ECAP472

Web Technologies

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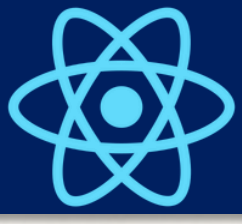
Associate Professor

Learning Outcomes

After this lecture, you will be able to

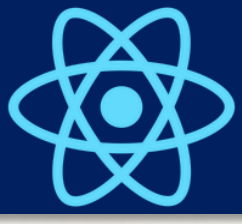
- Understand concept of React JavaScript library.
- Understand Installation of React JavaScript library.

React



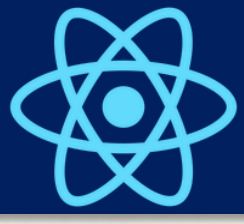
- **React** (also known as **React.js** or **ReactJS**) is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies.

React (JavaScript library)



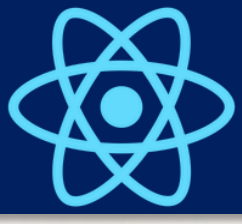
- React can be used as a base in the development of single-page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

Notable features



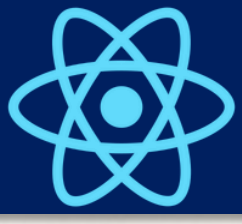
- Declarative-React adheres to the declarative programming paradigm. Developers design views for each state of an application, and React updates and renders components when data changes. This is in contrast with imperative programming

Components



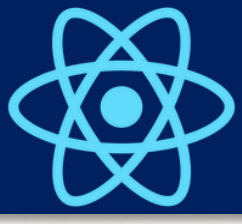
- React code is made of entities called components. These components are reusable and must be formed in the SRC folder following the Pascal Case as its naming conversion.
- Components can be rendered to a particular element in the DOM using the React DOM library

Virtual DOM



- Another notable feature is the use of a virtual Document Object Model, or virtual DOM. React creates an in-memory data-structure cache, computes the resulting differences, and then updates the browser's displayed DOM efficiently. This process is called reconciliation. This allows the programmer to write code as if the entire page is rendered on each change, while the React libraries only render subcomponents that actually change.

React installation



Install NodeJS and NPM.

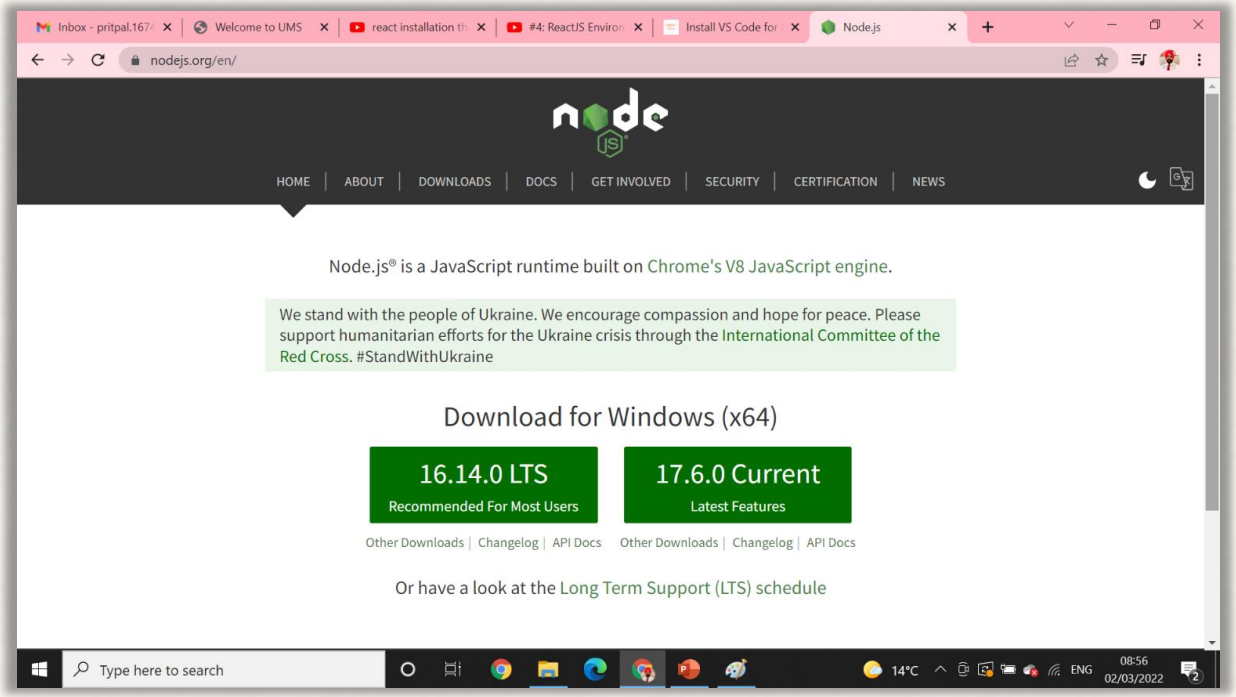
Install Visual Studio Code.

Install React from terminal .

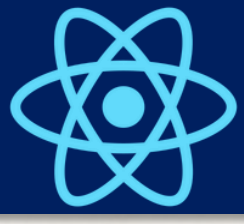
npm install -g create-react-app

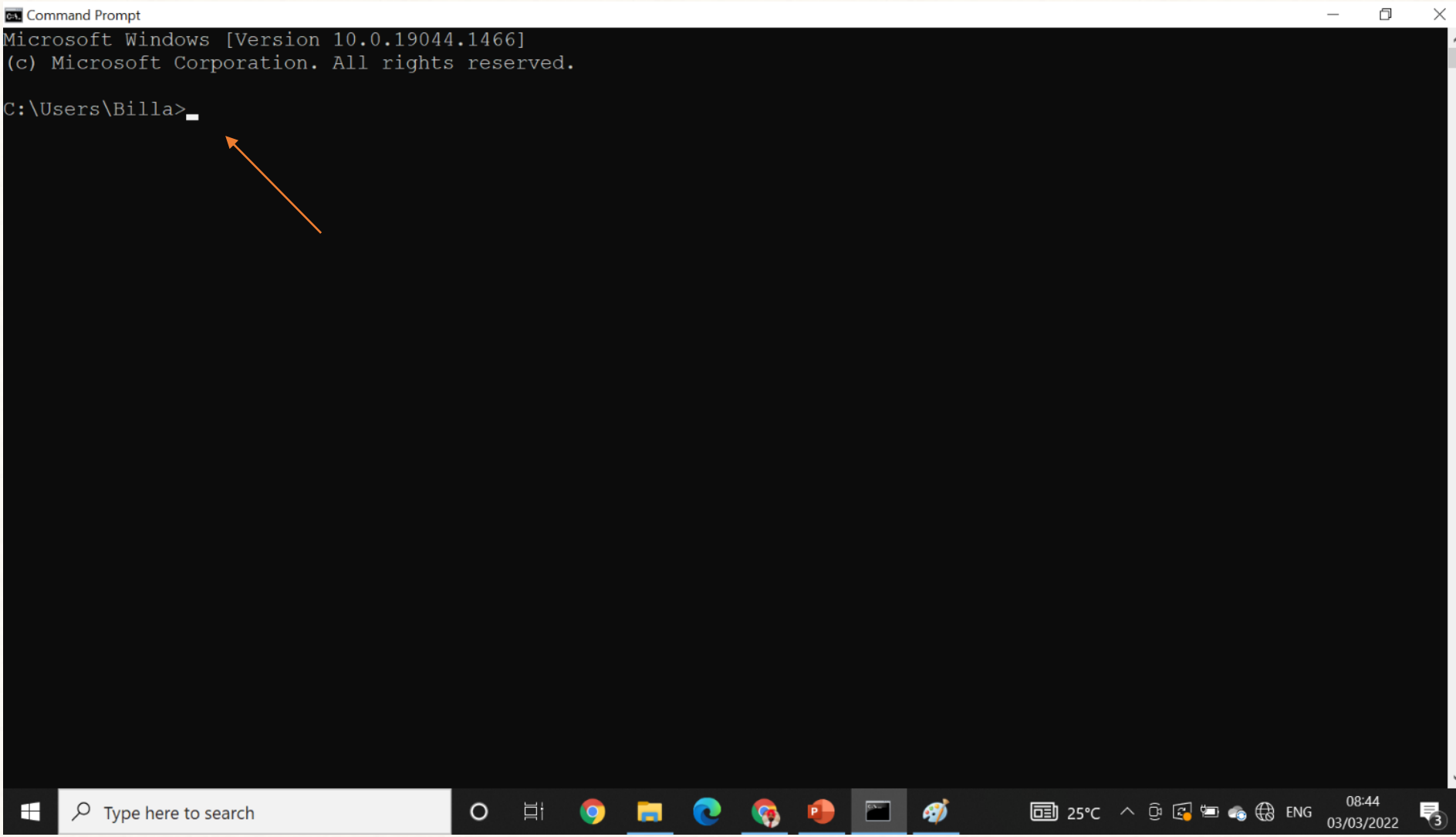
Install NodeJS and NPM.

- Go to https://nodejs.org/en/
- Download the latest version of NodeJS LTS with Administrator privileges.

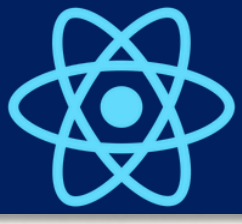


Open cmd *cmd




Command Prompt
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Billa>
Type here to search
25°C
ENG
08:44
03/03/2022

To check version* node -v



Command Prompt

```
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>
```

Type here to search

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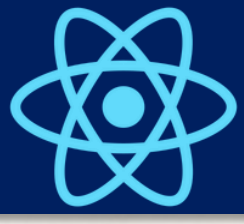
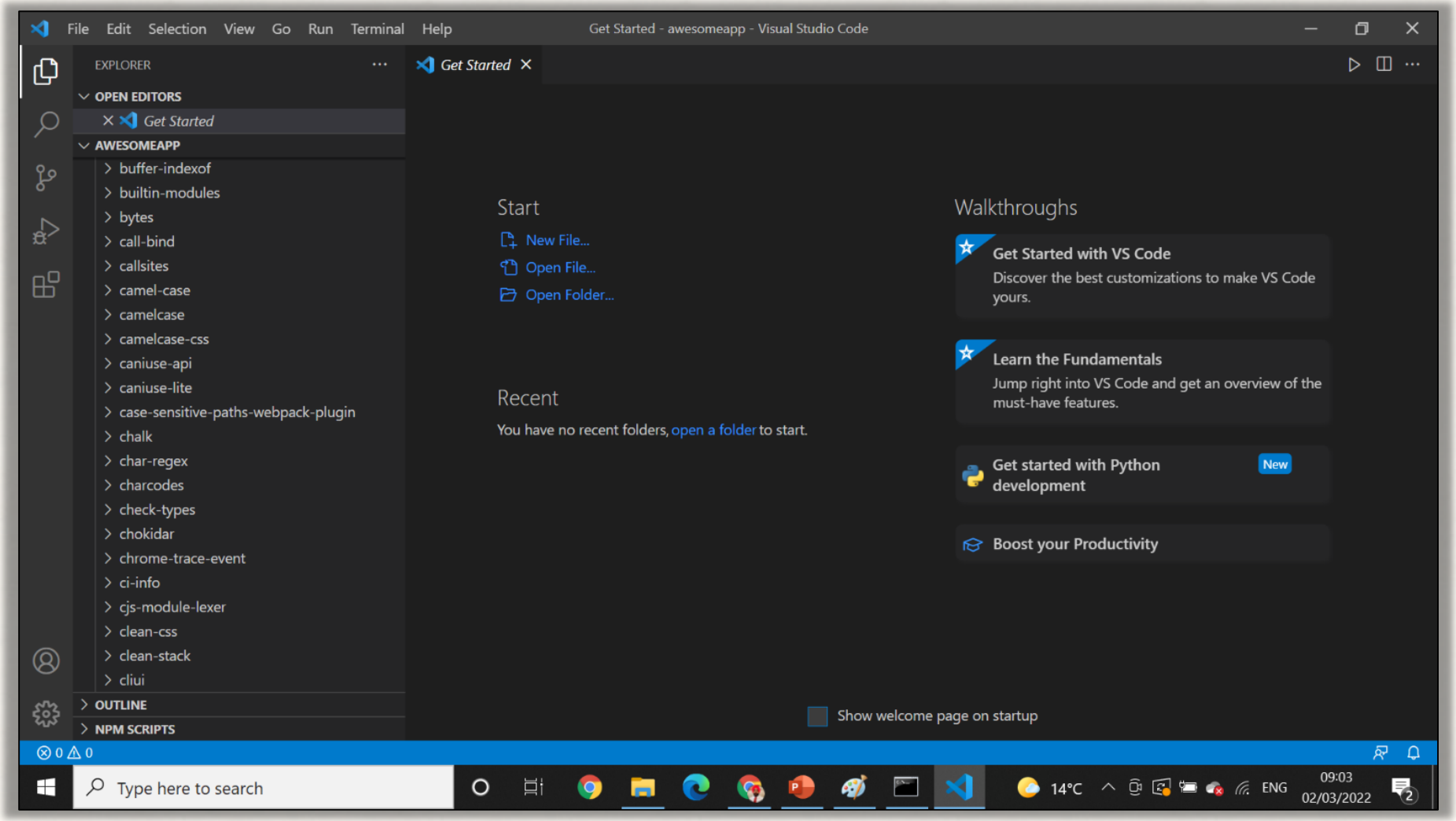
Npm installation* npm -v



Command Prompt

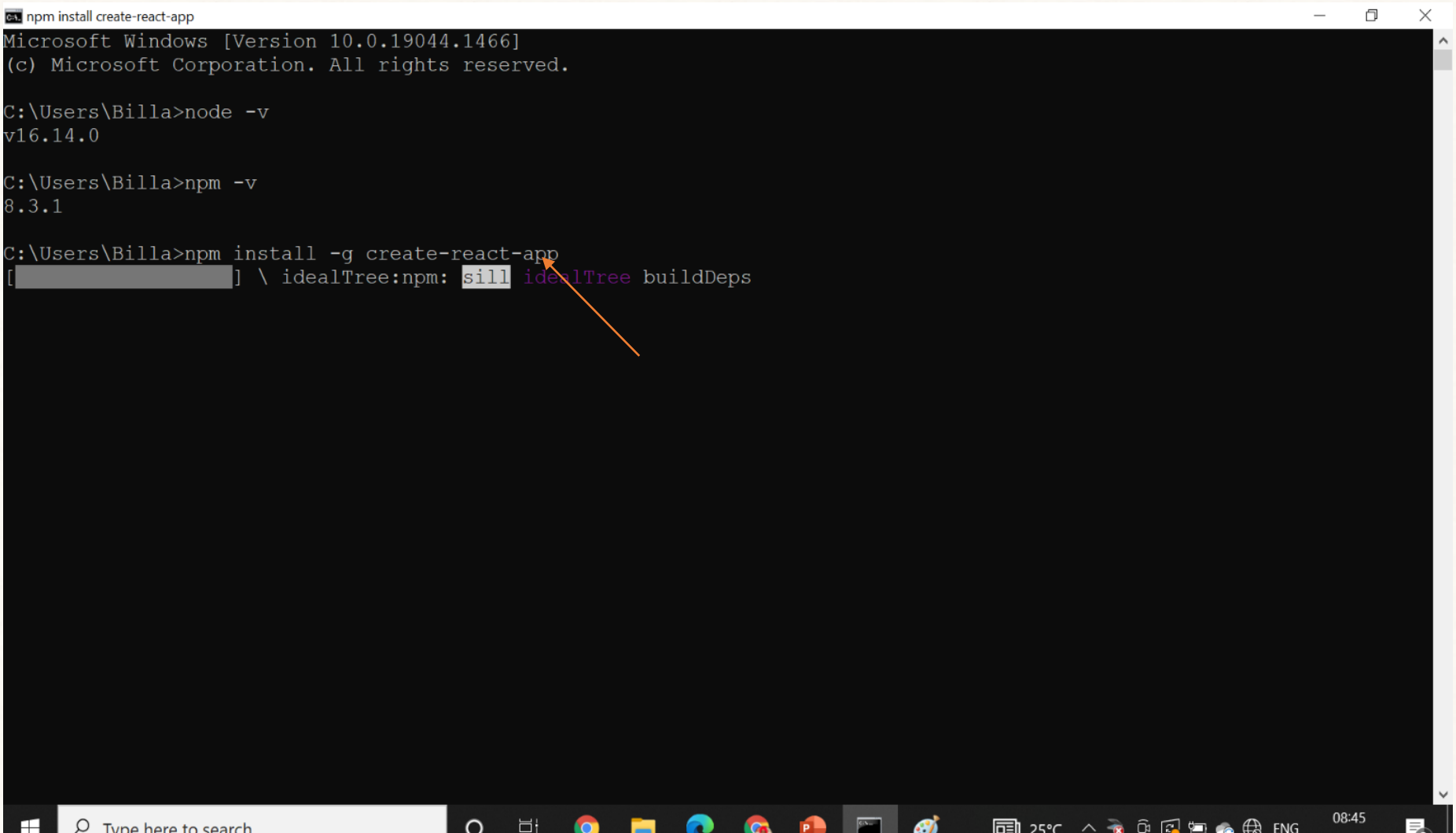
```
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>npm -v
8.3.1

C:\Users\Billa>
```

Install visual studio code

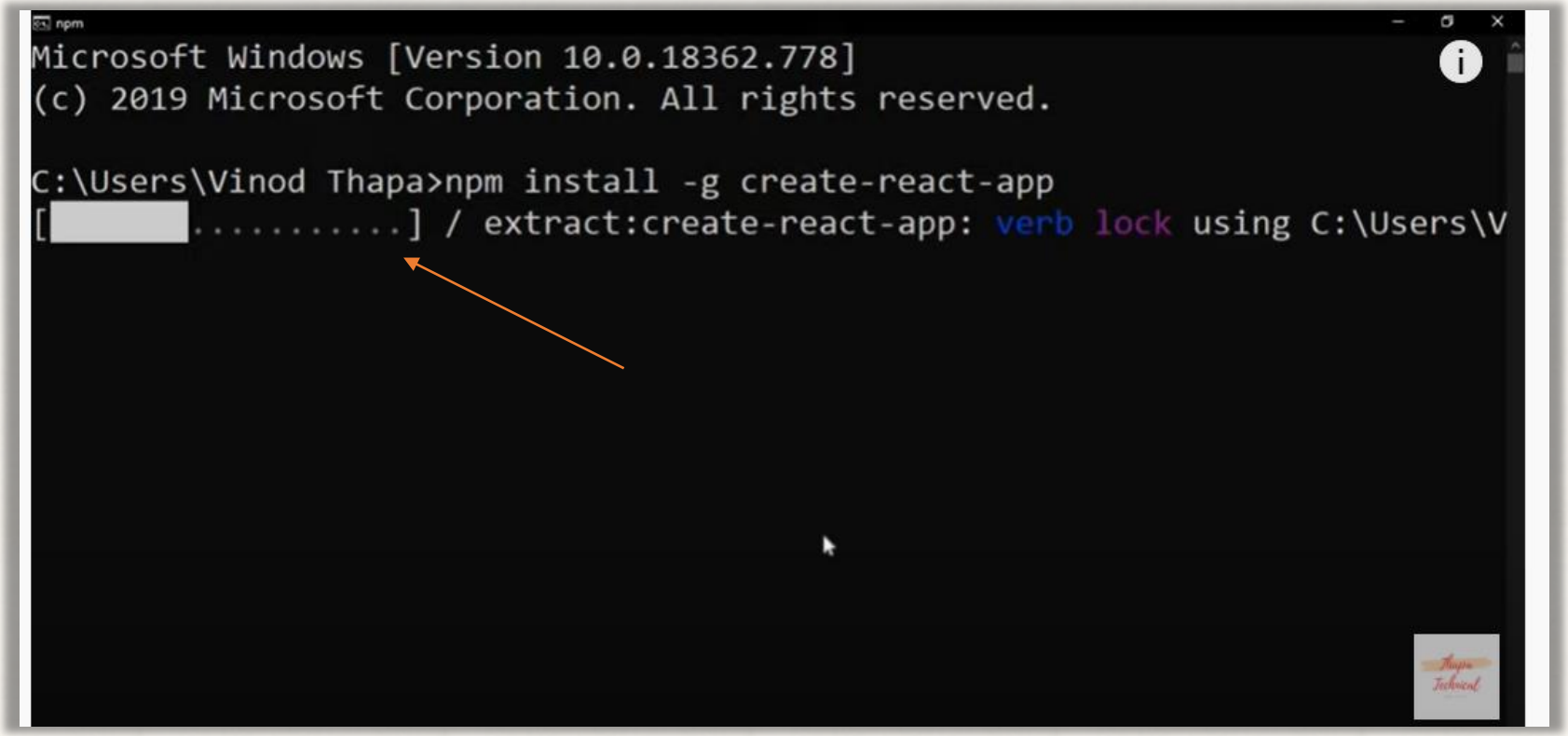


Install react from terminal

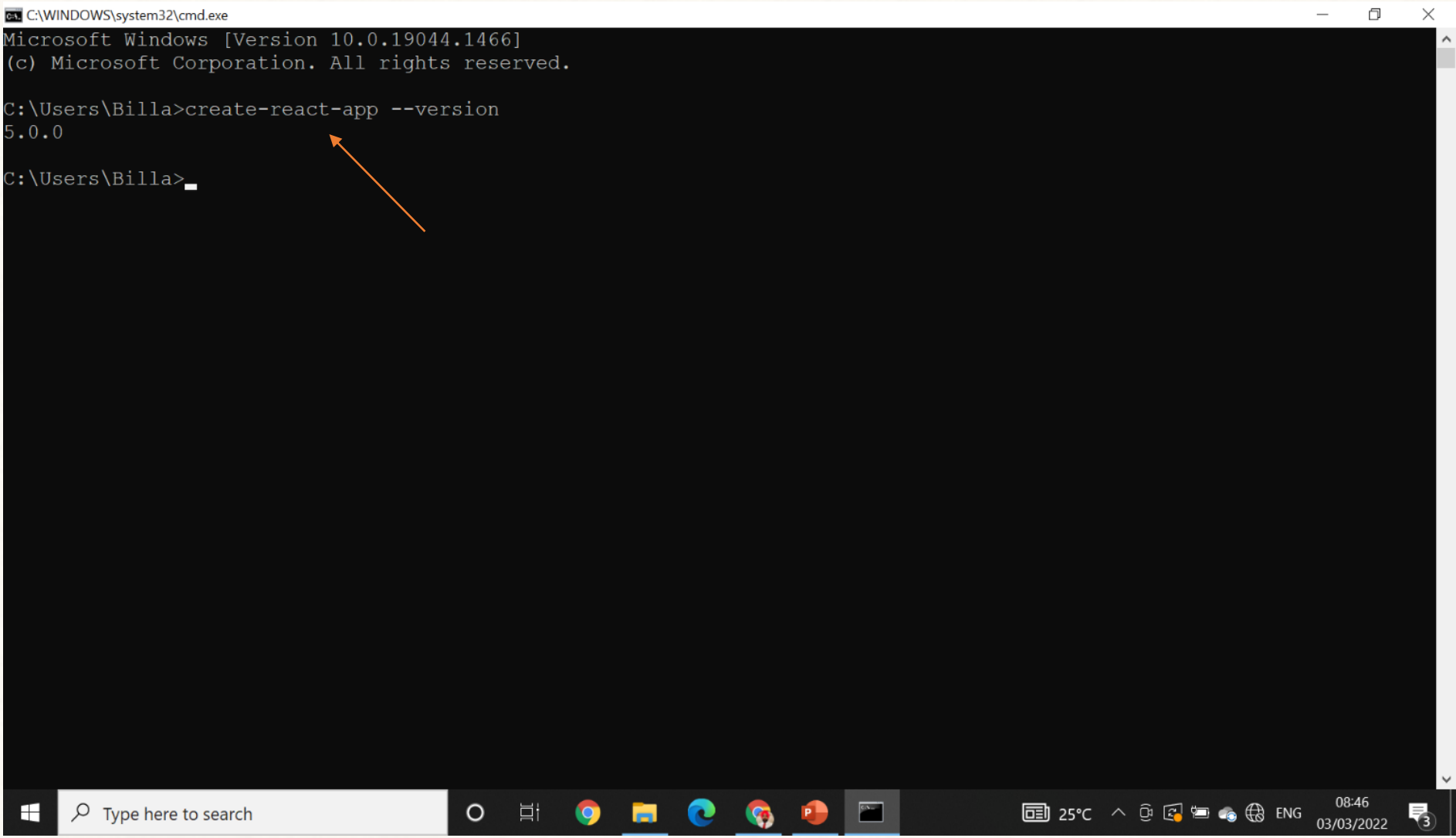
npm install -g create-react-app



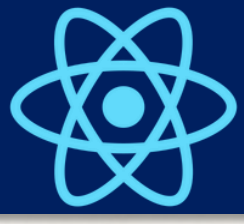
Installation



React version* create-react-app —-version

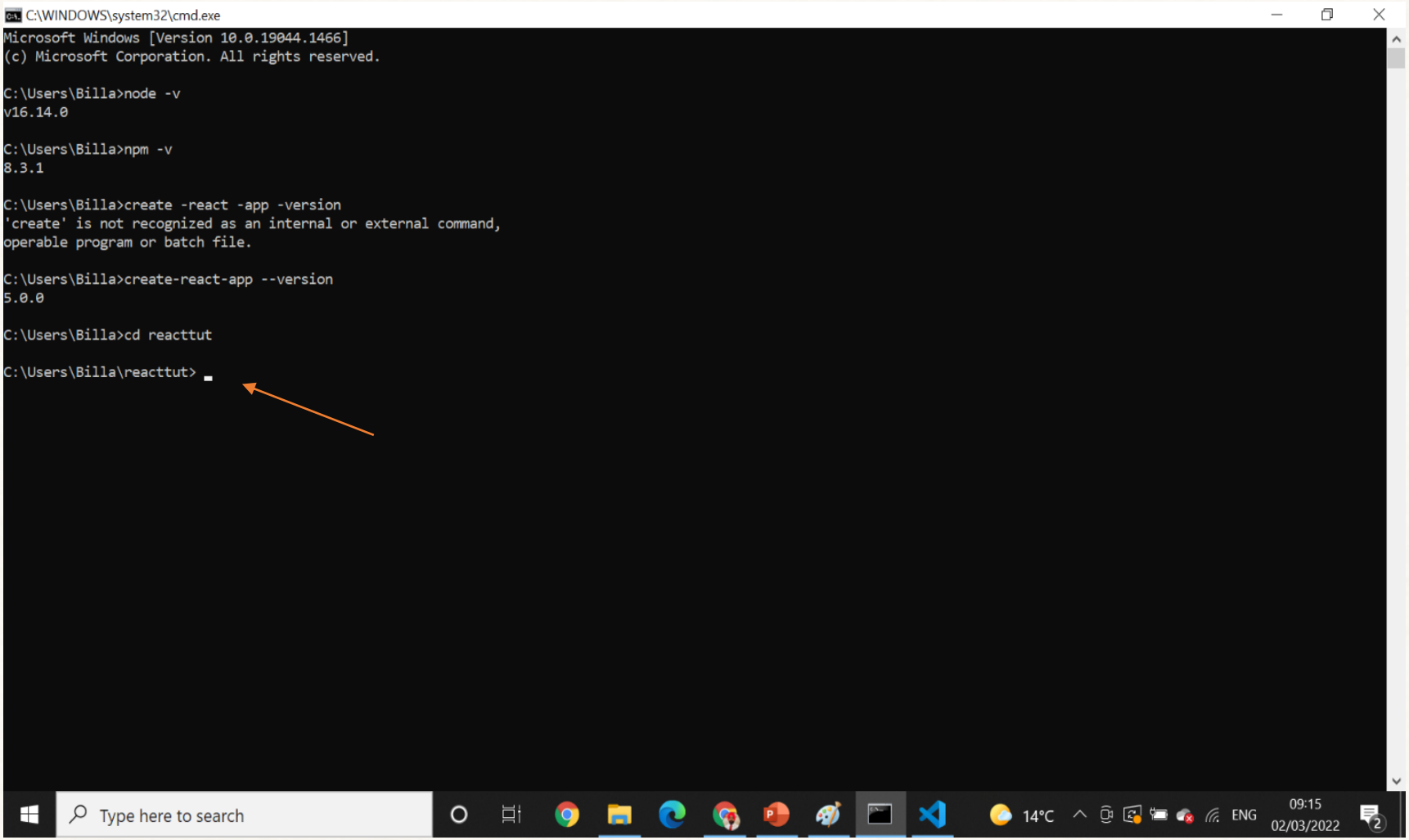


Creating directory* mkdir

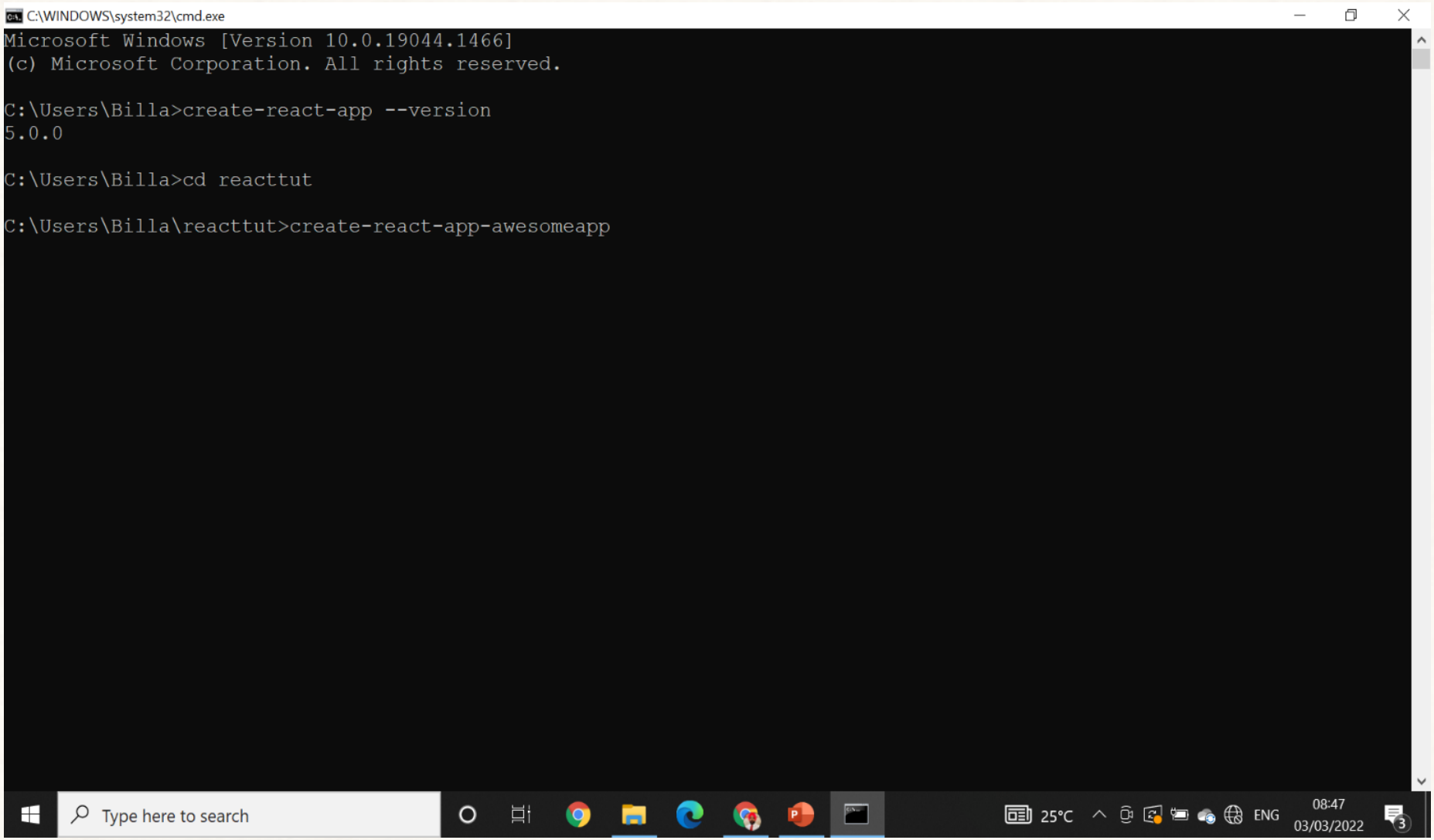


```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>npm -v
8.3.1

C:\Users\Billa>create -react -app -version
'create' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Billa>create-react-app --version
5.0.0

C:\Users\Billa>mkdir reacttut
```

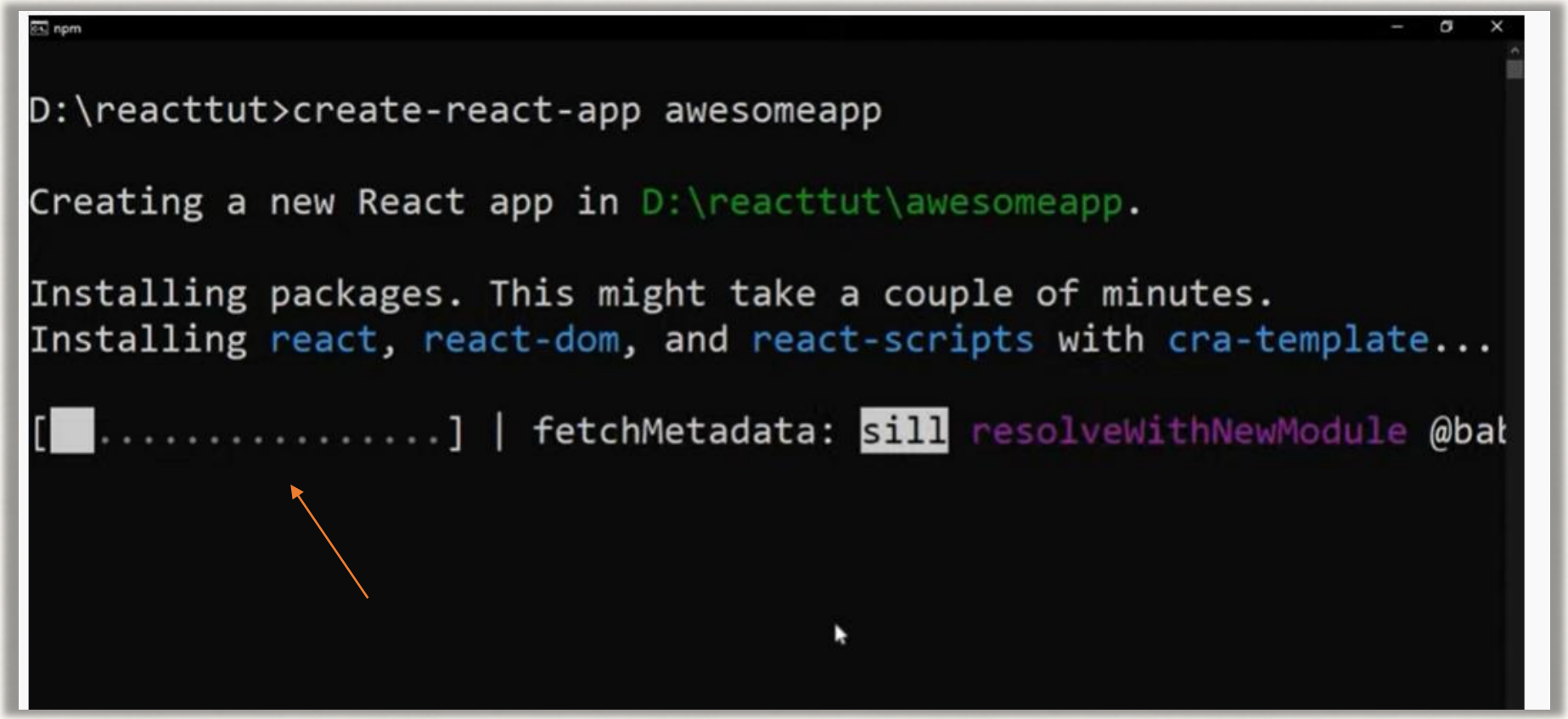
Change working directory* CD



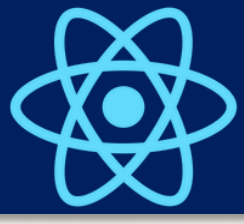
Create app inside directory * create-react-app-awesomeapp



Installation going on

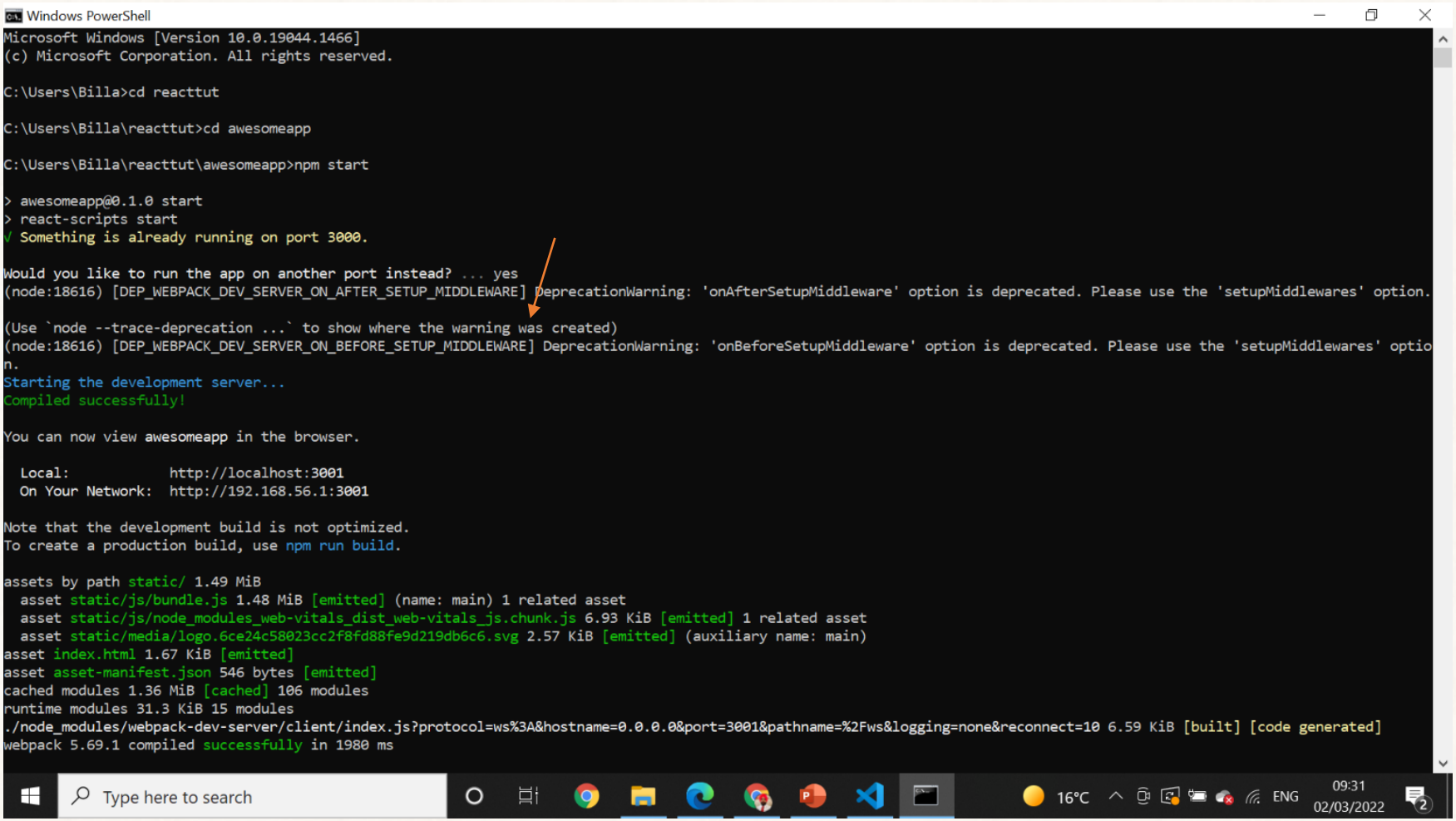


Change directory * CD

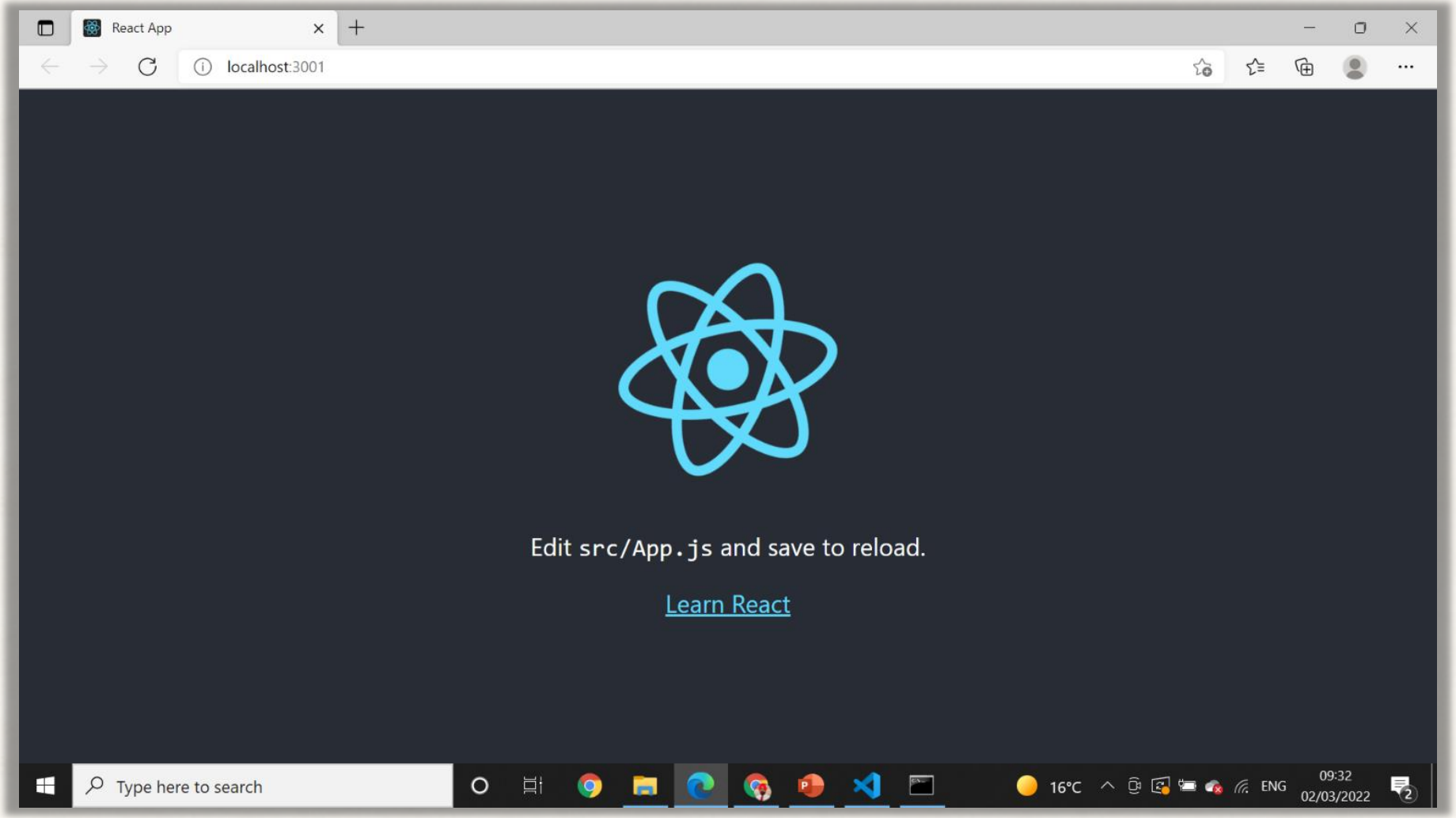


```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>npm -v
8.3.1

C:\Users\Billa>create -react -app -version
'create' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Billa>create-react-app --version
5.0.0

C:\Users\Billa>cd reacttut

C:\Users\Billa\reacttut> cd awesomeapp

C:\Users\Billa\reacttut\awesomeapp>
```

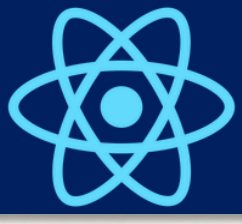
Npm start* npm start



Local host

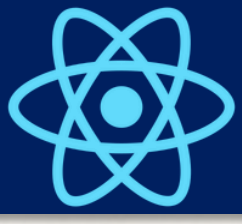

React App
localhost:3001
Edit src/App.js and save to reload.
Learn React
Type here to search
16°C
ENG
09:32
02/03/2022

What is npm for?



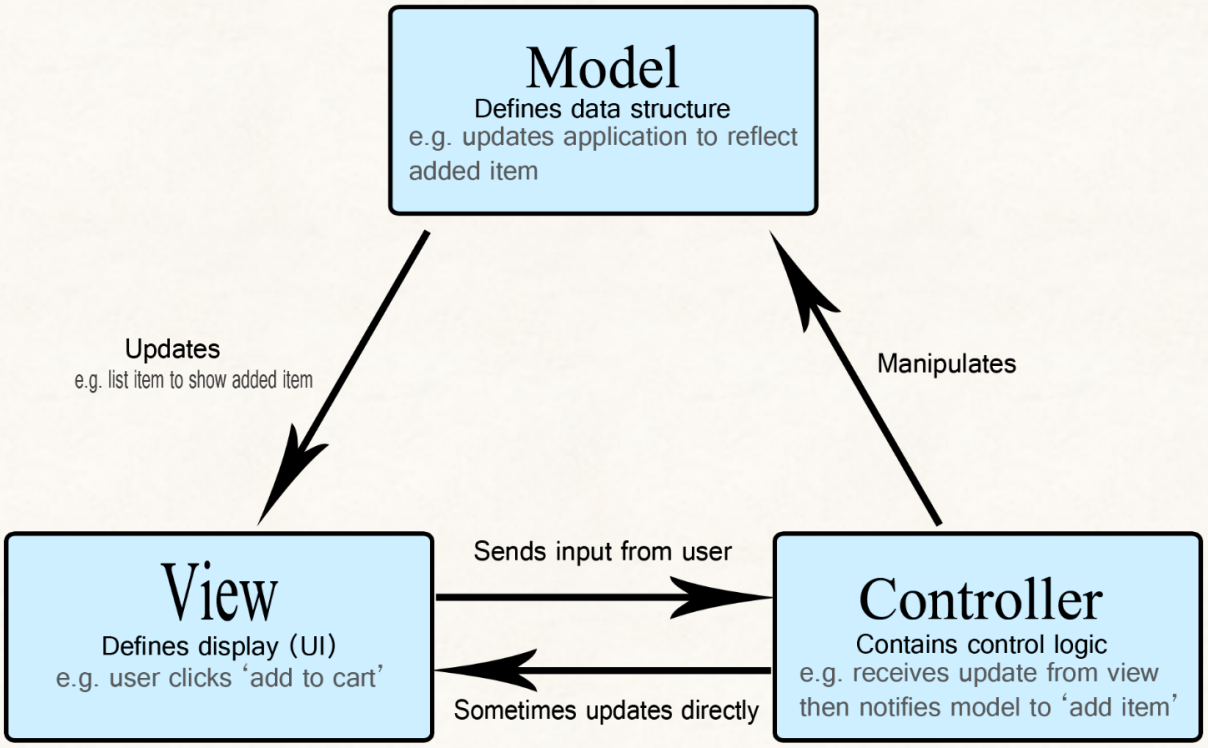
npm is the package manager for the Node JavaScript platform. It puts modules in place so that node can find them, and manages dependency conflicts intelligently. It is extremely configurable to support a wide variety of use cases. Most commonly, it is used to publish, discover, install, and develop node programs.

MVC (Model-View-Controller)

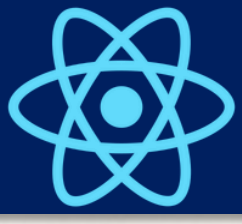


- MVC (Model-View-Controller) is a pattern in software design commonly used to implement user interfaces, data, and controlling logic. It emphasizes a separation between the software's business logic and display. This "separation of concerns" provides for a better division of labor and improved maintenance.

MVC (Model-View-Controller)

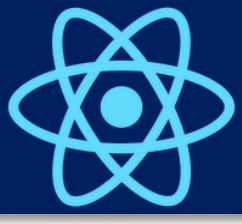


What is Gitignore?



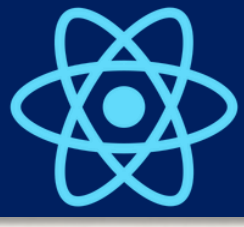
- The . gitignore file tells Git which files to ignore when committing your project to the GitHub repository. gitignore is located in the root directory of your repo. / will ignore directories with the name.
- Ignored files are usually build artifacts and machine generated files that can be derived from your repository source or should otherwise not be committed

package. json file



- The package. json file is the heart of any Node project. It records important metadata about a project which is required before publishing to NPM, and also defines functional attributes of a project that npm uses to install dependencies, run scripts, and identify the entry point to our package.

What is a package lock json file?



- In version 5, npm introduced the package-lock. ... json file is to keep track of the exact version of every package that is installed so that a product is 100% reproducible in the same way even if packages are updated by their maintainers. This solves a very specific problem that package.

That’s all for now…