

The background of the slide is a light beige color. In the top left corner, there is a corkboard with a few papers pinned to it. In the center, there is a large, stylized illustration of a laptop. The laptop screen displays a website with a blue header, a colorful bar chart with red, yellow, and green bars, and three grey rectangular boxes below the chart. Surrounding the laptop are several colorful circles containing text: a blue circle with 'www', a red circle with 'HTML5', a red circle with 'js', a grey circle with 'Cloud', an orange circle with 'XML', and a green circle with 'PHP'. To the left of the laptop, there is a red mechanical device with two gauges and a vertical pipe. The overall style is modern and tech-oriented.

ECAP472

WEB TECHNOLOGIES

Dr. Pritpal Singh

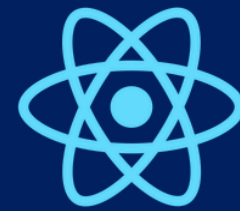
Associate Professor

Learning Outcomes



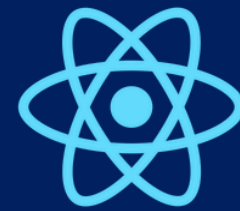
After this lecture, you will be able to

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



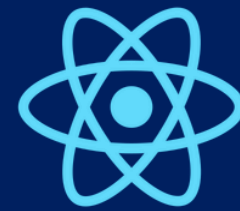
- **React** (also known as **React.js** or **ReactJS**) is a **free and open-source front-end JavaScript library** for building **user interfaces** based on UI components. It is maintained by **Meta** (formerly Facebook) and a community of individual developers and companies.

React (JavaScript library)



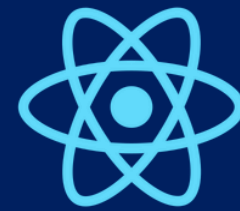
- React can be used as a base in the development of single-page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side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

Notable features

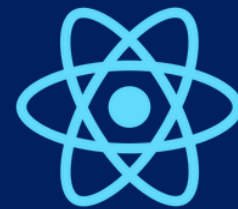


- Declarative-React adheres to the declarative programming paradigm. Developers design views for each state of an application, and React updates and renders components when data changes. This is in contrast with imperative programming

Components

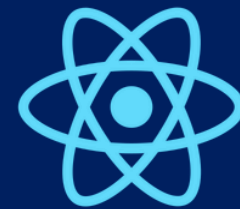


- React code is made of entities called components. These components are reusable and must be formed in the SRC folder following the Pascal Case as its naming conversion.
- Components can be rendered to a particular element in the DOM using the React DOM library



- 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



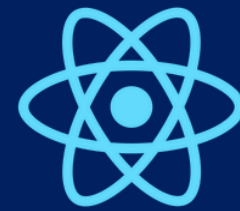
Install NodeJS and NPM.

Install Visual Studio Code.

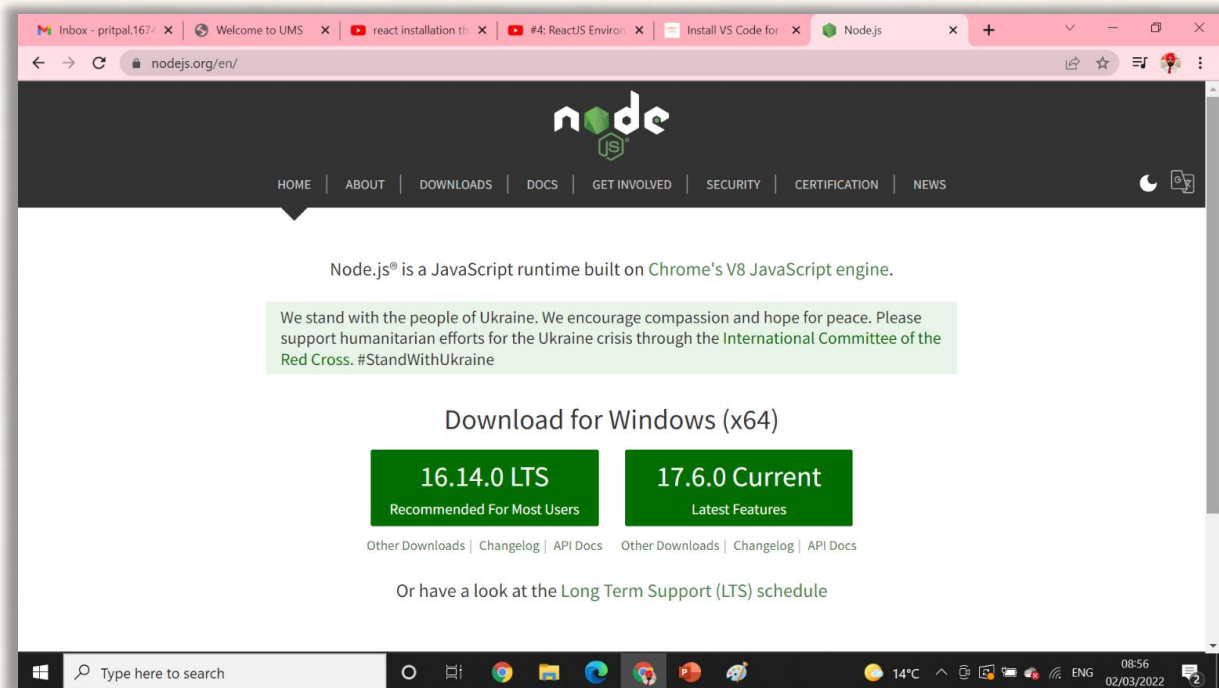
Install React from terminal .

```
npm install -g create-react-app
```

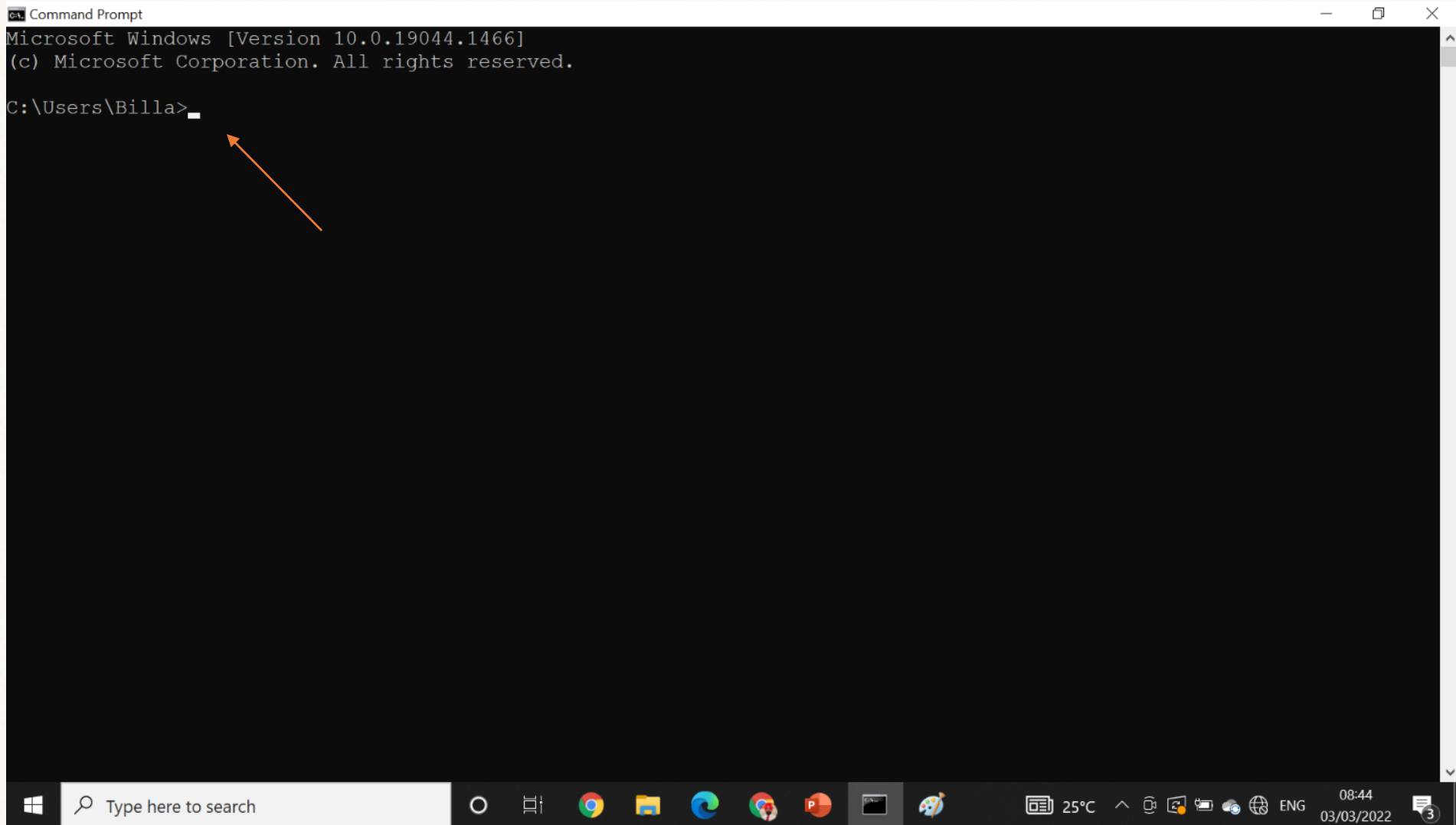
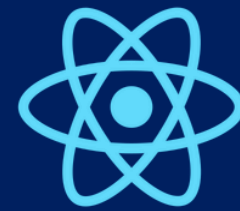

Install NodeJS and NPM.



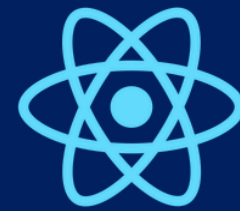
- Go to <https://nodejs.org/en/>
- Download the latest version of NodeJS LTS with Administrator privileges.



Open cmd *cmd



To check version* node -v

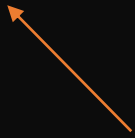


Command Prompt

Microsoft Windows [Version 10.0.19044.1466]
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```
C:\Users\Billa>node -v  
v16.14.0
```

```
C:\Users\Billa>
```



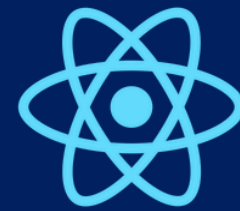
Type here to search



25°C ^ [System tray icons] ENG 08:44 03/03/2022



Npm installation* npm -v



Command Prompt

Microsoft Windows [Version 10.0.19044.1466]
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C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>npm -v
8.3.1

C:\Users\Billa>



Type here to search



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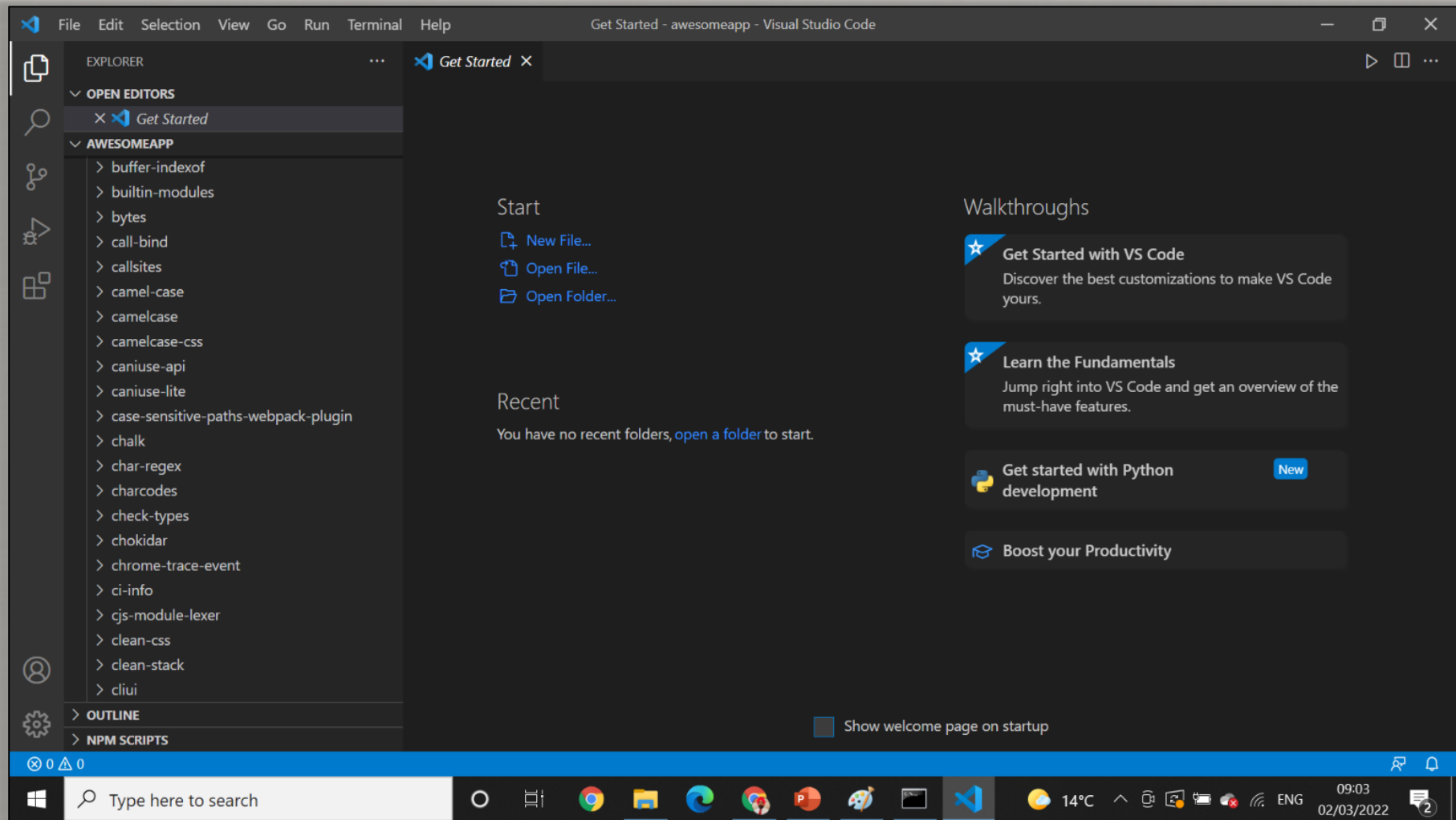
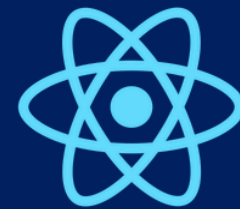


08:45

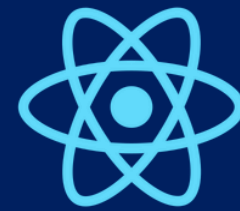
03/03/2022



Install visual studio code



Install react from terminal



npm install -g create-react-app

```
npm install create-react-app
Microsoft Windows [Version 10.0.19044.1466]
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C:\Users\Billa>node -v
v16.14.0

C:\Users\Billa>npm -v
8.3.1

C:\Users\Billa>npm install -g create-react-app
[REDACTED] \ idealTree:npm: sill idealTree buildDeps
```

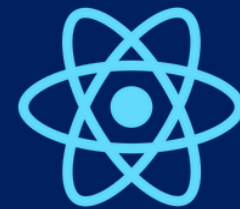


Type here to search



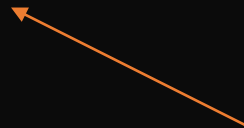
08:45

Installation



```
Microsoft Windows [Version 10.0.18362.778]
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C:\Users\Vinod Thapa>npm install -g create-react-app
[██████████.....] / extract:create-react-app: verb lock using C:\Users\V
```



React version* create-react-app --version

C:\WINDOWS\system32\cmd.exe

Microsoft Windows [Version 10.0.19044.1466]

(c) Microsoft Corporation. All rights reserved.

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

C:\Users\Billa>



Type here to search



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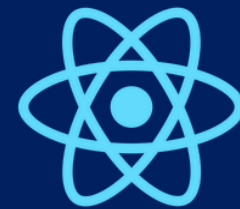
ENG

08:46

03/03/2022



Creating directory* mkdir



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1466]
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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_
```

An orange arrow points to the end of the command 'mkdir reacttut_' in the terminal window.

Change working 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> _
```

An orange arrow points from the right side of the terminal window towards the prompt character at the end of the last command line.

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

C:\WINDOWS\system32\cmd.exe

Microsoft Windows [Version 10.0.19044.1466]

(c) Microsoft Corporation. All rights reserved.

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

C:\Users\Billa>cd reacttut

C:\Users\Billa\reacttut>create-react-app-awesomeapp



Type here to search



25°C



ENG

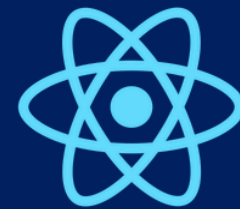
08:47

03/03/2022



3

Installation going on



```
npm
D:\reacttut>create-react-app awesomeapp

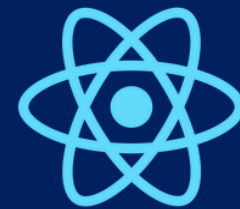
Creating a new React app in D:\reacttut\awesomeapp.

Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...

[█.....] | fetchMetadata: sill resolveWithNewModule @bat
```



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

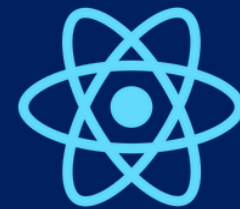
C:\Users\Billa\reacttut> cd awesomeapp

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

An orange arrow points from the bottom right towards the command prompt line 'C:\Users\Billa\reacttut\awesomeapp>'.

The image shows a Windows command prompt window with a dark background. The title bar reads 'C:\WINDOWS\system32\cmd.exe'. The window contains the following text: 'Microsoft Windows [Version 10.0.19044.1466] (c) Microsoft Corporation. All rights reserved.', 'C:\Users\Billa>node -v' followed by 'v16.14.0', 'C:\Users\Billa>npm -v' followed by '8.3.1', 'C:\Users\Billa>create -react -app -version' followed by an error message, 'C:\Users\Billa>create-react-app --version' followed by '5.0.0', 'C:\Users\Billa>cd reacttut', 'C:\Users\Billa\reacttut> cd awesomeapp', and 'C:\Users\Billa\reacttut\awesomeapp>'. An orange arrow points to the prompt 'C:\Users\Billa\reacttut\awesomeapp>'. The Windows taskbar is visible at the bottom with the search bar and various icons.

Npm start* npm start



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

C:\Users\Billa>cd reacttut

C:\Users\Billa\reacttut>cd awesomeapp

C:\Users\Billa\reacttut\awesomeapp>npm start

> awesomeapp@0.1.0 start
> react-scripts start
✓ Something is already running on port 3000.

Would you like to run the app on another port instead? ... yes
(node:18616) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:18616) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...
Compiled successfully!

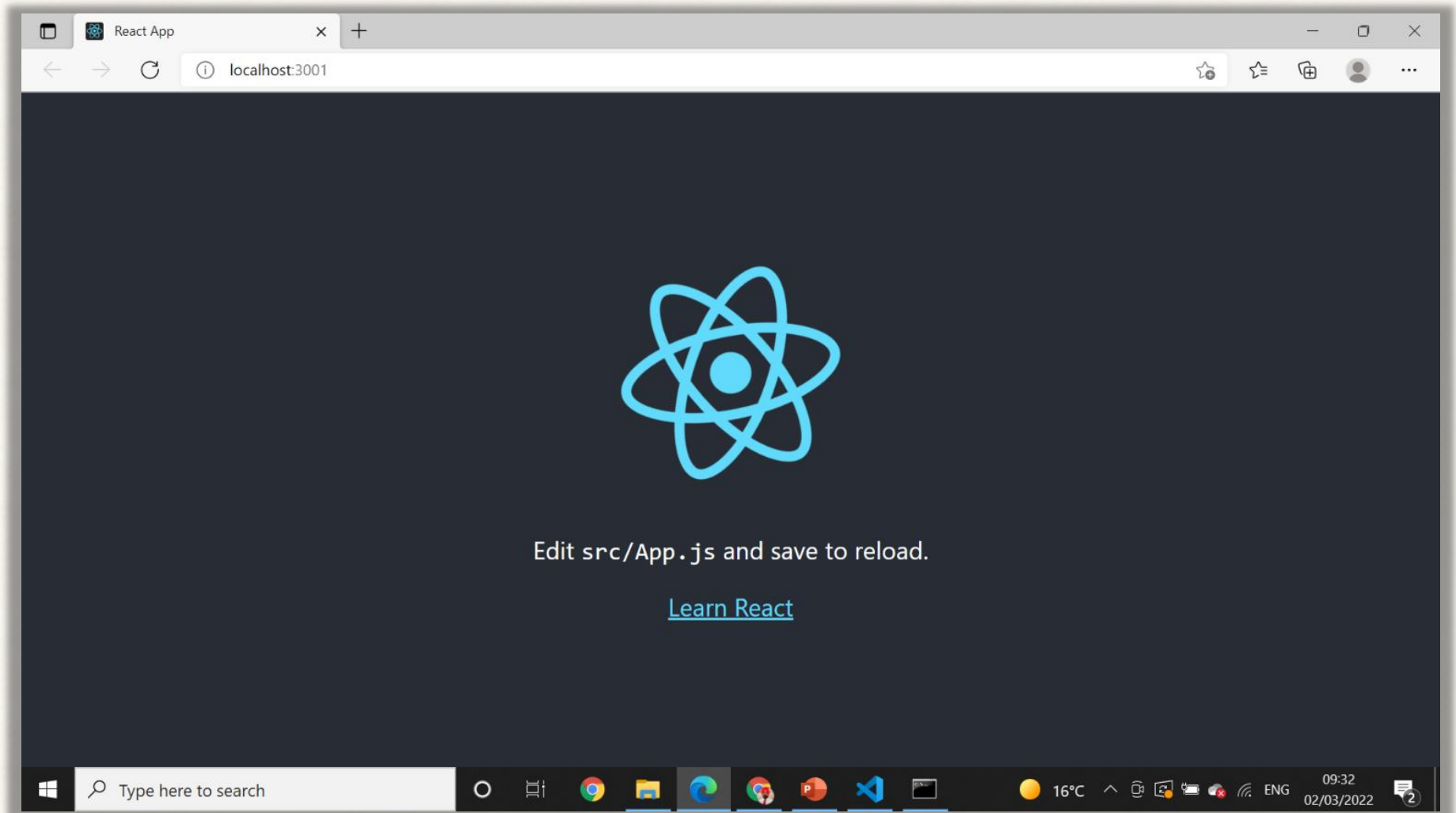
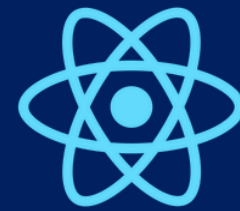
You can now view awesomeapp in the browser.

  Local:            http://localhost:3001
  On Your Network:  http://192.168.56.1:3001

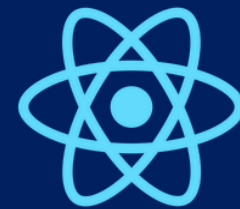
Note that the development build is not optimized.
To create a production build, use npm run build.

assets by path static/ 1.49 MiB
  asset static/js/bundle.js 1.48 MiB [emitted] (name: main) 1 related asset
  asset static/js/node_modules_web-vitals_dist_web-vitals_js.chunk.js 6.93 KiB [emitted] 1 related asset
  asset static/media/logo.6ce24c58023cc2f8fd88fe9d219db6c6.svg 2.57 KiB [emitted] (auxiliary name: main)
asset index.html 1.67 KiB [emitted]
asset asset-manifest.json 546 bytes [emitted]
cached modules 1.36 MiB [cached] 106 modules
runtime modules 31.3 KiB 15 modules
./node_modules/webpack-dev-server/client/index.js?protocol=ws%3A&hostname=0.0.0.0&port=3001&pathname=%2Fws&logging=none&reconnect=10 6.59 KiB [built] [code generated]
webpack 5.69.1 compiled successfully in 1980 ms
```


Local host

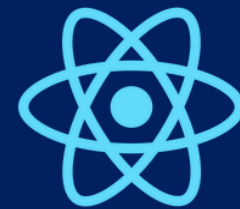


What is npm for?



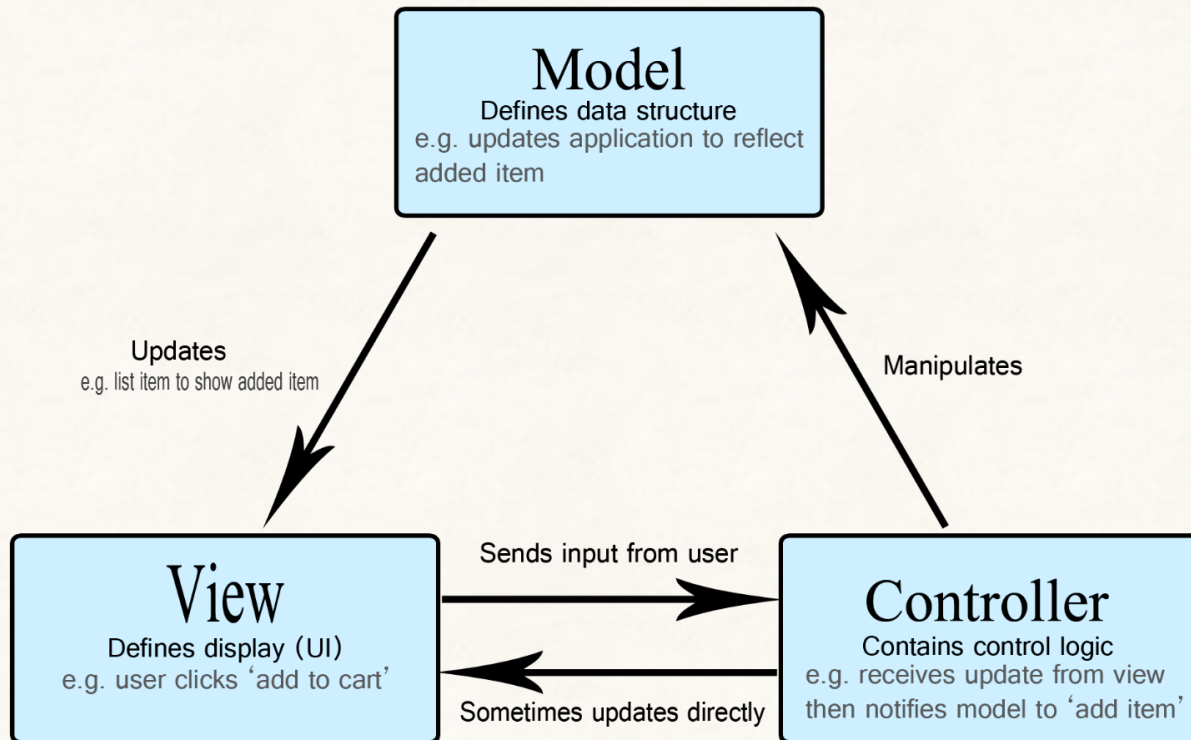
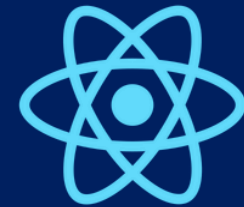
npm is the package manager for the Node JavaScript platform. It puts modules in place so that node can find them, and manages dependency conflicts intelligently. It is extremely configurable to support a wide variety of use cases. Most commonly, it is used to publish, discover, install, and develop node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

MVC (Model-View-Controller)

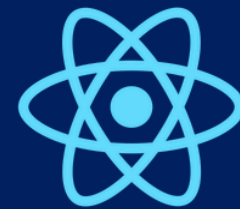


- MVC (Model-View-Controller) is a pattern in software design commonly used to implement user interfaces, data, and controlling logic. It emphasizes a separation between the software's business logic and display. This "separation of concerns" provides for a better division of labor and improved maintenance.

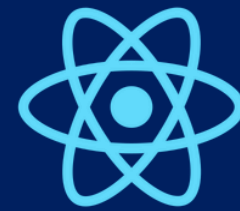
MVC (Model-View-Controller)



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



- 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...