

**TRƯỜNG ĐẠI HỌC CẦN THƠ
TRƯỜNG CÔNG NGHỆ THÔNG TIN & TRUYỀN THÔNG**



BÁO CÁO PHÁT TRIỂN ỨNG DỤNG WEB

Đề tài:

THỰC HÀNH BACKEND_1

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Bước 0: Cài đặt Node và Git

```
Command Prompt
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>node -v
v20.11.1

C:\Users\DELL>git --version
git version 2.44.0.windows.1

C:\Users\DELL>
```

Bước 1: Tạo ứng dụng Node

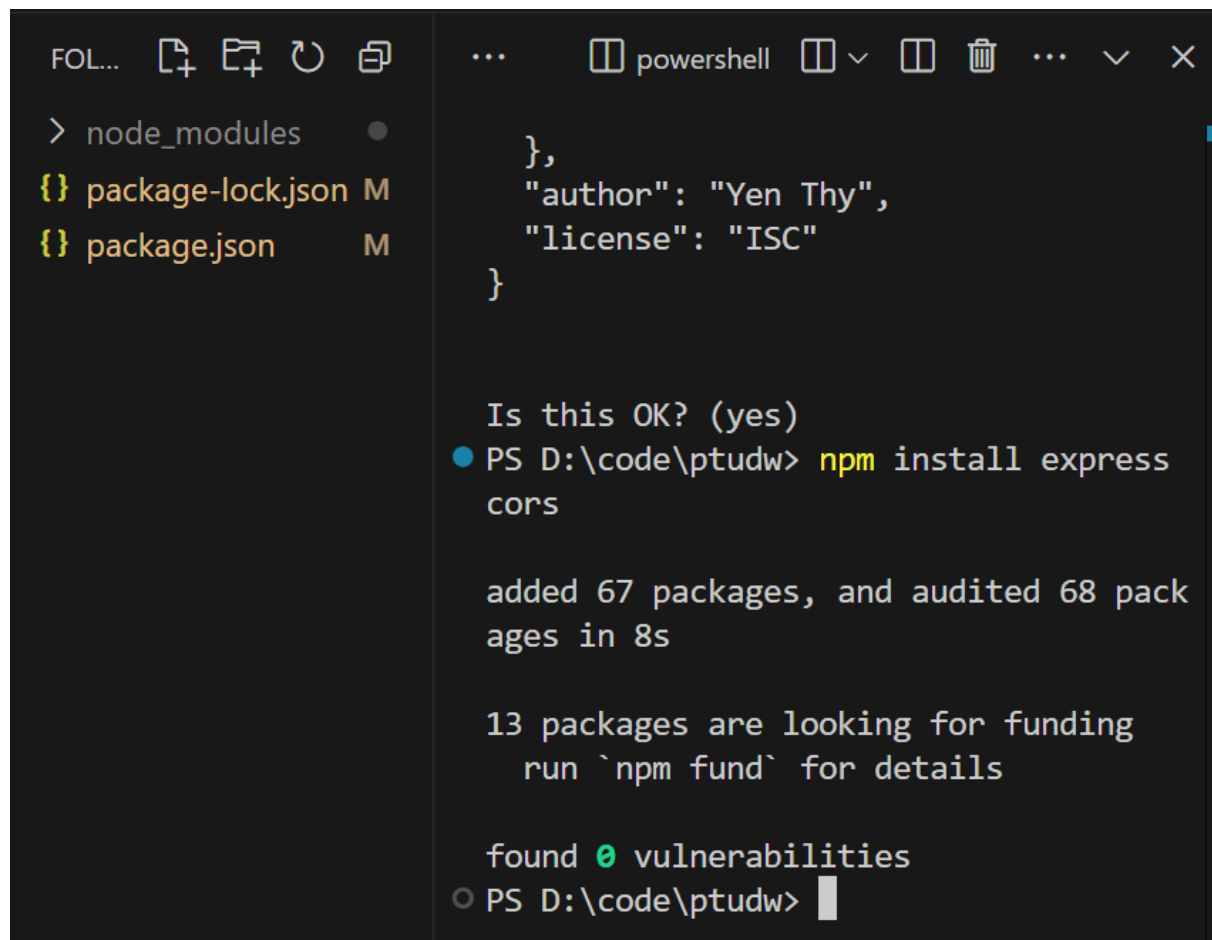
```
package.json  M

PS D:\code\ptudw> 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.

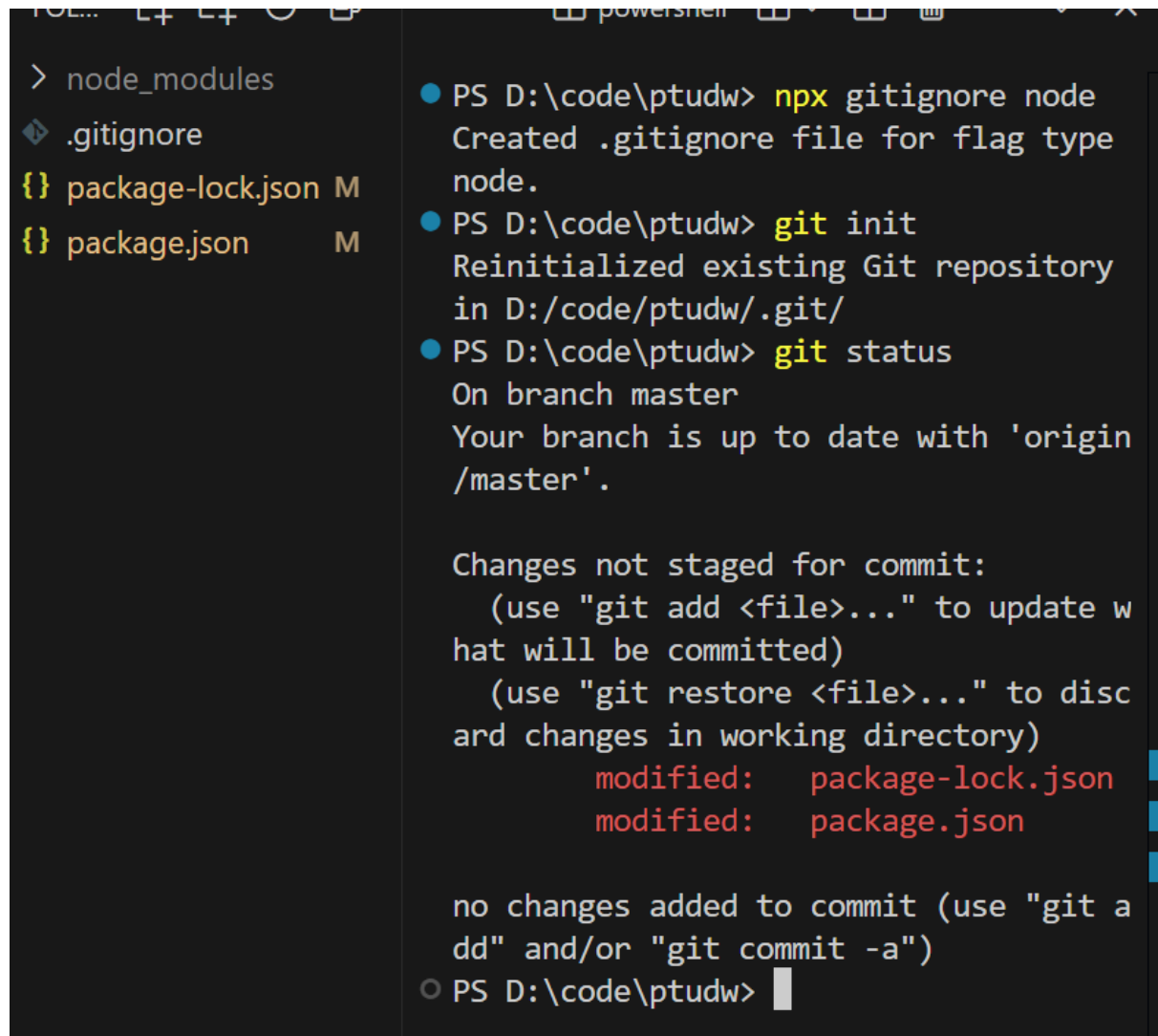
See `npm help init` for definitive documentation on these fields
and exactly what they do.

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: (ptudw)
version: (1.0.0)
description:
entry point: (index.js) server.js
test command:
git repository:
keywords:
author: Yen Thy
license: (ISC)
About to write to D:\code\ptudw\package.json:
```



Bước 3: Quản lý mã nguồn dự án với Git và Github







```
> node_modules
.gitignore
package-lock.json M
package.json M


● PS D:\code\ptudw> npx gitignore node
Created .gitignore file for flag type
node.
● PS D:\code\ptudw> git init
Reinitialized existing Git repository
in D:/code/ptudw/.git/
● PS D:\code\ptudw> git status
On branch master
Your branch is up to date with 'origin
/master'.


Changes not staged for commit:
  (use "git add <file>..." to update w
hat will be committed)
  (use "git restore <file>..." to disc
ard changes in working directory)
        modified:   package-lock.json
        modified:   package.json

no changes added to commit (use "git a
dd" and/or "git commit -a")
○ PS D:\code\ptudw> 
```







FOL...    

> node_modules

 .gitignore

 package-lock.json M

 package.json M

...  powershell    ...  

(use "git restore <file>..." to discard changes in working directory)

modified: package-lock.json

modified: package.json

no changes added to commit (use "git add" and/or "git commit -a")

PS D:\code\ptudw> git add .gitignore p

- ackage-lock.json package.json

warning: in the working copy of 'package-lock.json', LF will be replaced by CRLF the next time Git touches it

warning: in the working copy of 'package.json', LF will be replaced by CRLF the next time Git touches it

PS D:\code\ptudw> git status

- On branch master

Your branch is up to date with 'origin/master'.

Changes to be committed:

(use "git restore --staged <file>..." to unstage)

modified: package-lock.json

modified: package.json

FOL...

> node_modules

.gitignore

package-lock.json

package.json

Welcome

×

Start

...

powershell

▼

...

^

×

create mode 100644 package-lock.json

create mode 100644 package.json

PS D:\code\ptudweb> git commit -m "B2113321_LeThiYenThy"

On branch master

nothing to commit, working tree clean

PS D:\code\ptudweb> git remote add origin https://github.com/jerosiet/B2113321_LeThiYenThy

PS D:\code\ptudweb> git push origin master

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Delta compression using up to 4 threads

Compressing objects: 100% (5/5), done.

Writing objects: 100% (5/5), 8.73 KiB | 2.91 MiB/s, done.

Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)

To https://github.com/jerosiet/B2113321_LeThiYenThy

* [new branch] master -> master

PS D:\code\ptudweb>

B2113321_LeThiYenThy

Public

Pin

Unwatch

1

master

1 Branch

0 Tags

Go to file

Add file

Code

jerosiet

B2113321_LeThiYenThy

46eff70 · 3 minutes ago

1 Commit

.gitignore

B2113321_LeThiYenThy

3 minutes ago

package-lock.json

B2113321_LeThiYenThy

3 minutes ago

package.json

B2113321_LeThiYenThy

3 minutes ago

Bước 3: Cấu hình VS Code, ESLint và Prettier

```
PS D:\code\ptudweb> npm i -D eslint prettier eslint-config-prettier

added 96 packages, and audited 164 packages in 10s

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

found 0 vulnerabilities
PS D:\code\ptudweb>
```

```
/.elcome  .eslintrc.js U X  > ...

1  module.exports = {
2      env: {
3          node: true,
4          commonjs: true,
5          es2021: true,
6      },
7      extends:
8          ['eslint:recommended',
            'prettier'],
9  };
10
```


found 0 vulnerabilities

```
PS D:\code\ptudweb> git add -u
```

warning: in the working copy of 'package-lock.json', LF will be replaced by CRLF the next time Git touches it

warning: in the working copy of 'package.json', LF will be replaced by CRLF the next time Git touches it

```
PS D:\code\ptudweb> git add .eslintrc.js
```

- PS D:\code\ptudweb> git commit -m "Cau hinh ESLint cho du an"

[master d809fce] Cau hinh ESLint cho du an

3 files changed, 1133 insertions(+)
create mode 100644 .eslintrc.js





- PS D:\code\ptudweb>




Bước 4: Cài đặt Express

```
JS app.js  U X  ▶ 🔗 📄 ..  
JS app.js > ...  
1  const express = require  
   ("express");  
2  const cors = require  
   ("cors");  
3  
4  const app = express();  
5  
6  app.use(cors());  
7  app.use(express.json());  
8  
9  app.get("/", (req, res) => {  
10     res.json({ message:  
        "Welcome to contact  
        book application." });  
11 });  
12  
13 module.exports = app;
```

JS server.js > ...

```
1  const app = require("../
  app");
2  const config = require("../
  app/config");
3
4  const PORT = config.app.
  port;
5  app.listen(PORT, () => {
6    console.log(`Server is
      running on port ${PORT}.
      `);
7  });
```

FOL...    

server.js U JS index.js U X    ...

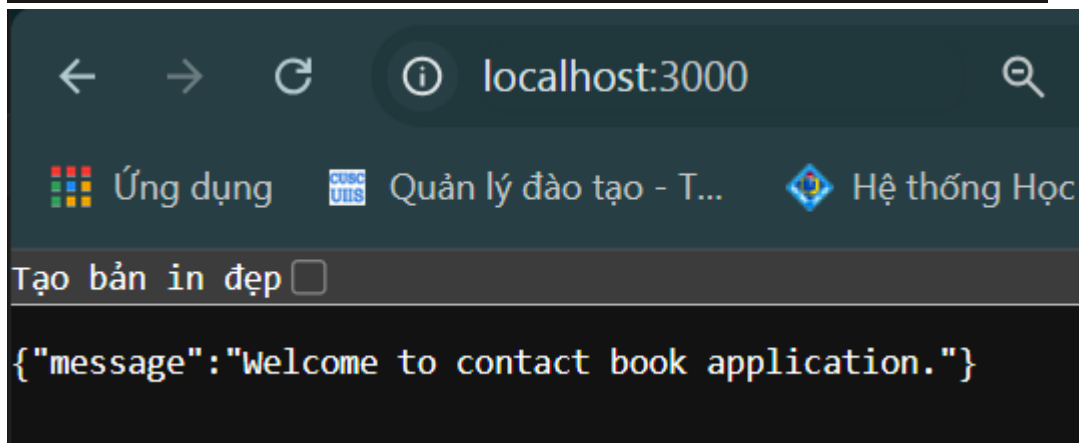
app > config > JS index.js > ...

```
1  const config = {
2    app: {
3      port: process.env.
        PORT || 3000,
4    }
5  };
6
7  module.exports = config;
```

app\config

- JS index.js U
- > node_modules
- .eslintrc.js
- .gitignore
- JS app.js U
- { } package-lock.json
- { } package.json
- JS server.js U

```
create mode 100644 .eslintrc.js
PS D:\code\ptudweb> node server.js
Server is running on port 3000.
```



```
Server is running on port 3000.
● PS D:\code\ptudweb> npm install nodemon
--save-dev

added 23 packages, and audited 187 packages in 5s

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

found 0 vulnerabilities
○ PS D:\code\ptudweb> 
```

```
x.js U {} package.json M • ▶ 🔗 📅 ...

{} package.json > {} scripts

1  {
2    "name": "ptudweb",
3    "version": "1.0.0",
4    "description": "",
5    "main": "server.js",
6    "scripts": {
7      "start": "nodemon
8        server.js"
9    },
10   "author": "Yen Thy",
11   "license": "ISC",
12   "dependencies": {
13     "cors": "^2.8.5",
14     "express": "^4.21.0"
15   },
16   "devDependencies": {
17     "eslint": "^9.10.0",
18     "eslint-config-prettier"
```

```
PS D:\code\ptudweb> npm start
```

```
> ptudweb@1.0.0 start
```

```
> nodemon server.js
```

```
[nodemon] 3.1.4
```

```
[nodemon] to restart at any time, enter  
`rs`
```

```
[nodemon] watching path(s): *.*
```

```
[nodemon] watching extensions: js,mjs,cj  
s,json
```

```
[nodemon] starting `node server.js`
```

```
Server is running on port 3000.
```

```
█
```

Found 0 vulnerabilities

PS D:\code\ptudweb> git add -u

warning: in the working copy of 'package-lock.json', LF will be replaced by CRLF the next time Git touches it

warning: in the working copy of 'package.json', LF will be replaced by CRLF the next time Git touches it

● PS D:\code\ptudweb> git add app/ app.js server.js

⊗ PS D:\code\ptudweb> git commit -m
error: switch `m' requires a value

● PS D:\code\ptudweb> git commit -m "Cai dat express chay thong bao xin chao"
[master 6cd351d] Cai dat express chay thong bao xin chao

● 5 files changed, 318 insertions(+), 1 deletion(-)

create mode 100644 app.js

create mode 100644 app/config/index.js

create mode 100644 server.js

○ PS D:\code\ptudweb> █

Bước 5: Định nghĩa Controller và các route

```
JS app.js    JS server.js    JS index.js    {} package.json    JS contact.controller.js U ●
app > controllers > JS contact.controller.js > ...
 1  exports.create = (req, res) => {
 2    res.send({ message: "create handler" });
 3  };
 4
 5  exports.findAll = (req, res) => {
 6    res.send({ message: "findAll handler" });
 7  };
 8
 9  exports.findOne = (req, res) => {
10    res.send({ message: "findOne handler" });
11  };
12
13  exports.update = (req, res) => {
14    res.send({ message: "update handler" });
15  };
16
17  exports.delete = (req, res) => {
18    res.send({ message: "delete handler" });
19  };
20
21  exports.deleteAll = (req, res) => {
22    res.send({ message: "deleteAll handler" });
23  };
24
```


JS contact.controller.js U

JS contact.route.js U ●

app > routes > JS contact.route.js > ...

```
1  const express = require("express");
2  const contacts = require("../controllers/
   contact.controller");
3
4  const router = express.Router();
5
6  router.route("/")
7    .get(contacts.findAll)
8    .post(contacts.create)
9    .delete(contacts.deleteAll);
10
11 router.route("/favorite")
12   .get(contacts.findAllFavorite);
13
14 router.route("/:id")
15   .get(contacts.findOne)
16   .put(contacts.update)
17   .delete(contacts.delete);
18
19 module.exports = router;
```

HTTP http://localhost:3000/api/contacts/favorite

GET http://localhost:3000/api/contacts/favorite

Params Authorization Headers (7) Body Pre-request Script Tests Settings

Query Params

Key	Value
Key	Value

Body Cookies Headers (8) Test Results

Status: 200 OK Time: 23 ms Size: 304 B

Pretty Raw Preview JSON

```
1 {
2   "message": "findAllFavorite handler"
```

HTTP http://localhost:3000/ JS contact.route.js U

GET http://localhost:3000/

Params Authorization Headers (7) Body Pre-request Script Tests Settings

Query Params

Key	Value
Key	Value

Body Cookies Headers (8) Test Results

Status: 200 OK Time: 9 ms Size: 317 B

Pretty Raw Preview JSON

```
1 {
2   "message": "Welcome to contact book application."
```

```
fatal: pathspec 'app/controllers' did not match any files
• PS D:\code\ptudweb> git add -u
• PS D:\code\ptudweb> git add app/controllers app/routes
• PS D:\code\ptudweb> git commit -m "Dinh nghĩa các route cho tài nguyên Contact"
[master de7b548] Dinh nghĩa các route cho tài nguyên Contact
3 files changed, 49 insertions(+)
create mode 100644 app/controllers/contact.controller.js
create mode 100644 app/routes/contact.route.js
• PS D:\code\ptudweb>
```

Bước 6: Cài đặt xử lý lỗi

```
HTTP http://localhos... JS contact.route.js JS api-error.js U ●
app > JS api-error.js > ...
1  class ApiError extends Error {
2      constructor(statusCode, message) {
3          super();
4          this.statusCode = statusCode;
5          this.message = message;
6      }
7  }
8
9  module.exports = ApiError;
```

```
14  },
15
16  app.use((req, res, next) => {
17      return next(new ApiError(404, "Resource not found"));
18  });
19
20  app.use((err, req, res, next) => {
21      return res.status(err.statusCode || 500).json({
22          message: err.message || "Internal Server Error",
23      });
24  });
25
```

```
← → ↻ ⓘ localhost:3000/api/invalid-url 🔍 ☆
Ứng dụng Quản lý đào tạo - T... Hệ thống Học tập tr...
Tạo bản in đẹp □
{"message":"Resource not found"}
```

```
● PS D:\code\ptudweb> git add -u
● PS D:\code\ptudweb> git add app/api-error.js
● PS D:\code\ptudweb> git commit -m "Cai dat xu ly loi"
[master fb9314b] Cai dat xu ly loi
2 files changed, 20 insertions(+), 1 deletion(-)
create mode 100644 app/api-error.js
○ PS D:\code\ptudweb> █
```

```

  ✓ app
    ✓ config
      JS index.js
    ✓ controllers
      JS contact.controller.js
    ✓ routes
      JS contact.route.js
      JS api-error.js
    > node_modules
    .eslintrc.js
    .gitignore
    JS app.js
    {} package-lock.json
    {} package.json
    JS server.js
```

Link BACKEND_1:

https://github.com/jerosiet/B2113321_LeThiYenThy