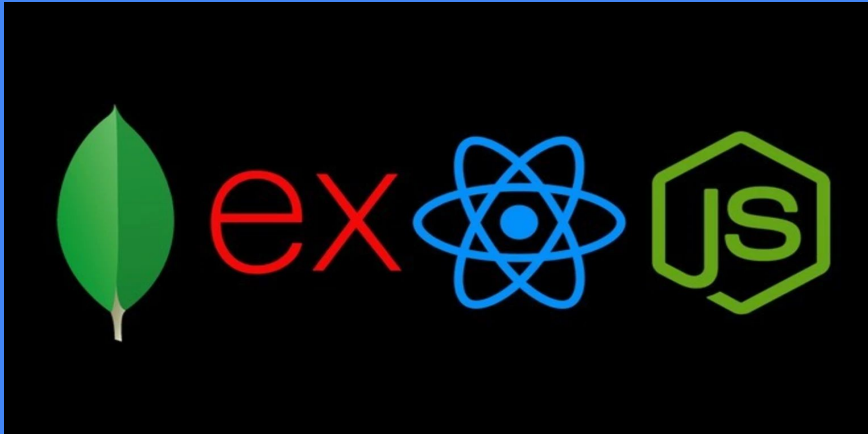


# DASS Tutorial-1

11th Jan 2021



# Topics

- What is MERN stack ?
- System Overview
- **How to start Assignment ??**
- Express Backend Explanation with Code
- React Basics Explanation
- React Frontend Explanation with Code
- Doubts in Assignment
- Project Discussions

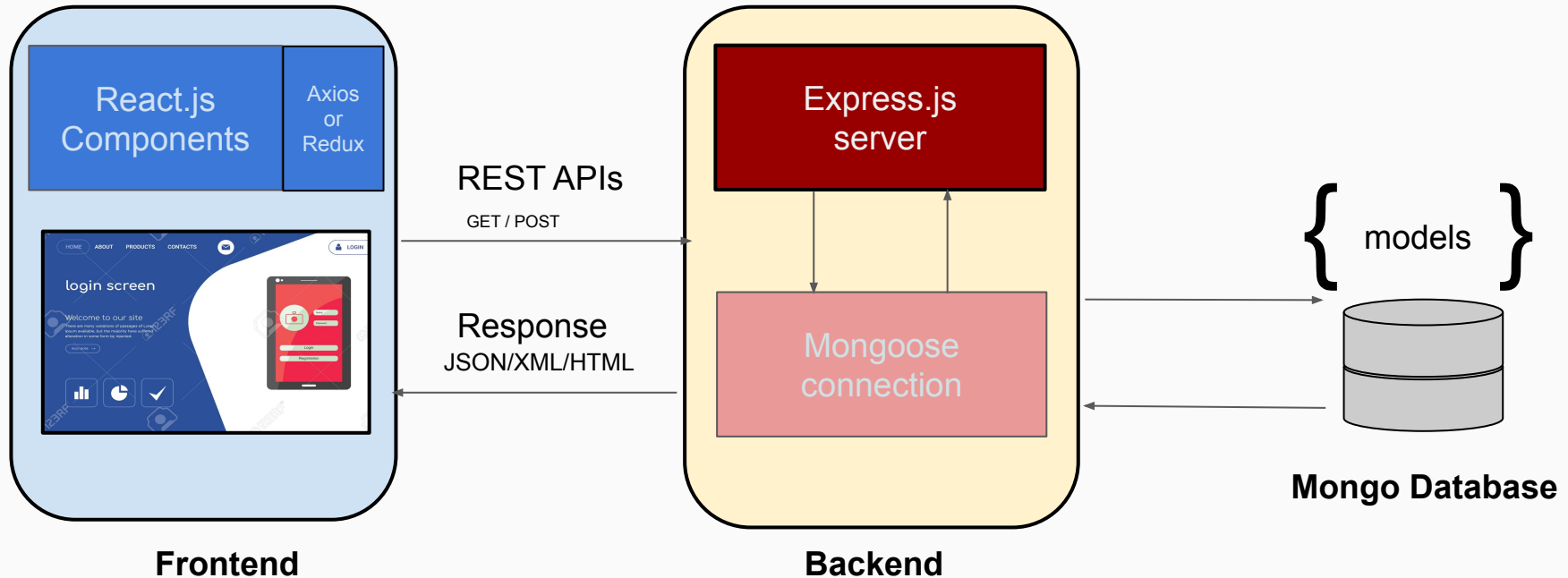
# What is MERN stack ?

MERN stack is a web development framework. It consists of MongoDB, ExpressJS, ReactJS, and NodeJS as its working components. Here are the details of what each of these components is used for in developing a web application when using MERN stack:

- **MongoDB:** A document-oriented, NoSQL database used to store the application data.
- **NodeJS:** The JavaScript runtime environment. It is used to run JavaScript on a machine rather than in a browser
- **ExpressJS:** A framework layered on top of NodeJS, used to build the backend of a site using NodeJS functions and structures. Since NodeJS was not developed to make websites but rather run JavaScript on a machine, ExpressJS was developed.
- **ReactJS:** A library created by Facebook. It is used to build UI components that create the user interface of the single page web application.

# System Overview

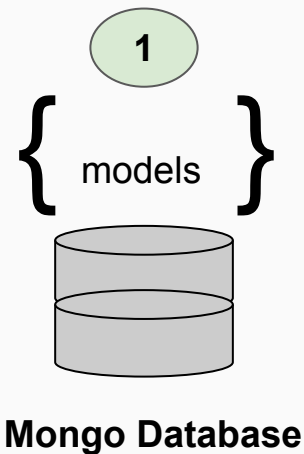
- MVC pattern.
- Helps in separation of concerns.



# How to start assignment ?

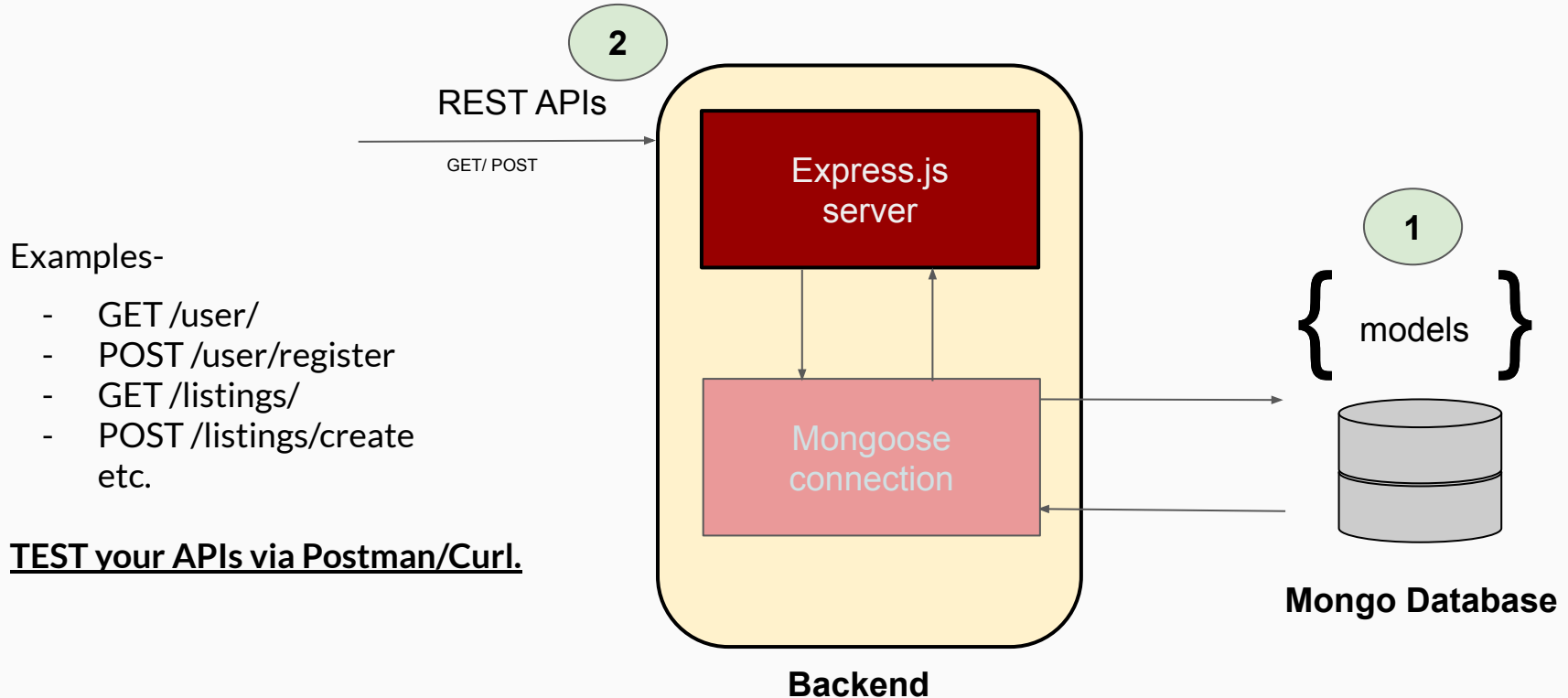
- Design the models and their schemas.

What tables do you need ? Users/Job Listings etc.



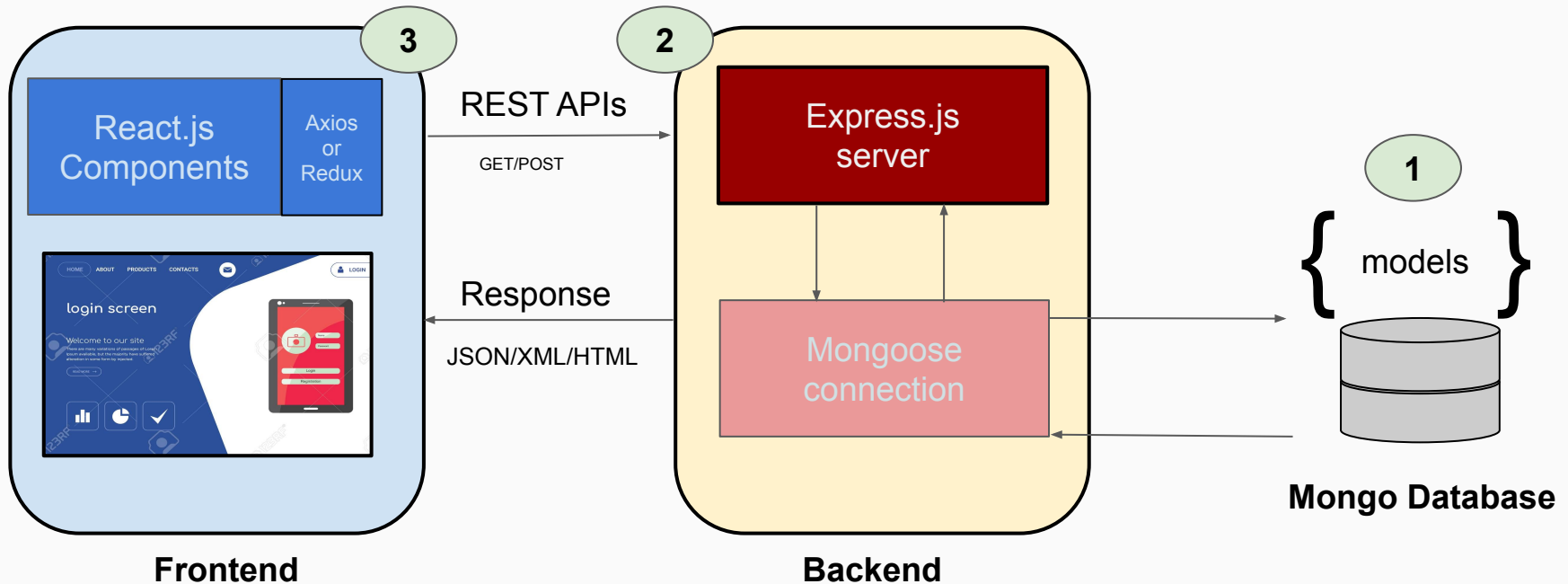
# How to start assignment ?

- What all API endpoints do you need? Code them in the server.



# How to start assignment ?

- Decide the UI screens, explore frontend libraries, use anyone, join to the endpoints in backend. Make sure you handle all exceptions.



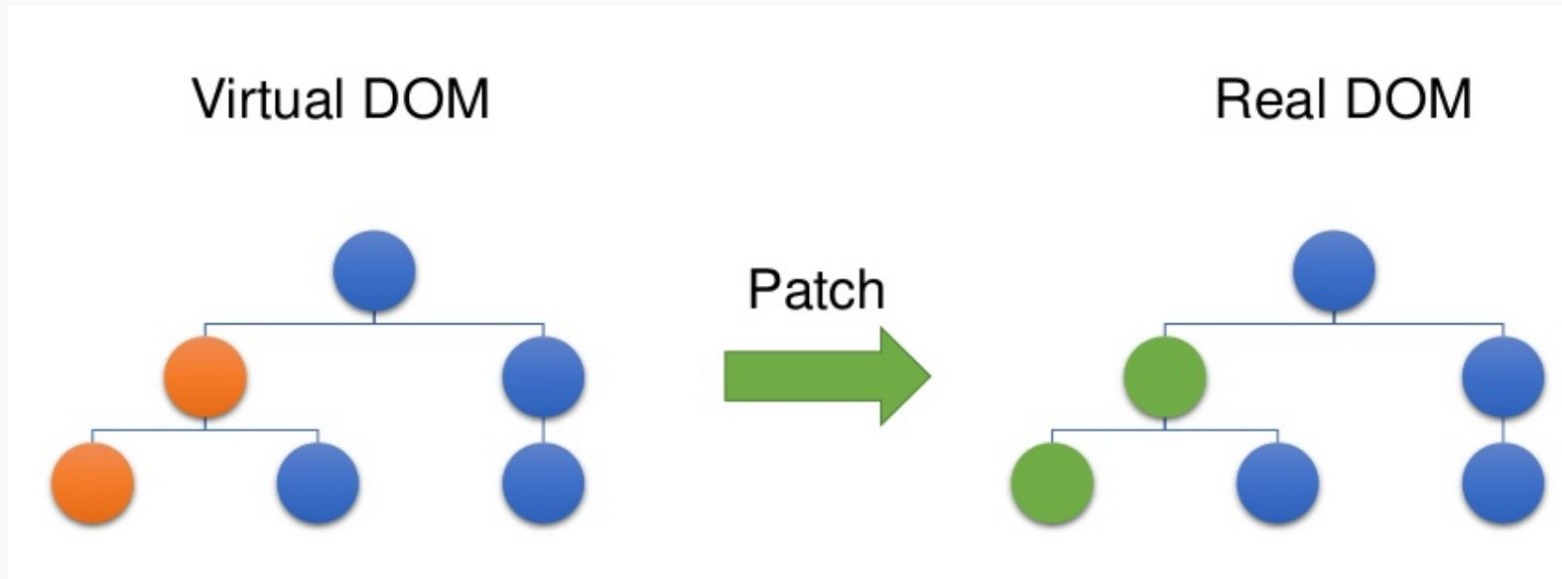
Express Backend  
Explanation with code





# React.js characteristics - DOM (1)

- Virtual DOM: makes it faster, just updates the corresponding sections.



Cred: [here](#)

## React.js characteristics - JSX (2)

- Like the HTML tags, but in Virtual DOM, with ability to pass props.

```
<MyComponent data={data}/>
```

props

```
<MyComponent data={data}></MyComponent>
```

# React.js characteristics - Components (3)

## Stateless/ Functional Components

No “state” associated, use “Hooks” instead.

Pass data only via props.

Life cycles: Can use **useEffect** for simulating one.  
Refer [here](#).

## State-full/ Class-based Components

Has a state associated, initialized in constructor.

Pass data via state or props.

Life cycles: The order in which methods are called (apart from **render**)-

- Mounting: **constructor**,  
**componentDidMount**
- Update: **componentDidUpdate**
- Death: **componentWillUnmount**

## Stateless/ Functional Components

```
import React, { useState } from 'react';

function sampleFunction(props) {
  const [value, setValue] = useState('A');
  // to update, use setValue('B')
  return (
    <div>
      Hi! I am a sampleFunction
    </div>
  );
}

export default sampleFunction
```

## State-full/ Class-based Components

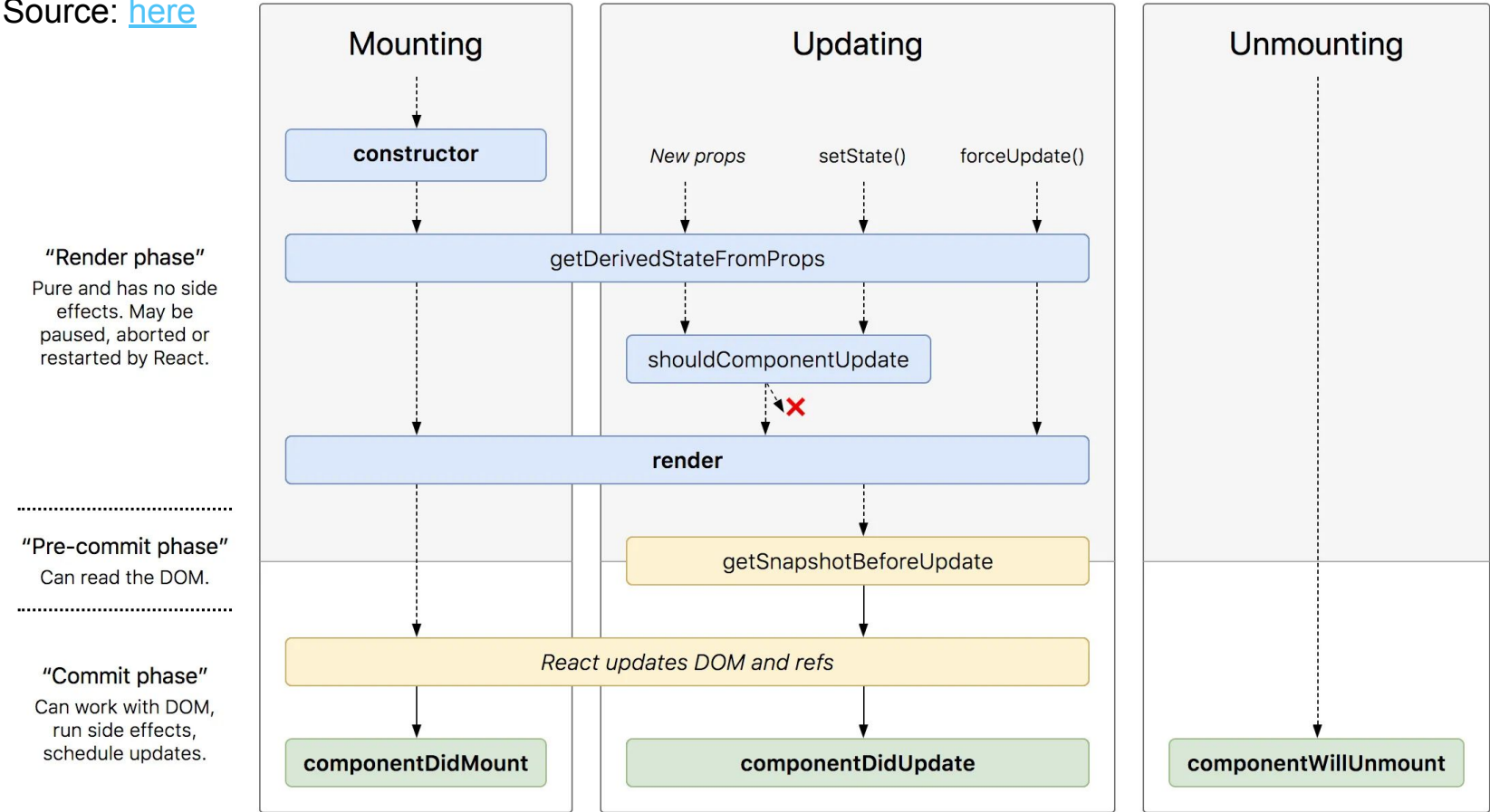
```
import React, {Component} from 'react';

class sampleClass extends Component {
  constructor(props) {
    super(props);
    this.state = {
      value: 'A'
    }
  }
  // to update, use this.setState({value:'B'})
  render() {
    return (
      <div>
        Hi! I am a sampleClass
      </div>
    )
  }
}

export default sampleClass
```

# Class-based Components

Source: [here](#)



## Code Explanation

```
state={
  products: storeProducts
}
render() {
  return (
    <React.Fragment>
      <div className="py-5">
```

- Components
  - [React bootstrap](#)
  - [Evergreen](#)
  - [MaterialUI](#)
  - [React-forms](#) (forms)
  - [Styled-Components](#) (styling)
- Actions
  - Axios
  - Redux - to manage state

# References

## Patterns:

- <https://blog.ircmaxell.com/2014/11/alternatives-to-mvc.html>

## MongoDB:

- <https://mongoosejs.com/docs/schematypes.html>

## React:

- <https://reactjs.org/docs/react-component.html>
- <https://www.slideshare.net/Simplilearn/reactjs-basics-what-is-reactjs-learn-reactjs-reactjs-tutorial-for-beginners-simplilearn>
- [https://en.wikipedia.org/wiki/React\\_\(web\\_framework\)](https://en.wikipedia.org/wiki/React_(web_framework))

Any Doubts in Assignment ?



Thank You !