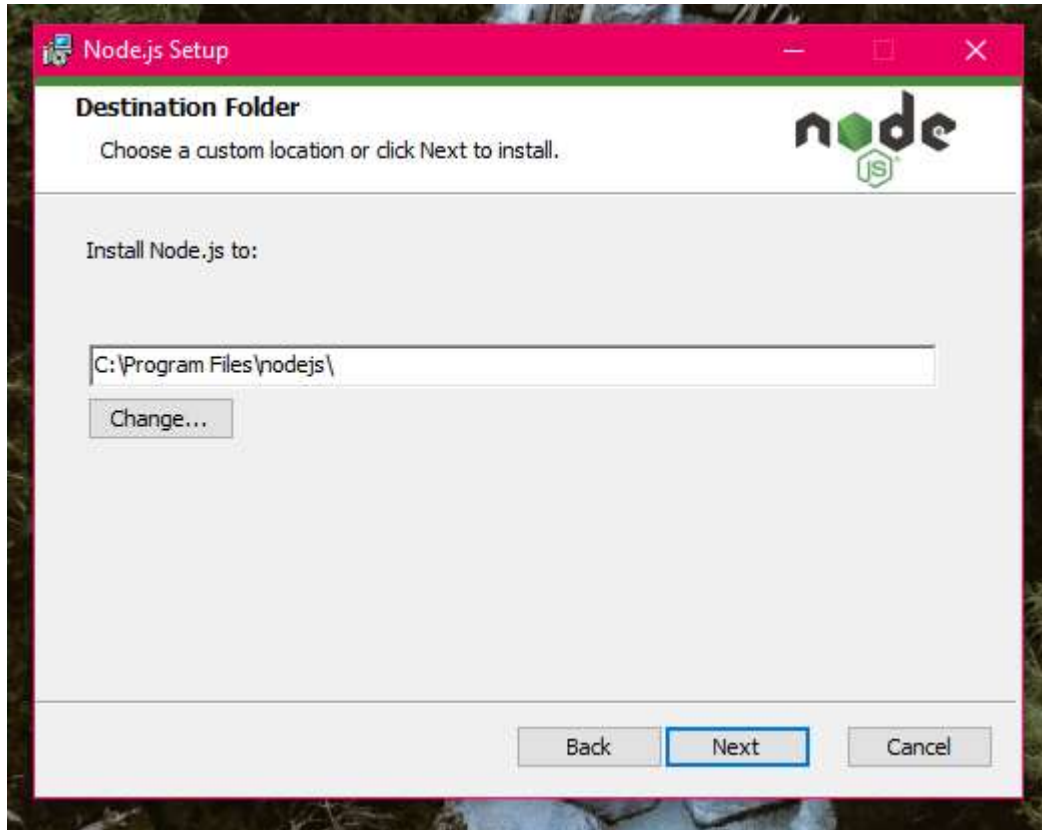
**Bước 2:** Sau khi download xong, mở phần mềm vừa tải về. Sau đó nhấn **Next**



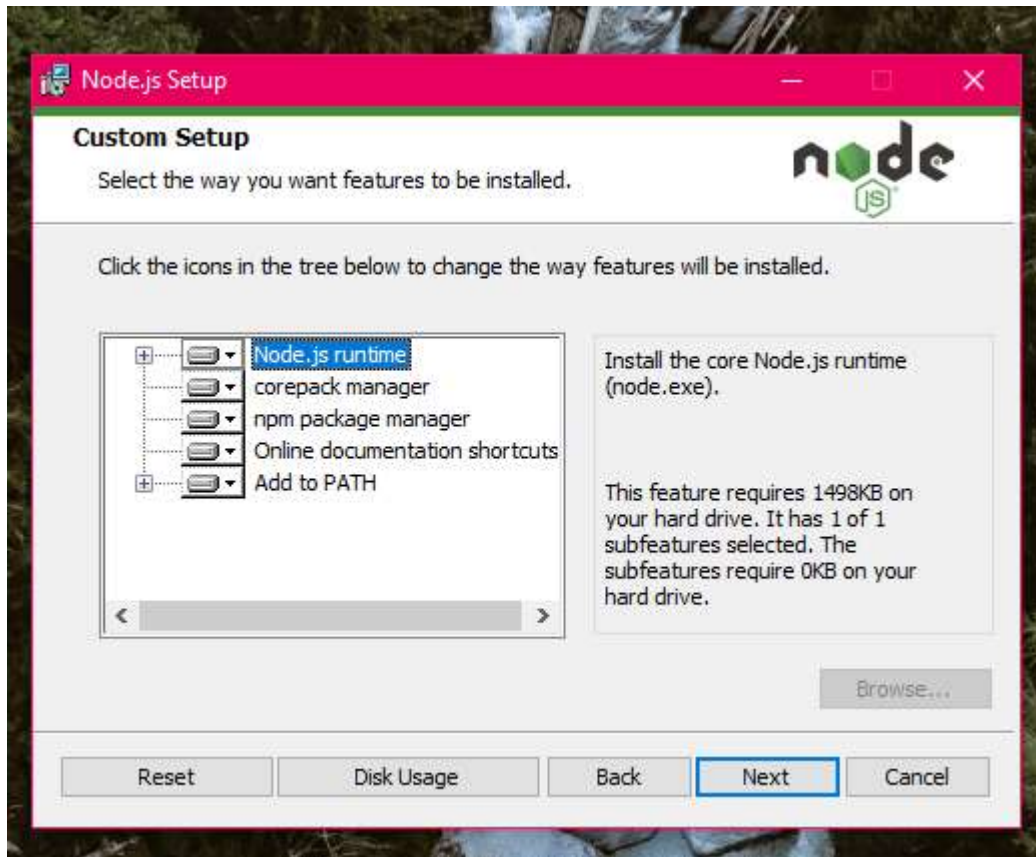
Tích chọn vào **I accept the terms in the License Agreement** và nhấn **Next**



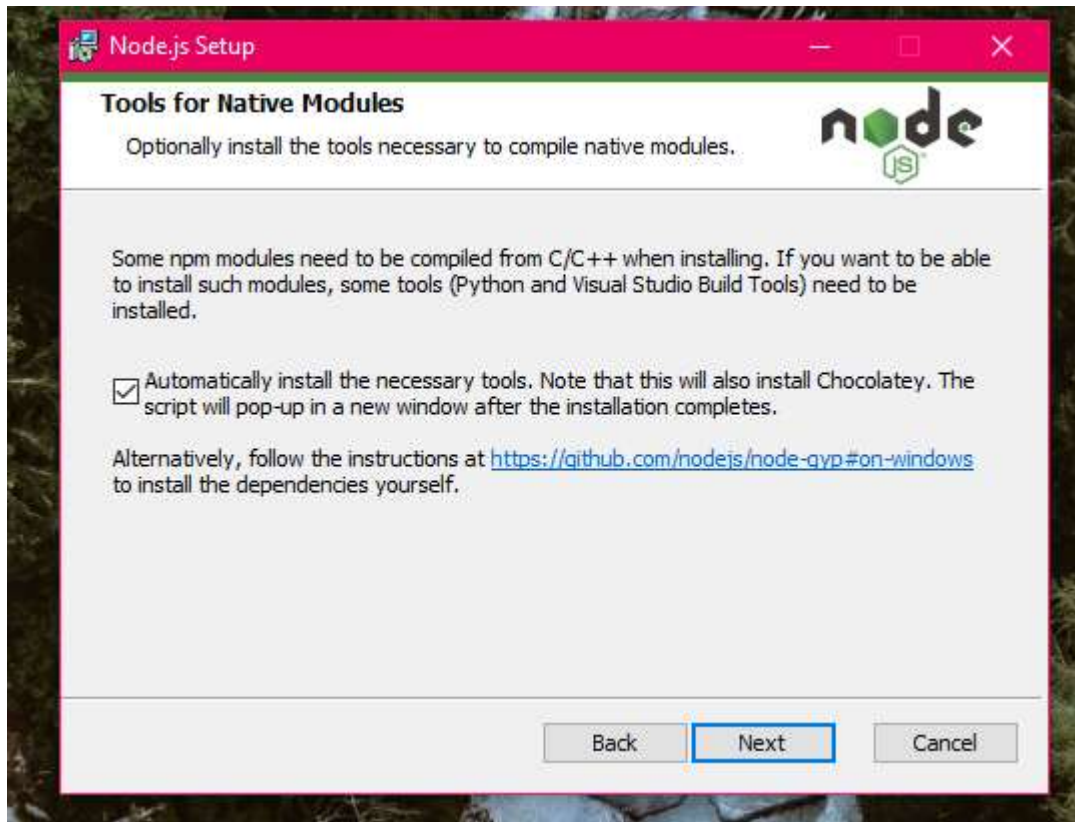
Tiếp tục nhấn **Next**



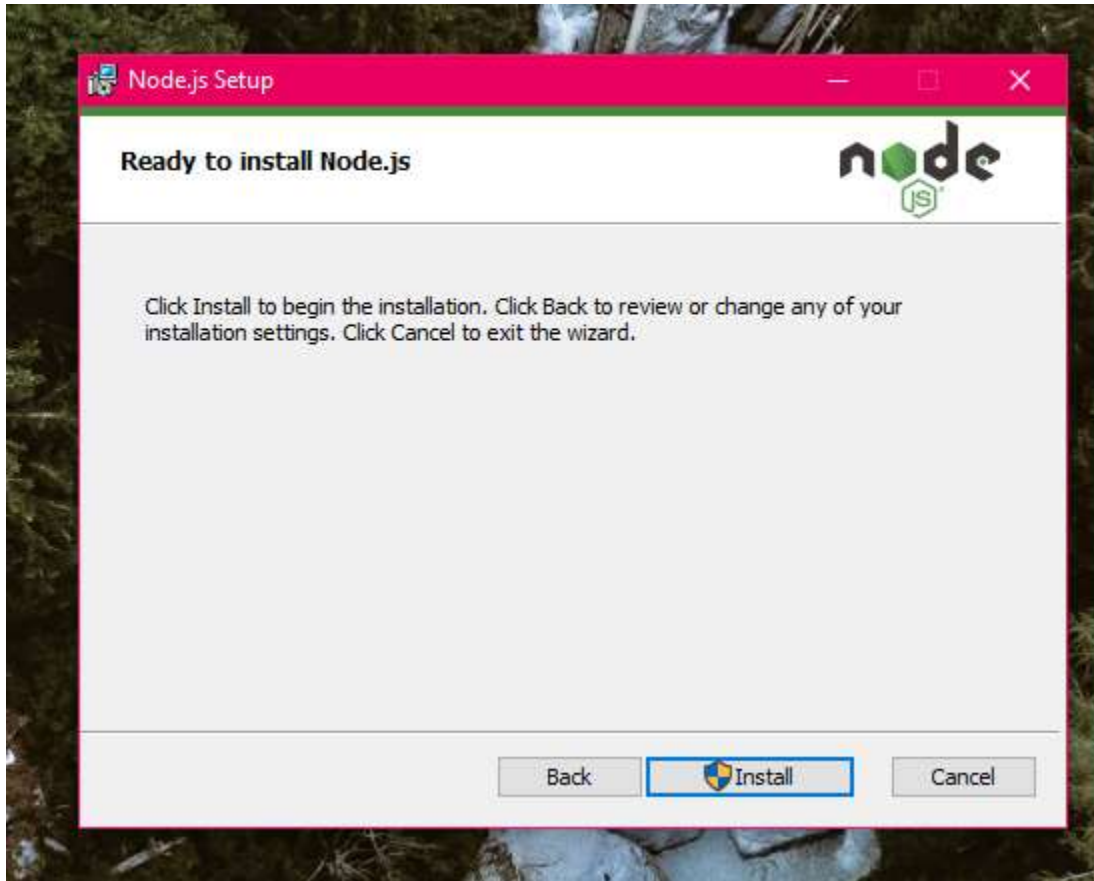
Giữ nguyên các tùy chọn và nhấn tiếp tục **Next**



Tích chọn như hình và sau đó nhấn **Next**

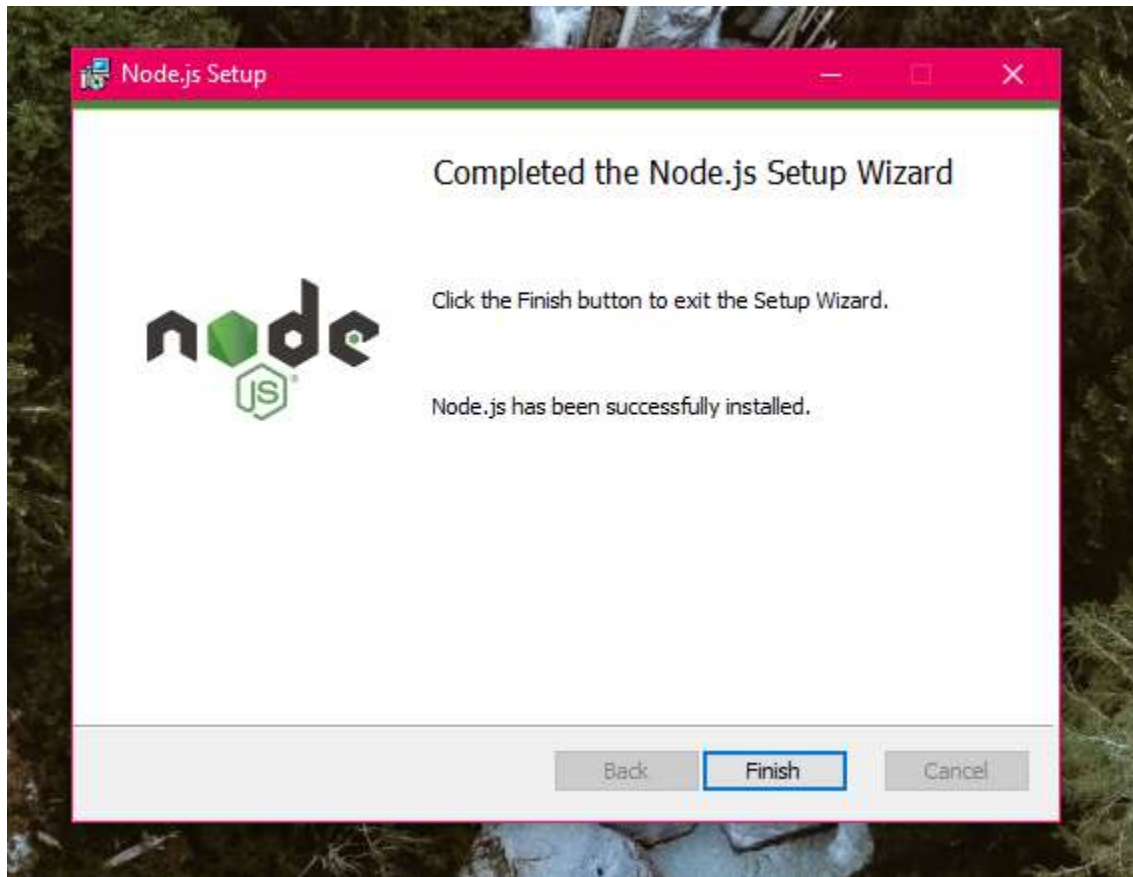


Nhấn **Install** để bắt đầu cài đặt



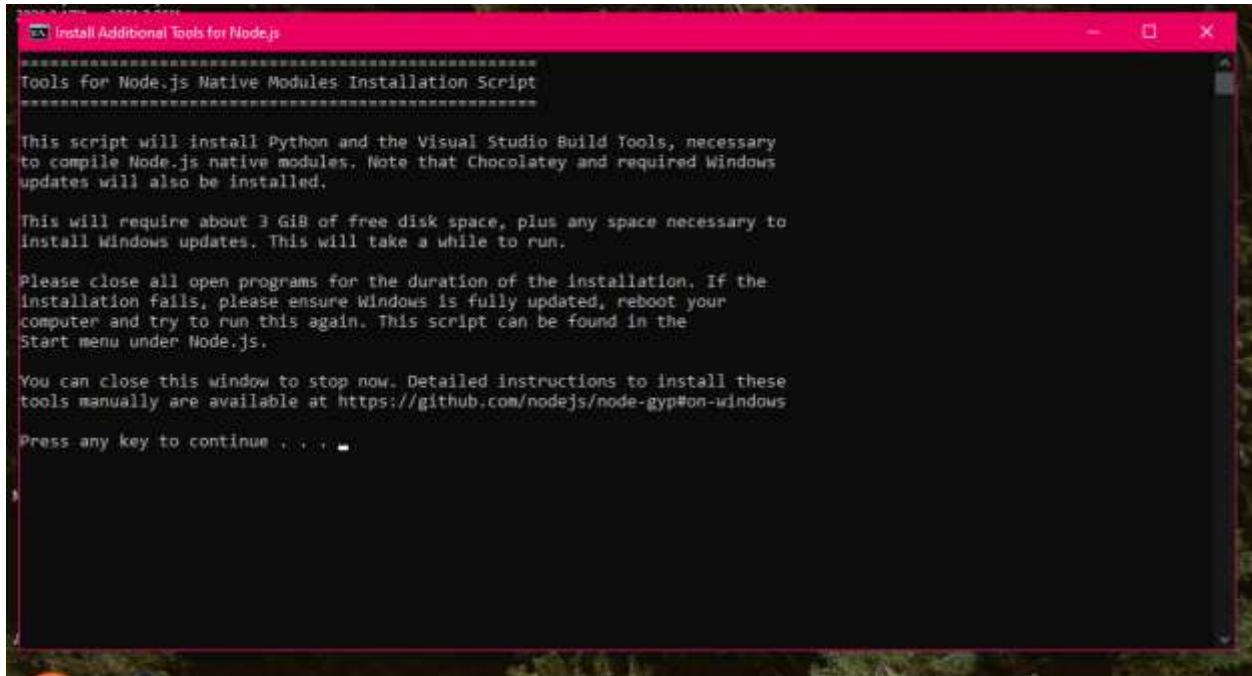


Sau khi hoàn tất cài đặt xong chọn **Finish** để kết thúc quá trình cài đặt

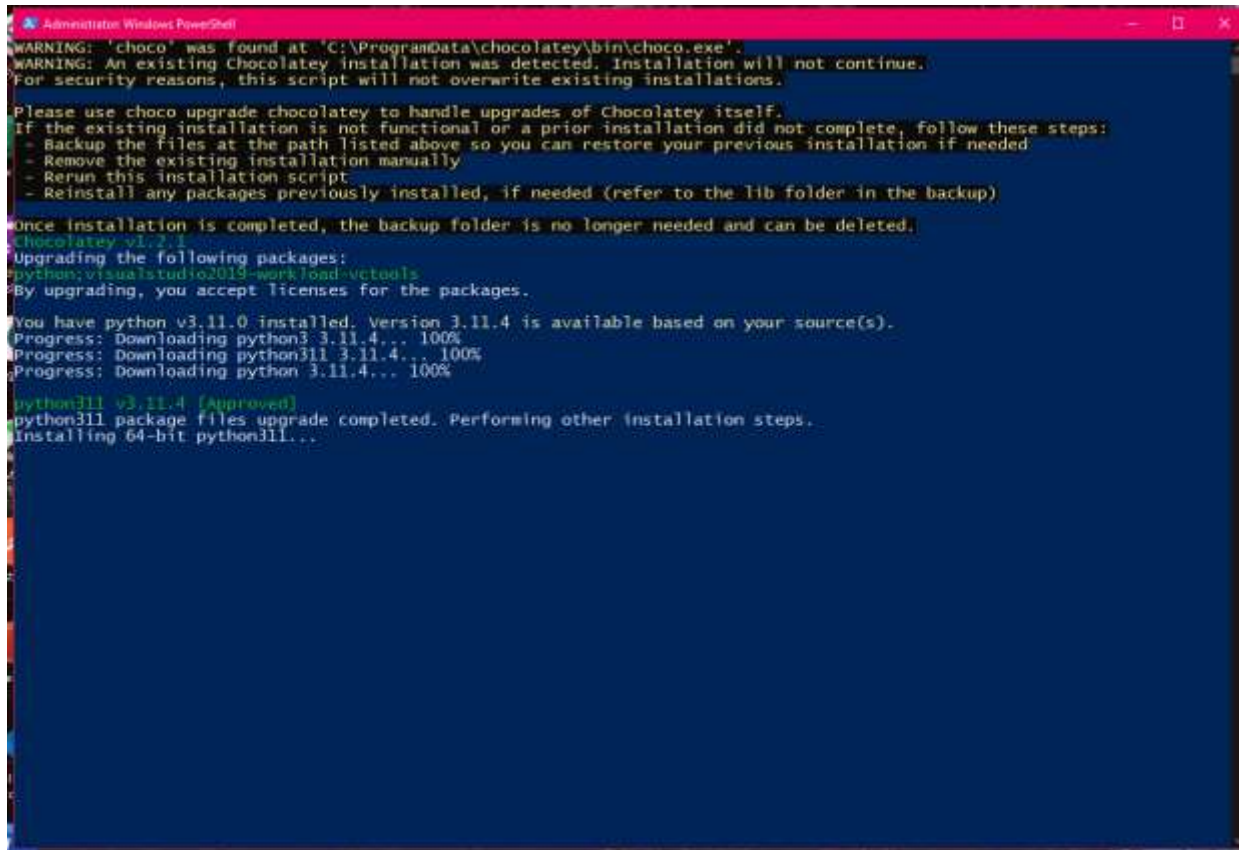




Sau khi **Finish** cửa sổ cmd sẽ hiện lên, nhấn phím **bất kì** để tiếp tục.



Tiếp tục nhấn phím bất kì cho đến khi trình PowerShell được bật lên (đối với Windows 10, Windows 11). Ở bước này hệ thống sẽ tự động cài đặt.



```
Administration: Windows PowerShell
WARNING: 'choco' was found at 'C:\ProgramData\chocolatey\bin\choco.exe'.
WARNING: An existing Chocolatey installation was detected. Installation will not continue.
For security reasons, this script will not overwrite existing installations.

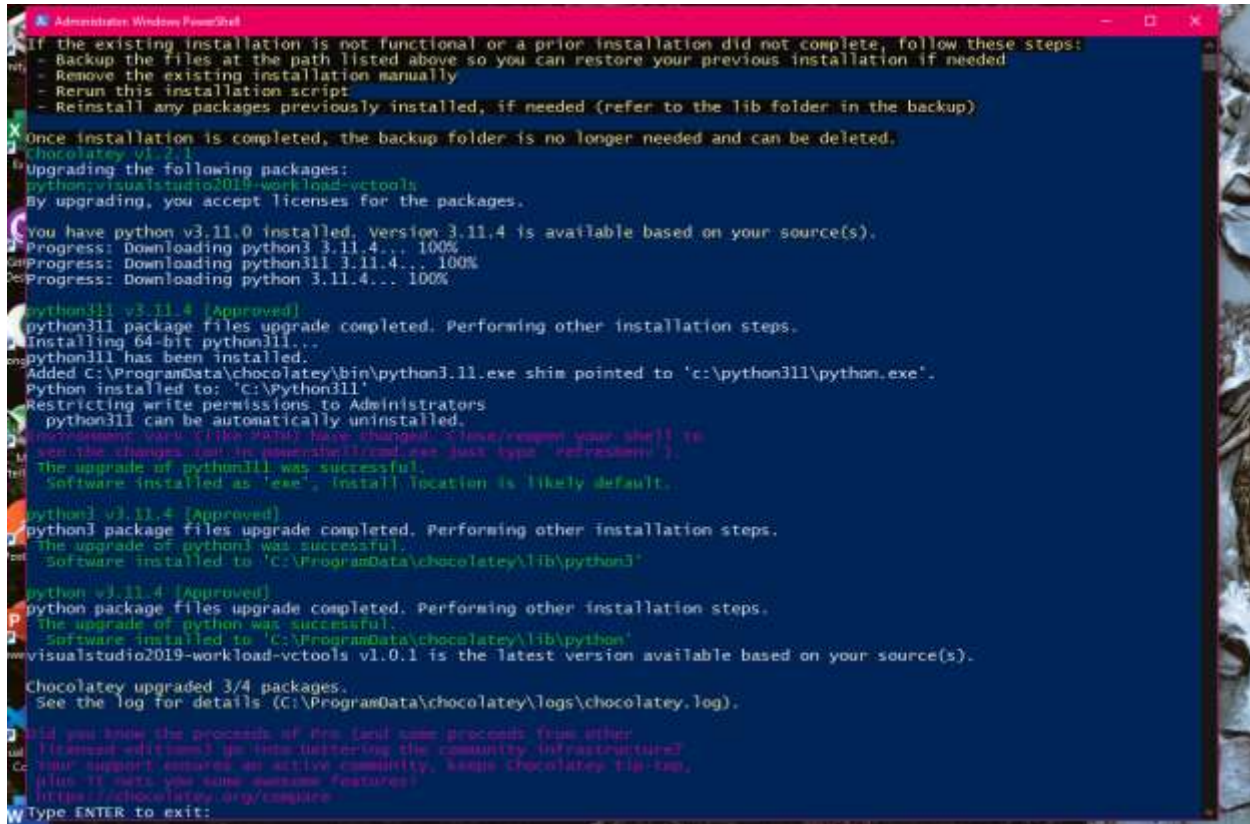
Please use choco upgrade chocolatey to handle upgrades of Chocolatey itself.
If the existing installation is not functional or a prior installation did not complete, follow these steps:
- Backup the files at the path listed above so you can restore your previous installation if needed
- Remove the existing installation manually
- Rerun this installation script
- Reinstall any packages previously installed, if needed (refer to the lib folder in the backup)

Once installation is completed, the backup folder is no longer needed and can be deleted.
Chocolatey v1.2.1
Upgrading the following packages:
python,visualstudio2019-workload-vctools
By upgrading, you accept licenses for the packages.

You have python v3.11.0 installed. Version 3.11.4 is available based on your source(s).
Progress: Downloading python3 3.11.4... 100%
Progress: Downloading python311 3.11.4... 100%
Progress: Downloading python 3.11.4... 100%

python311 v3.11.4 [Approved]
python311 package files upgrade completed. Performing other installation steps.
Installing 64-bit python311...
```

Sau khi hệ thống cài đặt xong nhấn **ENTER** để thoát



```
Administrator: Windows PowerShell
If the existing installation is not functional or a prior installation did not complete, follow these steps:
- Backup the files at the path listed above so you can restore your previous installation if needed
- Remove the existing installation manually
- Rerun this installation script
- Reinstall any packages previously installed, if needed (refer to the lib folder in the backup)

Once installation is completed, the backup folder is no longer needed and can be deleted.
Chocolatey v1.2.1
Upgrading the following packages:
python;visualstudio2019-workload-vctools
By upgrading, you accept licenses for the packages.

You have python v3.11.0 installed. Version 3.11.4 is available based on your source(s).
Progress: Downloading python3 3.11.4... 100%
Progress: Downloading python311 3.11.4... 100%
Progress: Downloading python 3.11.4... 100%

python311 v3.11.4 [Approved]
python311 package files upgrade completed. Performing other installation steps.
Installing 64-bit python311...
python311 has been installed.
Added C:\ProgramData\chocolatey\bin\python3.11.exe shim pointed to 'c:\python311\python.exe'.
Python installed to: 'C:\Python311'
Restricting write permissions to Administrators
python311 can be automatically uninstalled.
(Environment variables (like PATH) have changed. Please/reopen your shell to
even the changes and in powershell/cmd.exe just type 'refreshenv').
The upgrade of python311 was successful.
Software installed as 'exe', install location is likely default.

python v3.11.4 [Approved]
python package files upgrade completed. Performing other installation steps.
The upgrade of python was successful.
Software installed to 'C:\ProgramData\chocolatey\lib\python3'

python v3.11.4 [Approved]
python package files upgrade completed. Performing other installation steps.
The upgrade of python was successful.
Software installed to 'C:\ProgramData\chocolatey\lib\python'

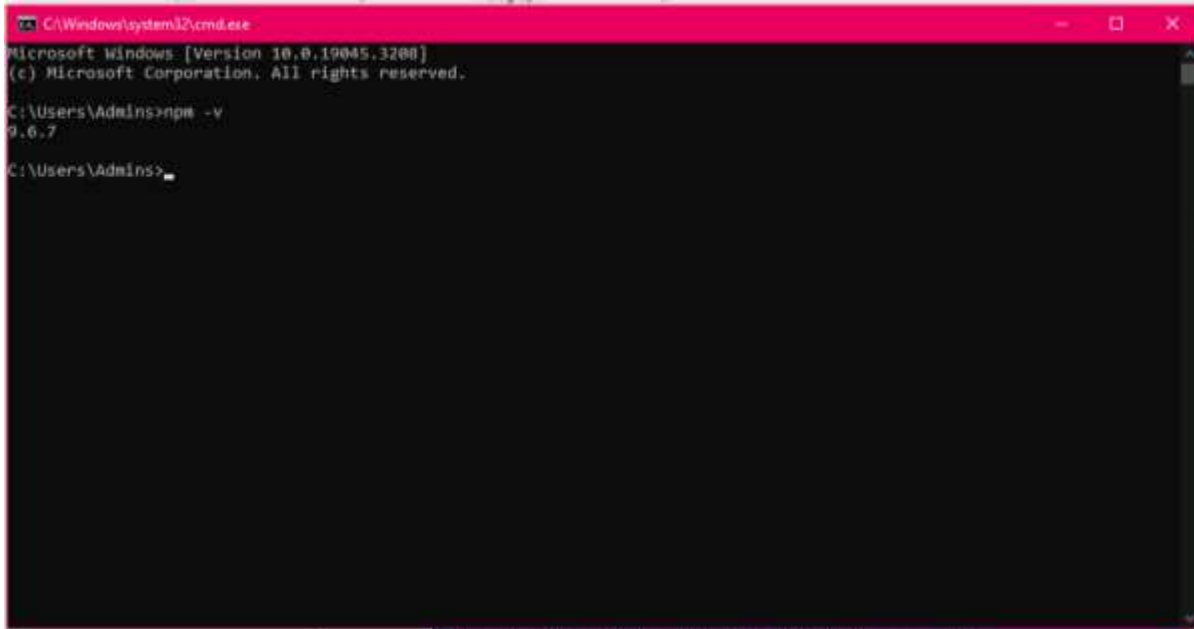
visualstudio2019-workload-vctools v1.0.1 is the latest version available based on your source(s).

Chocolatey upgraded 3/4 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

Did you know the proceeds of Pro (and some proceeds from other
licensed editions) go into bettering the community infrastructure?
Our support ensures an active community, keeps Chocolatey tip-top,
plus it gets you some awesome features!
https://chocolatey.org/compare
Type ENTER to exit:
```

Sau khi đã hoàn thành tất quá trình cài đặt, nhấn tổ hợp phím **Windows + R** nhập **cmd** để bật cửa sổ **Command Prompt**

Tại cửa sổ cmd gõ lệnh **npm -v** và nhấn **enter**, nếu kết quả hiển thị phiên bản đã cài đặt như hình dưới là thành công



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.3200]
(c) Microsoft Corporation. All rights reserved.

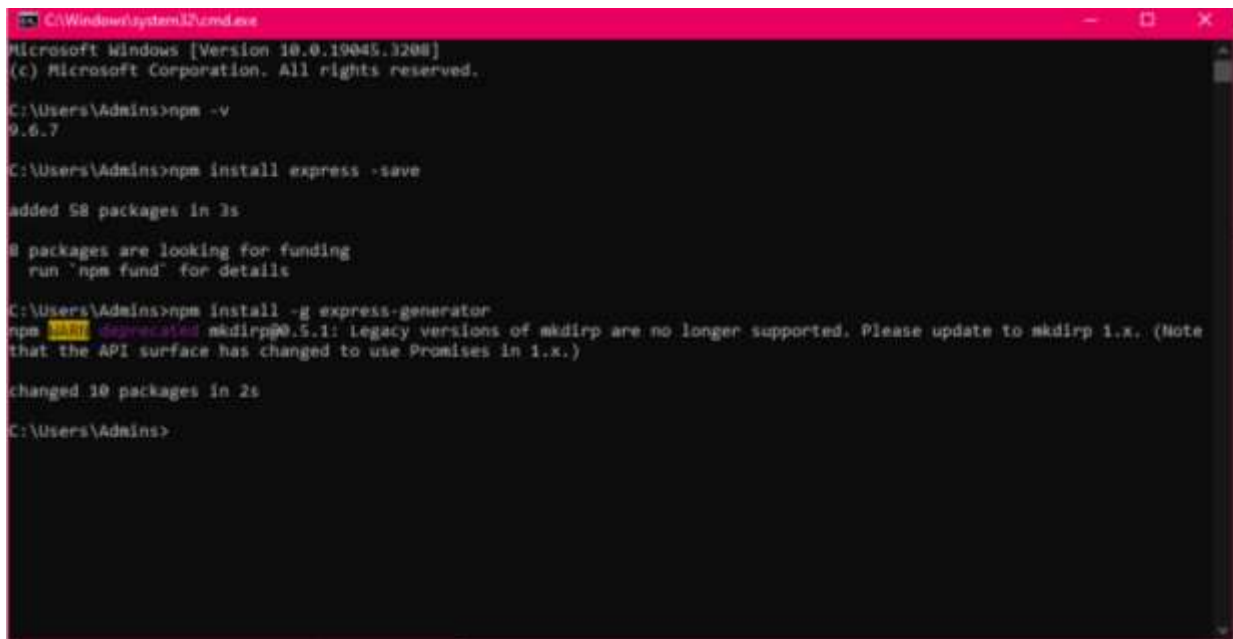
C:\Users\Admin>npm -v
9.6.7

C:\Users\Admin>
```

Tiếp tục tại cửa sổ **cmd** gõ lần lượt 2 câu lệnh bên dưới để cài đặt **Express**

**npm install express --save**

**npm install -g express-generator**



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.3208]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>npm -v
9.6.7

C:\Users\Admin>npm install express --save

added 58 packages in 3s

8 packages are looking for funding
  run `npm fund` for details

C:\Users\Admin>npm install -g express-generator
npm WARN deprecated mkdirp@0.5.1: Legacy versions of mkdirp are no longer supported. Please update to mkdirp 1.x. (Note that the API surface has changed to use Promises in 1.x.)

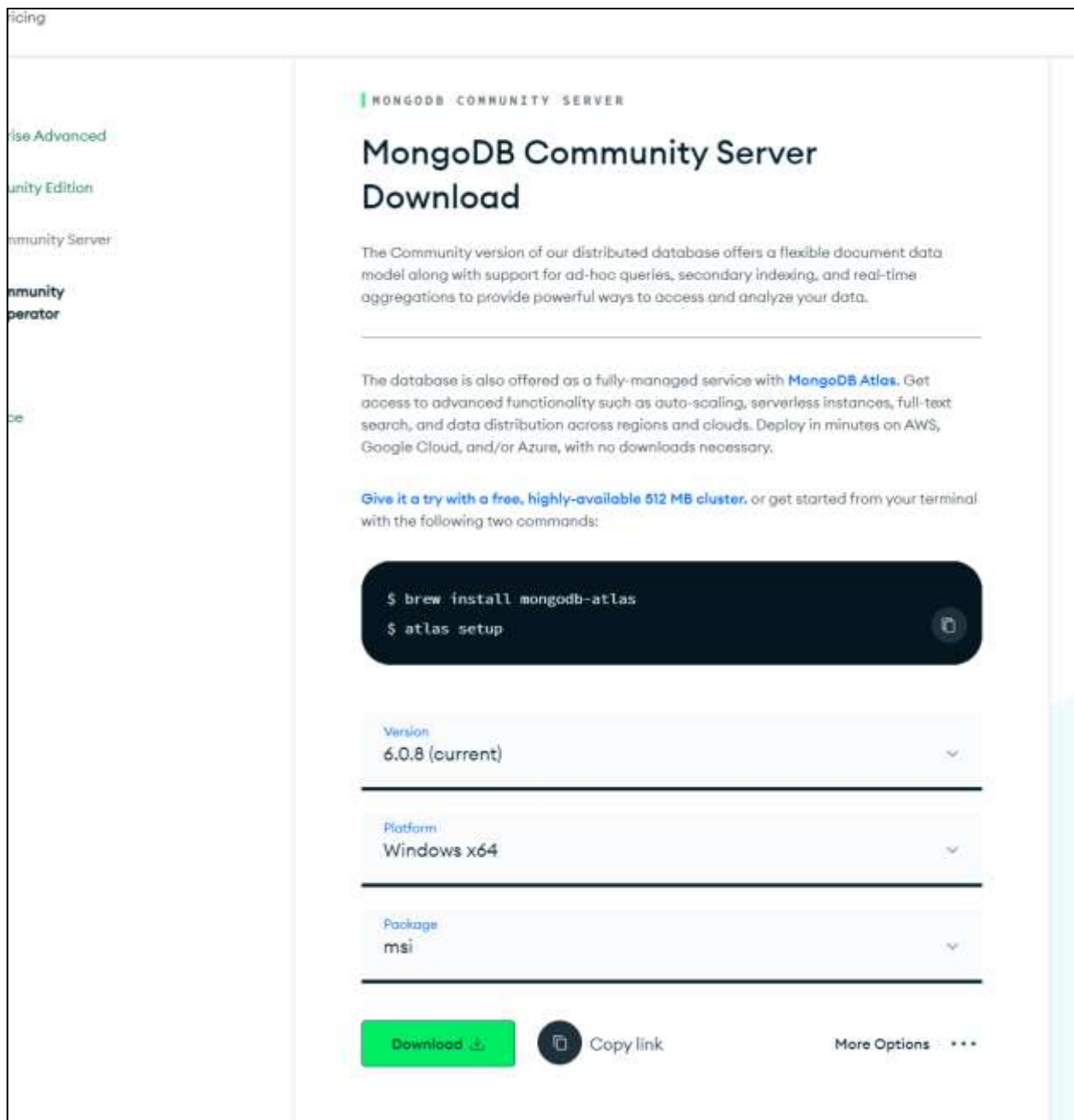
changed 10 packages in 2s

C:\Users\Admin>
```

## \*Cài đặt MongoDB Compass

**Bước 1:** Truy cập vào <https://www.mongodb.com/try/download/community-kubernetes-operator>

Chọn phiên bản của **MongoDB Community Server** và nhấn **Download**



**MONGODB COMMUNITY SERVER**

## MongoDB Community Server Download

The Community version of our distributed database offers a flexible document data model along with support for ad-hoc queries, secondary indexing, and real-time aggregations to provide powerful ways to access and analyze your data.

The database is also offered as a fully-managed service with **MongoDB Atlas**. Get access to advanced functionality such as auto-scaling, serverless instances, full-text search, and data distribution across regions and clouds. Deploy in minutes on AWS, Google Cloud, and/or Azure, with no downloads necessary.


Give it a try with a **free, highly-available 512 MB cluster**, or get started from your terminal with the following two commands:

```
$ brew install mongodb-atlas  
$ atlas setup
```

Version  
6.0.8 (current)

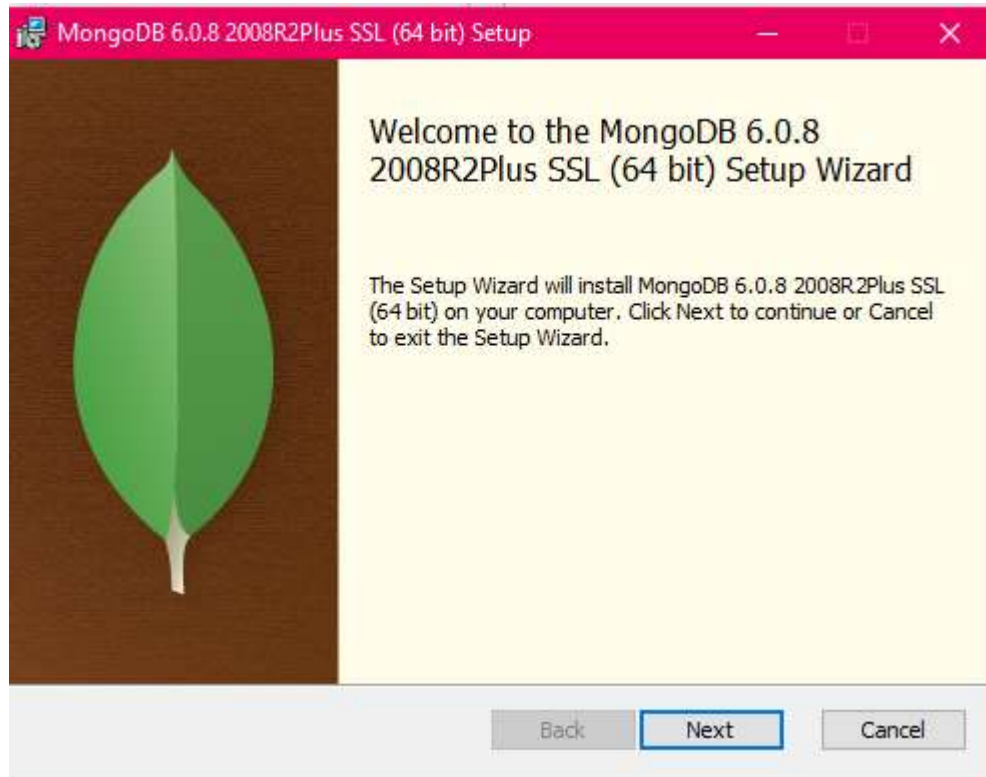
Platform  
Windows x64

Package  
msi

**Download**  **Copy link** **More Options** ...

## Bước 2: Cài đặt

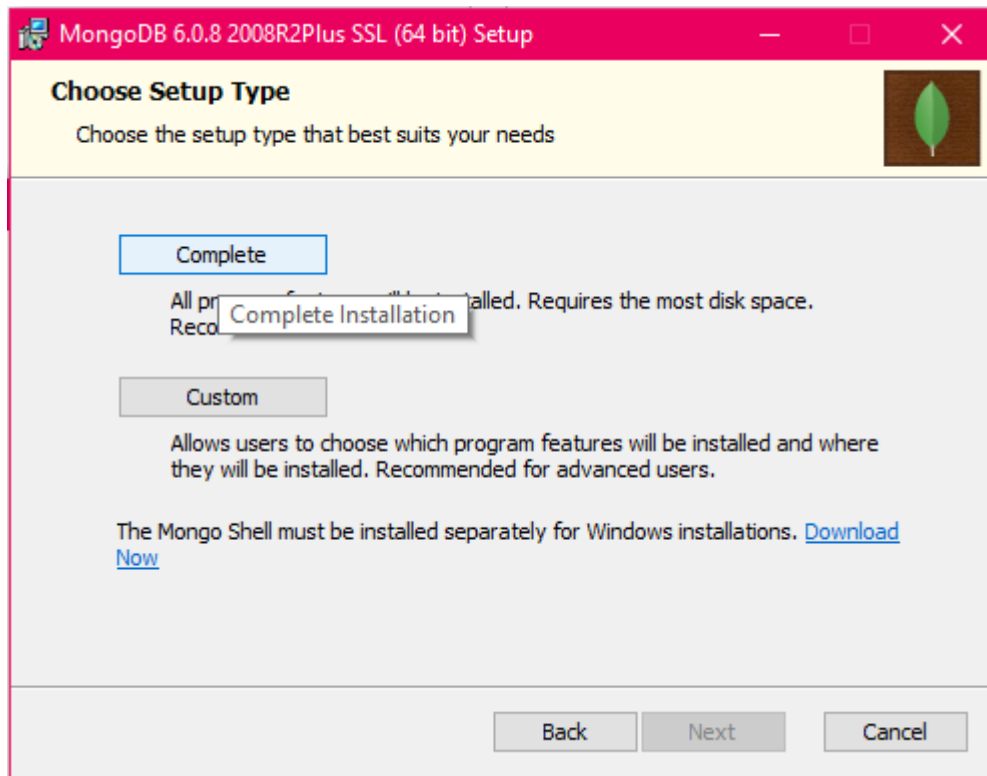
Mở file cài đặt vừa tải về. Sau đó nhấn **Next**





Tích vào **I accept** rồi nhấn **Next**.

Sau đó nhấn **Complete**



Giữ nguyên các cài đặt, sau đó nhấn **Next**

**MongoDB 6.0.8 2008R2Plus SSL (64 bit) Service Customization**

**Service Configuration**  
Specify optional settings to configure MongoDB as a service.

☒ Install MongoDB as a Service

☒ Run service as Network Service user

☐ Run service as a local or domain user:

Account Domain: .

Account Name: MongoDB

Account Password:

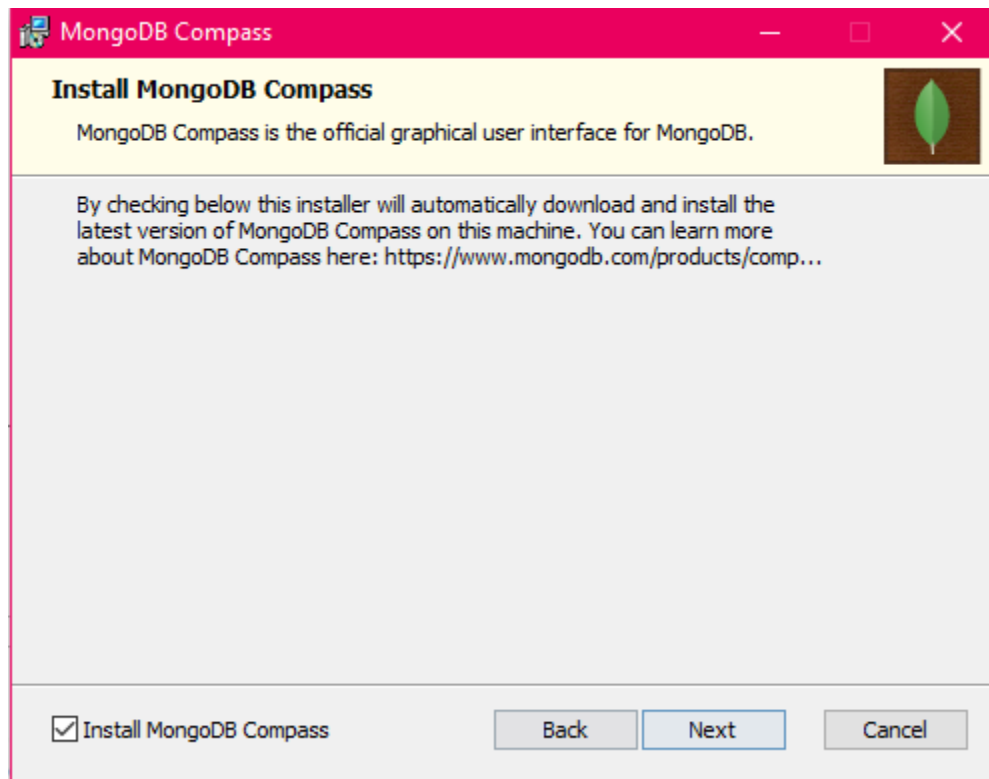
Service Name: MongoDB

Data Directory: C:\Program Files\MongoDB\Server\6.0\data\

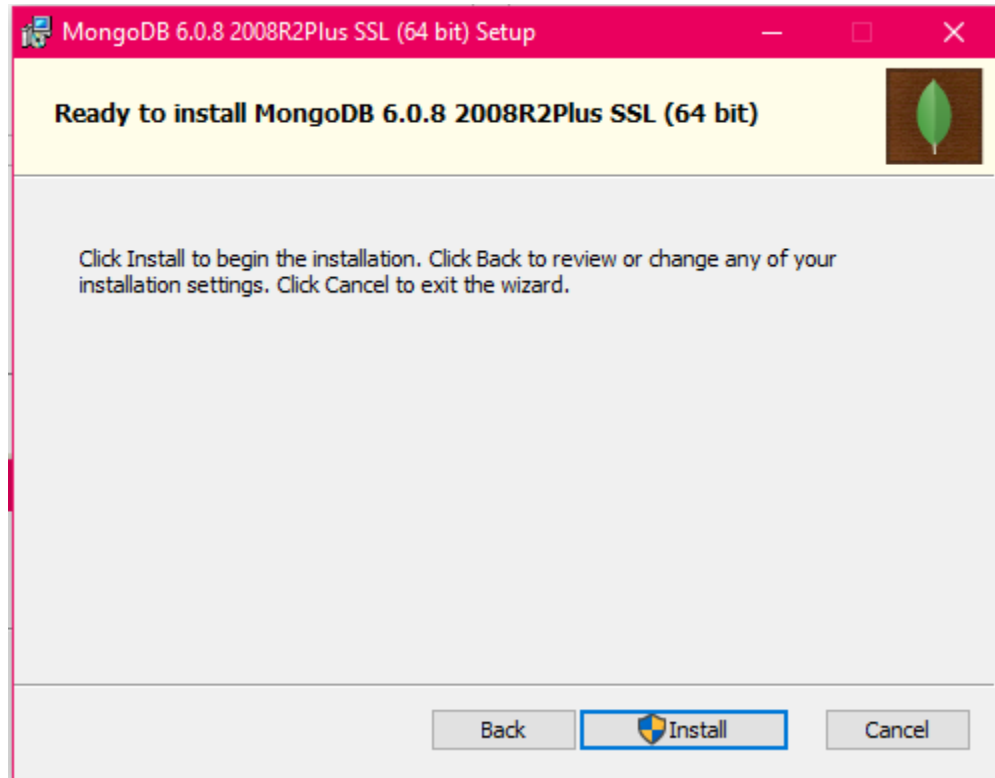
Log Directory: C:\Program Files\MongoDB\Server\6.0\log\

< Back Next > Cancel

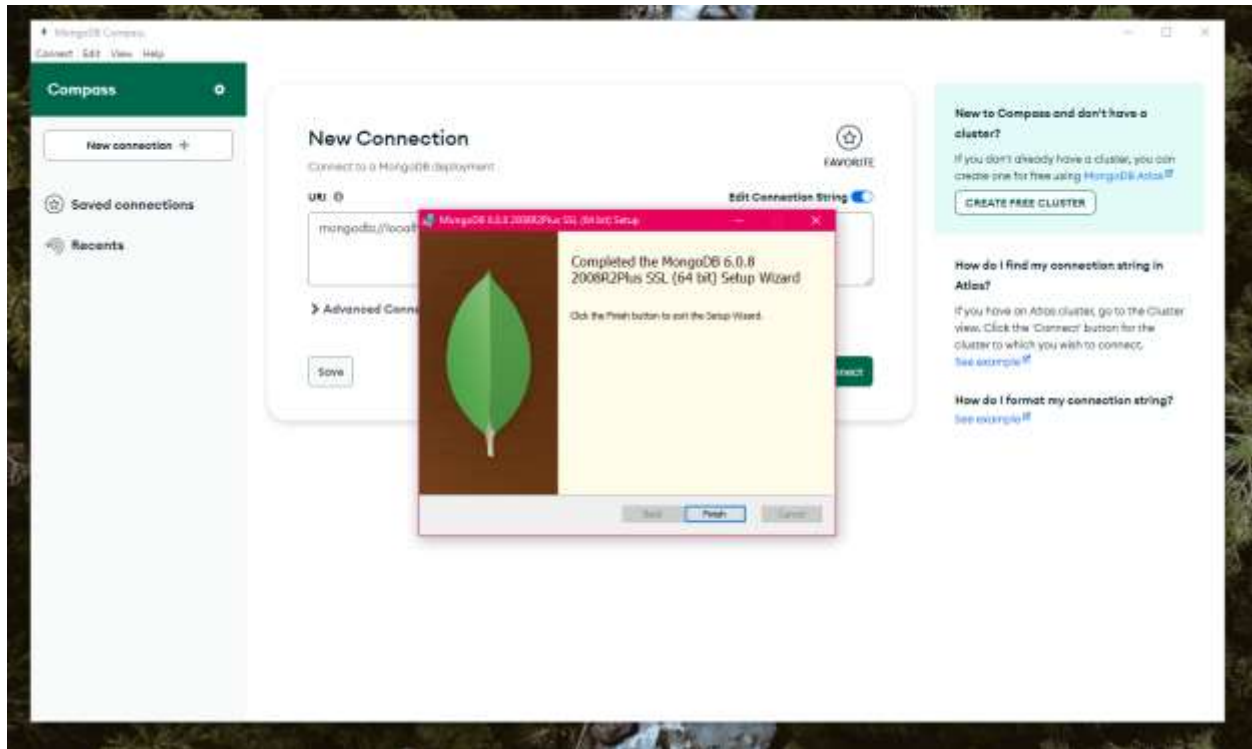
Tiếp tục nhấn **Next**



Nhấn **Install** để bắt đầu quá trình cài đặt



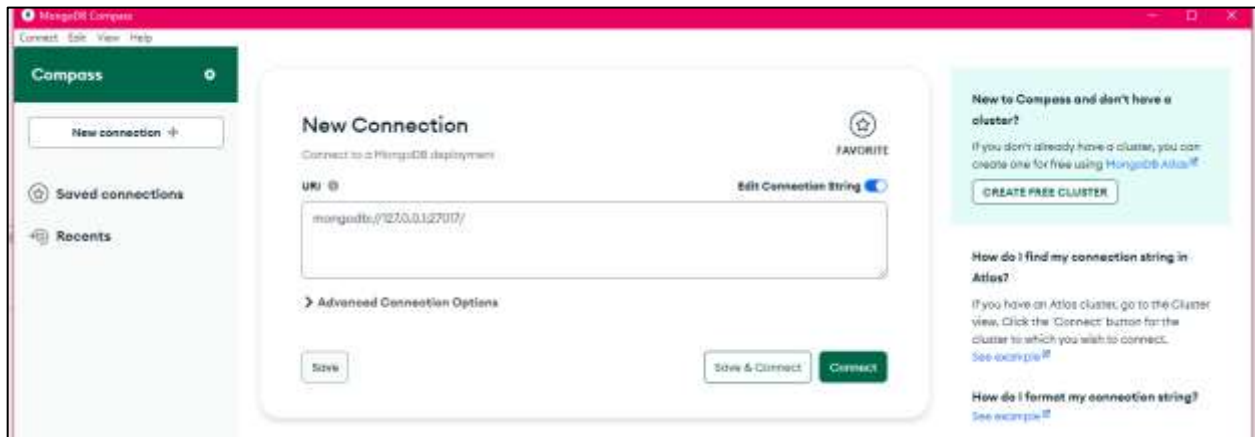
Sau khi cài đặt xong, cửa sổ **MongDB Compass** sẽ hiện lên. Chọn **Finish** để kết thúc quá trình cài đặt



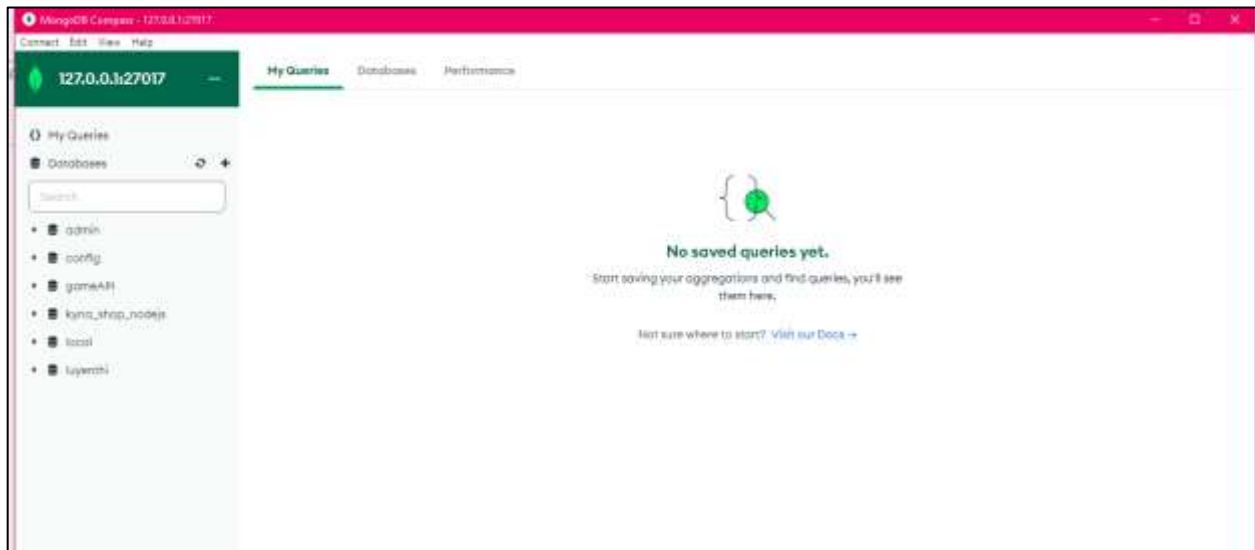
### Bước 3: Tại ô URI của MongoDB Compass

Đổi URI từ **mongodb://localhost:27017** thành **mongodb://127.0.0.1:27017**

Sau đó nhấn **Connect**

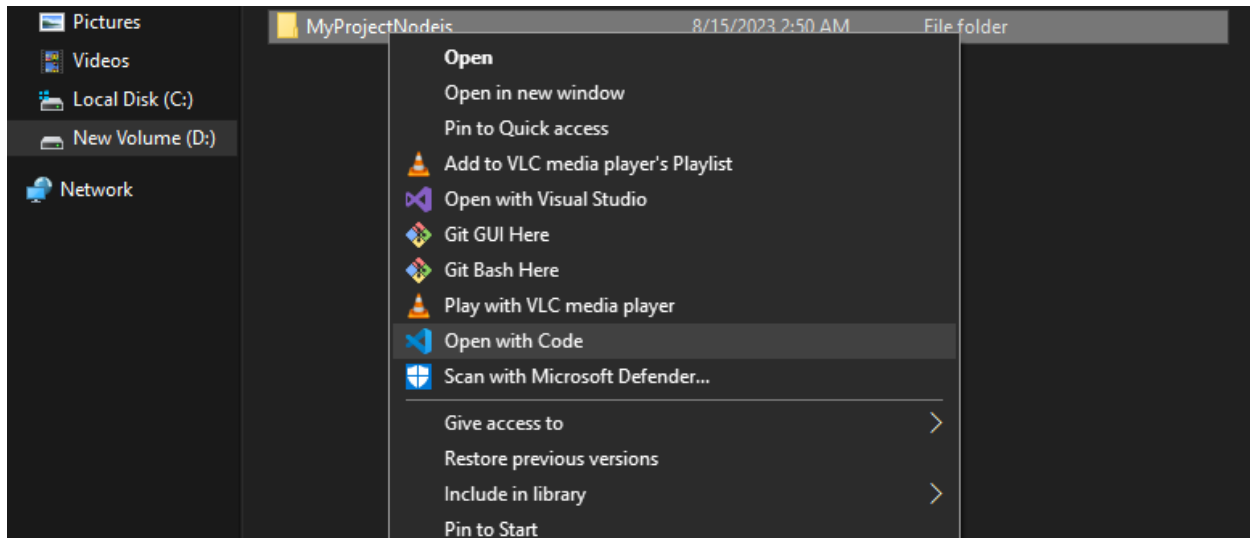


Giao diện quản lý database của MongoDB Compass



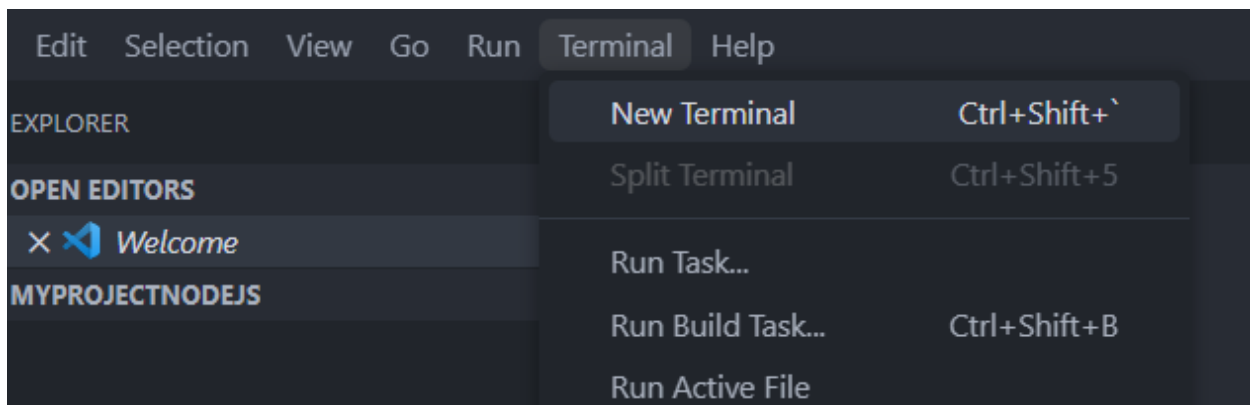
## BÀI 2: TẠO DỰ ÁN BẰNG EXPRESS (HBS)

**Bước 1 :** Tạo 1 thư mục tại ổ đĩa mà bạn muốn lưu, sau đó mở thư mục đó lên bằng VSCode



**Bước 2:**

Tại **VSCode** chọn vào **Terminal** chọn **New Terminal**





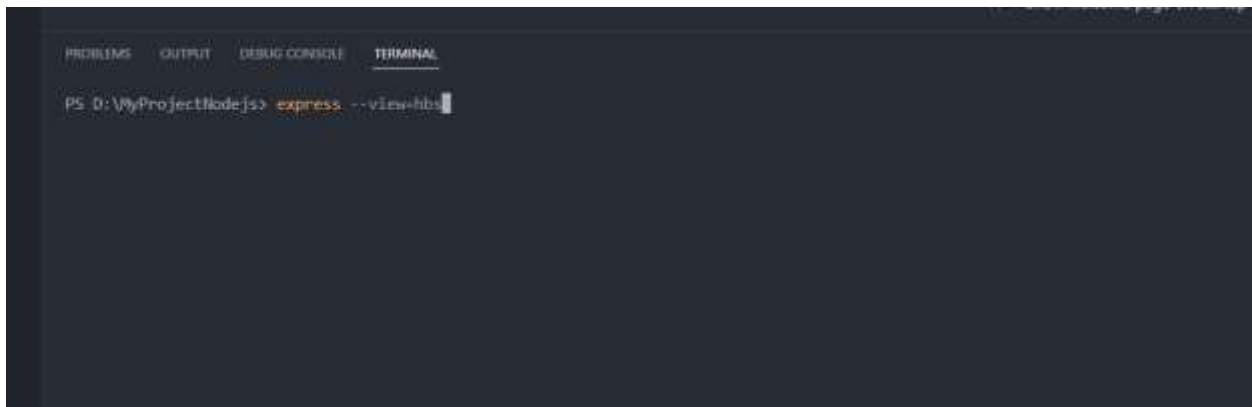
\*Lưu ý trước khi thực hiện gõ lệnh hãy chuyển đổi terminal của bạn từ powershell sang Command Prompt như hình dưới



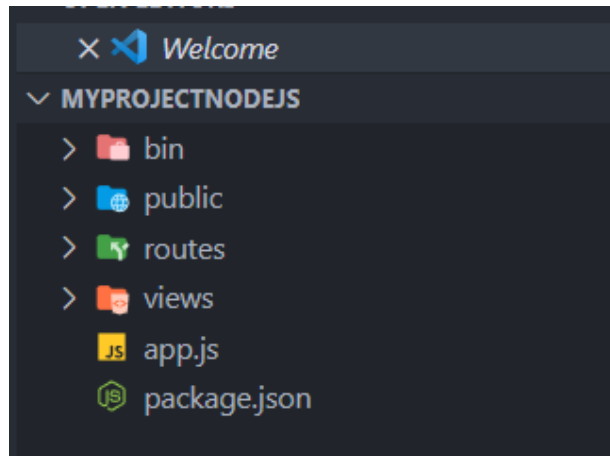
### Bước 3:

Tại **Terminal** nhập lệnh

`express --view=hbs`



Sau khi lệnh chạy thành công, ta sẽ được một project theo cấu trúc bên dưới



**Bước 4:** Sau đó ta tiếp tục nhập lệnh để hoàn thành việc tạo project

**npm install**

```
run the app:
> SET DEBUG=myprojectnodejs:* & npm start

D:\MyProjectNodejs>npm install

added 63 packages, and audited 64 packages in 8s

7 vulnerabilities (3 high, 4 critical)

To address all issues, run:
  npm audit fix --force

Run `npm audit` for details.

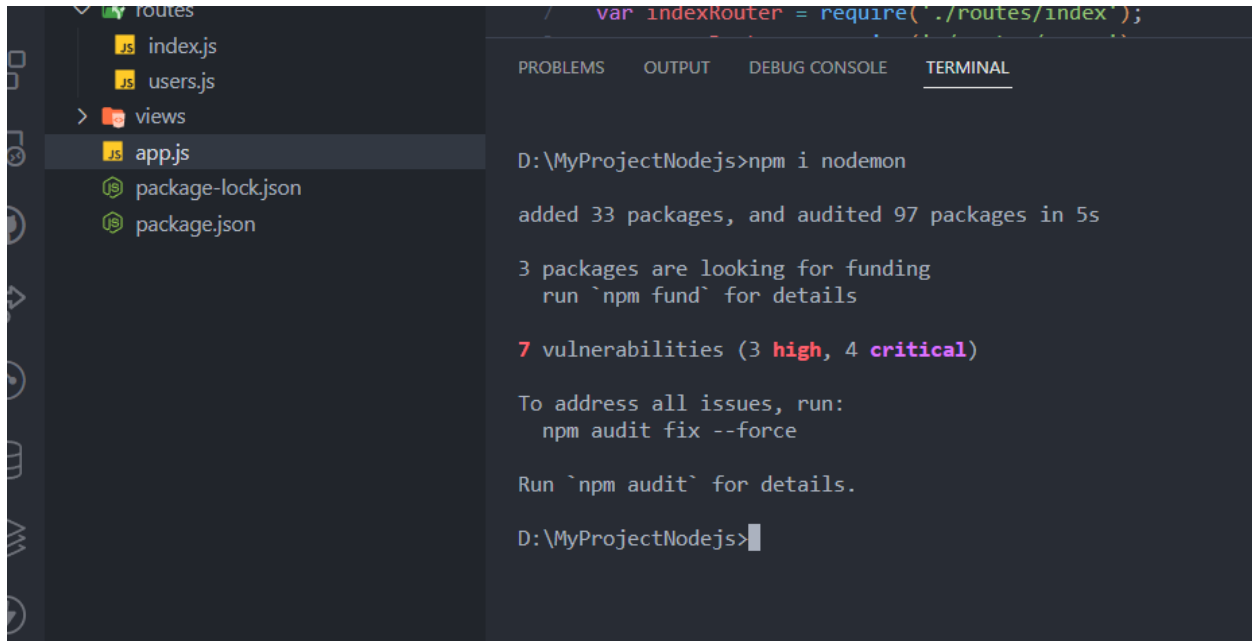
D:\MyProjectNodejs>
```

### BÀI 3: CẤU HÌNH DỰ ÁN (CÀI ĐẶT NODEMON, ROUTE)

#### \*Cài đặt nodemon và setup

#### Bước 1: Tại Terminal nhập lệnh

npm i nodemon



```
var indexRouter = require('./routes/index');

D:\MyProjectNodejs>npm i nodemon

added 33 packages, and audited 97 packages in 5s

3 packages are looking for funding
  run `npm fund` for details

7 vulnerabilities (3 high, 4 critical)

To address all issues, run:
  npm audit fix --force


Run `npm audit` for details.

D:\MyProjectNodejs>
```

**Bước 2:** Sau đó vào file **package.json**

Tại “**scripts**”

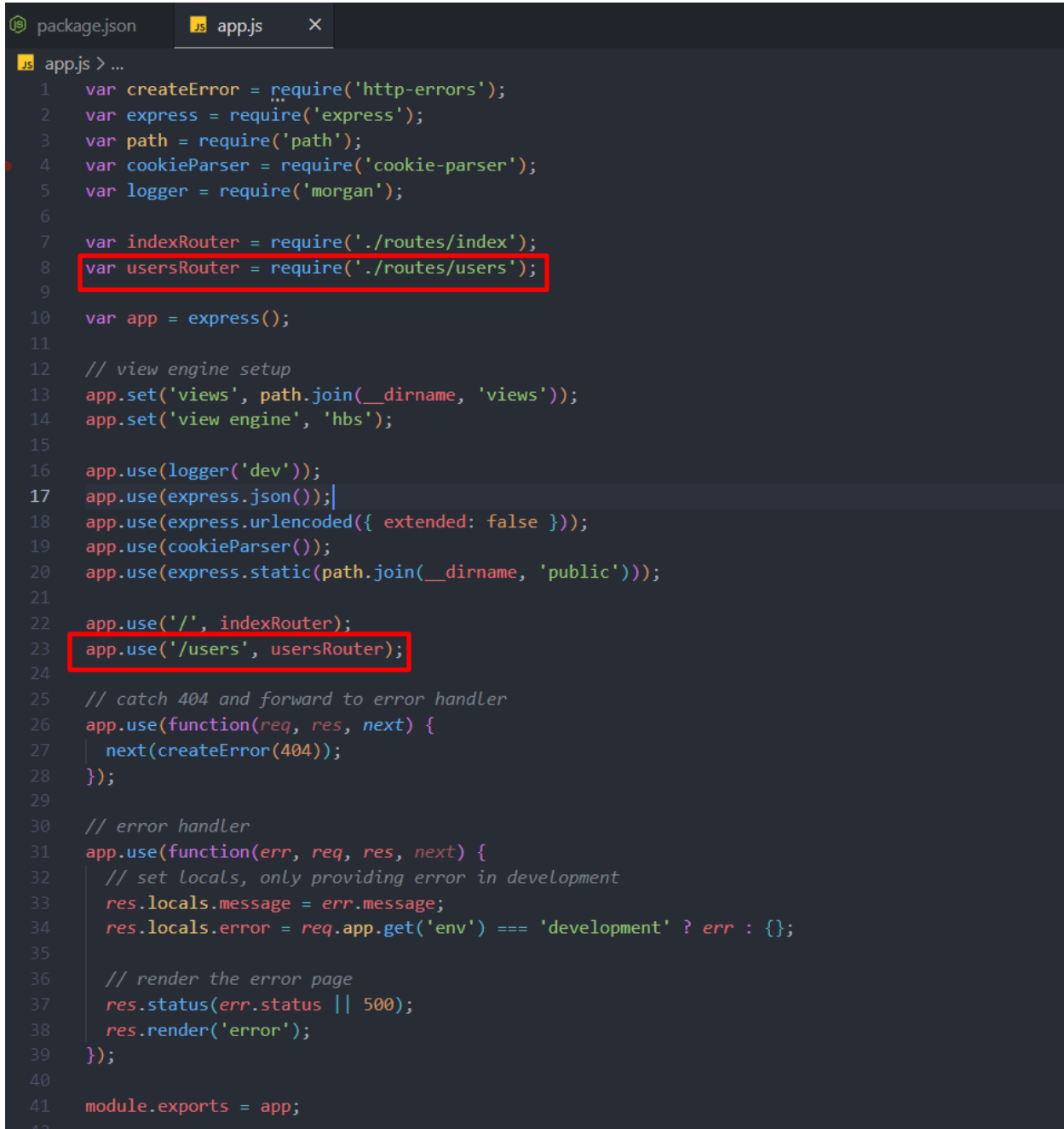
Thêm vào “**dev**” : “**nodemon ./bin/www**”



```
package.json > {} scripts > dev
1  {
2    "name": "myprojectnodejs",
3    "version": "0.0.0",
4    "private": true,
5    "scripts": {
6      "start": "node ./bin/www",
7      "dev" : "nodemon ./bin/www"
8    },
9    "dependencies": {
10     "cookie-parser": "~1.4.4",
11     "debug": "~2.6.9",
12     "express": "~4.16.1",
13     "hbs": "~4.0.4",
14     "http-errors": "~1.6.3",
15     "morgan": "~1.9.1",
16     "nodemon": "^3.0.1"
17   }
18 }
19
```

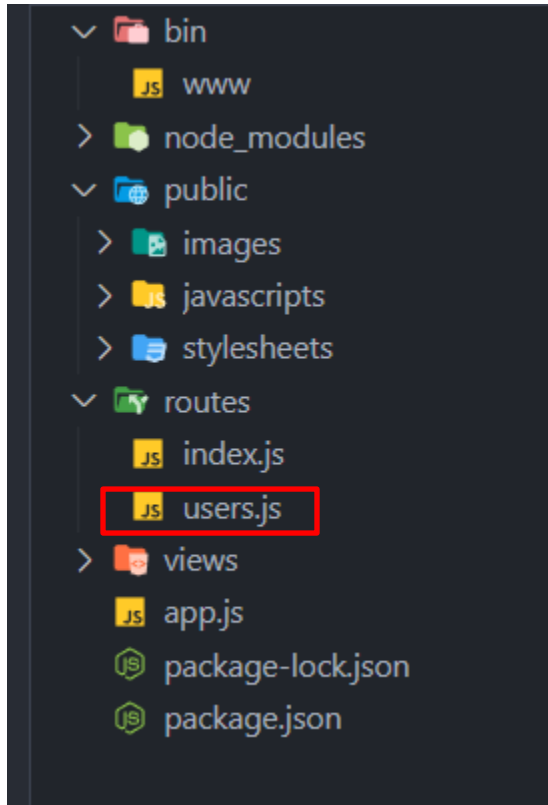
## \*Cấu hình Routes

**Bước 1:** Tại file **app.js** xóa đi 2 dòng code sau:



```
package.json  app.js  X
app.js > ...
1  var createError = require('http-errors');
2  var express = require('express');
3  var path = require('path');
4  var cookieParser = require('cookie-parser');
5  var logger = require('morgan');
6
7  var indexRouter = require('./routes/index');
8  var usersRouter = require('./routes/users');
9
10 var app = express();
11
12 // view engine setup
13 app.set('views', path.join(__dirname, 'views'));
14 app.set('view engine', 'hbs');
15
16 app.use(logger('dev'));
17 app.use(express.json());
18 app.use(express.urlencoded({ extended: false }));
19 app.use(cookieParser());
20 app.use(express.static(path.join(__dirname, 'public')));
21
22 app.use('/', indexRouter);
23 app.use('/users', usersRouter);
24
25 // catch 404 and forward to error handler
26 app.use(function(req, res, next) {
27   next(createError(404));
28 });
29
30 // error handler
31 app.use(function(err, req, res, next) {
32   // set locals, only providing error in development
33   res.locals.message = err.message;
34   res.locals.error = req.app.get('env') === 'development' ? err : {};
35
36   // render the error page
37   res.status(err.status || 500);
38   res.render('error');
39 });
40
41 module.exports = app;
```

Tại thư mục **routes** xóa file **users.js**



Mở **terminal** lên nhập lên

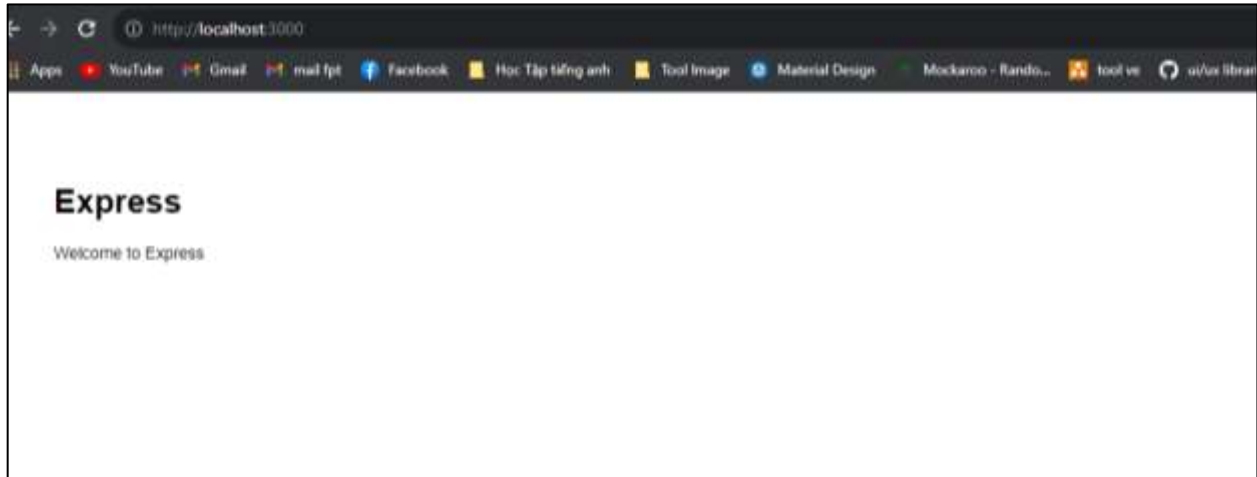
**npm run dev**

```
D:\MyProjectNodejs>Npm run dev

> myprojectnodejs@0.0.0 dev
> nodemon ./bin/www

[nodemon] 3.0.1
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node ./bin/www`
```

**Bước 2:** Sau đó mở trình duyệt lên truy cập vào địa chỉ <http://localhost:3000/>



**\*\*\* YÊU CẦU NỘP BÀI:**

Sv nén file bao gồm các yêu cầu đã thực hiện trên, nộp lms đúng thời gian quy định của giảng viên. Không nộp bài coi như không có điểm.

--- Hết ---