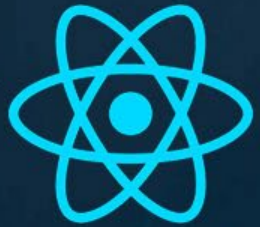


React Hands On Workshop

by Vijay Shivakumar

Welcome to the React workshop

Vijay shivakumar

DOTJS.in

What do we need before we begin... ?

Technical Skill : HTML5, CSS3, JavaScript 1.8.5

Hardware and software:

IDE : visual studio code

Browsers : chrome latest

Platform : nodejs latest (npx comes with npm 5.2 or higher)

Database : mongodb or a cloud account to access mongodb

Version Control : git

Network : internet access to download from git and npmjs.org

Who is using React

Facebook
Instagram
Discord
Airbnb
Bloomberg
Uber Eats
Skype
Pinterest etc.,

Objectives

Understand and explore ES6 / ES7
Write Programs using Pure React
Understand JSX usage
Develop programs using React platform
Workflow with Context API
Workflow with Redux
Usage of middleware Thunk and an introduction to Saga
Unit testing with Jest and React Testing Library

What are we learning in this course ?

- ES6+
- Functional programming
- Arrow functions
- Immutable objects
- Template strings
- Destructuring
- Array Methods
- Scope Management
- History API
- CSS / SASS

- What is React ?
- Tooling and setup for React-CLI
- React Components
- Understanding JSX
- Data binding
- Class and Style binding
- State
- Props and PropTypes
- Conditional Rendering
- Working with Forms
- Events

- Context API
- Lifecycle Methods
- Working with HTTP
- Provider API
- Redux
- React Routing
- Lists and Keys
- Fragments
- Firebase / MongoDB

Your Instructor / About Me

Vijay Shivakumar

Designer | Developer | Trainer

Adobe Certified Expert

Training & Consultation of
Contemporary Web Technologies and Adobe products from past 19 years

Audience / About you

Developer
Designer
Manager
Architect
Technology Enthusiast

Prerequisites / Before we begin

- HTML 5
- CSS3
- ES6
- NodeJS
  - TypeScript
  - WebPack
  - Express
  - Babel
- TDD
- MongoDB

Must Know / Before we begin

HTML 5
CSS3

I assume you know

ES6

- block scope
- de structuring
- arrow function
- default parameters
- spread operator
- array methods
- template strings
- classes
- modules
- interfaces

About React / Why do we need react ?

Client Side Programming LIBRARY

Created and maintained by Facebook developers

Used to build dynamic user interfaces (Frontend)

Everything is a component

Often referred as V in the MVC

What makes React great / Principles of React

DOM Manipulation only with React

Components architecture / Composability

One way data flow (Unidirectional Data Flow)

A solid UI library

Why React / Advantages of React

Component architecture

Easy to scale existing applications one component at a time

Partial refresh of UI Virtual DOM

Fast Only renders the area that is modified avoiding page refresh

Leverage on ES6 and later

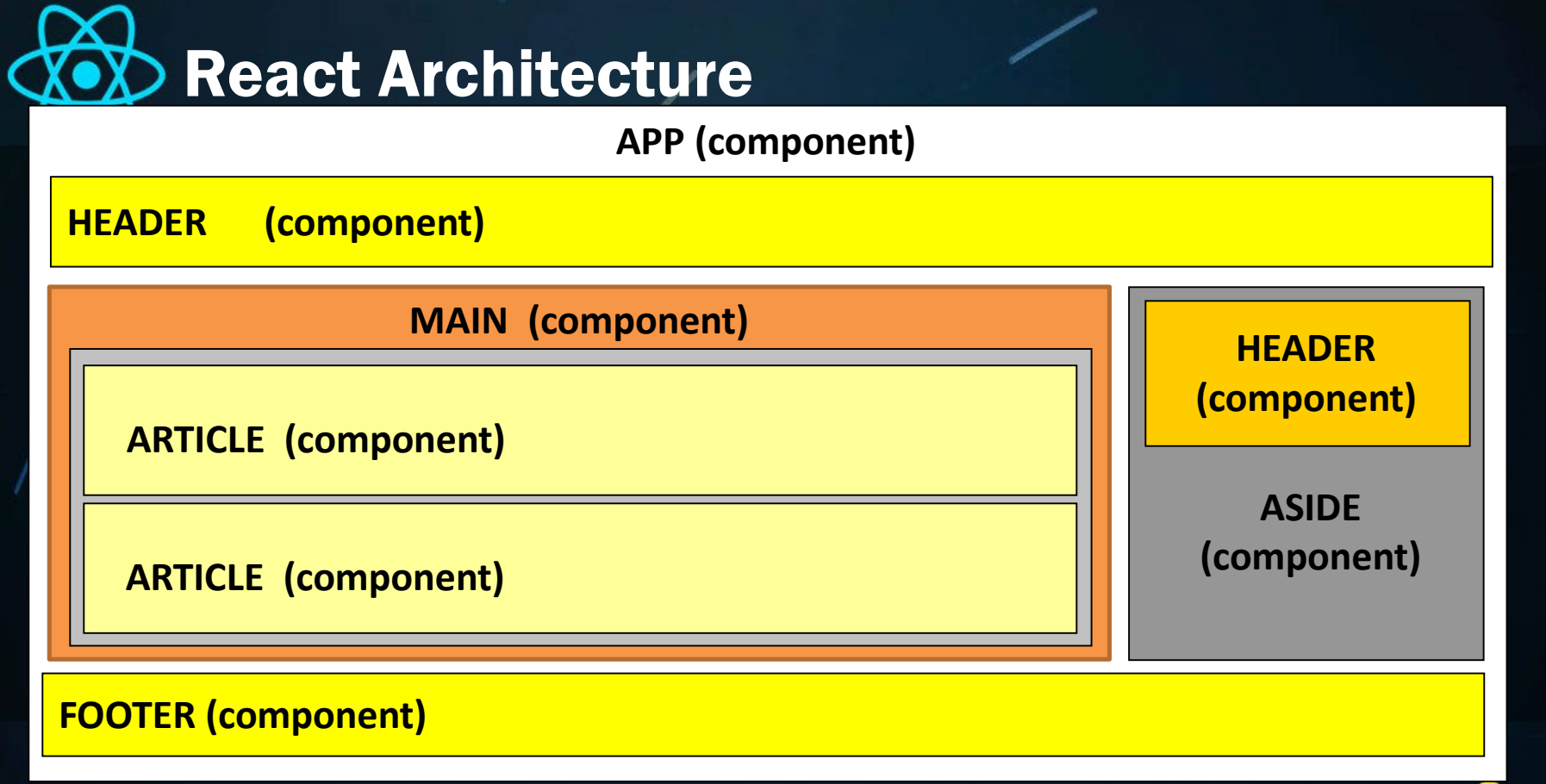
Client get a faster response from application and they are happy

Existing knowledge of JavaScript can be used to scale with react

Benefits / Key take away from this course

- Components
  - Just like functions
  - Reusable and composable
  - Can manage a private state
- Reactive updates
  - Updates with user interaction
  - Take updates to the browser
- Virtual view in memory
  - write HTML in JavaScript
  - Tree reconciliation

React Architecture



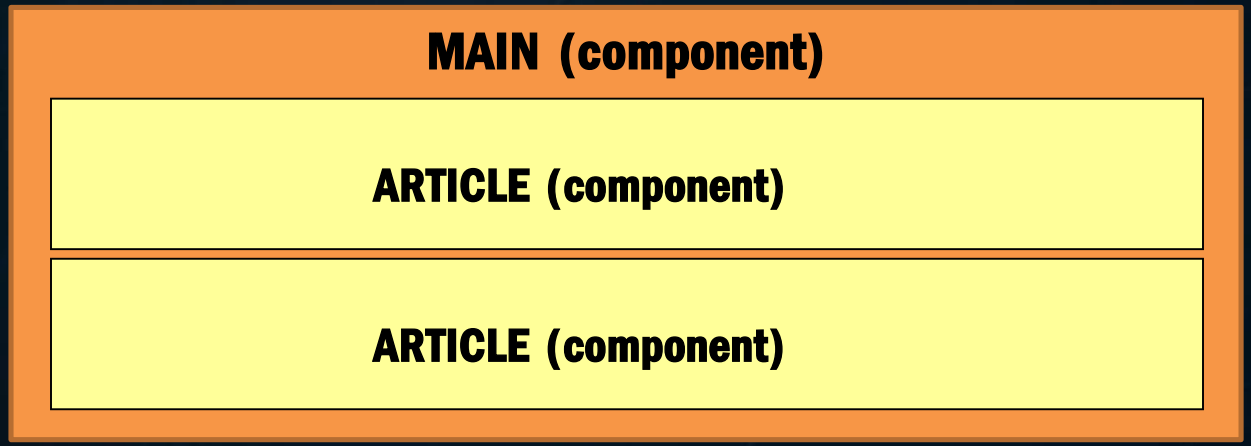
JSX / Rules

1. JSX must return a single root element or a component
2. Self closing tags needs to be closed eg
 <hr/> <img/>
3. if you need to return multiple element and don't want to wrap them in a div use React.Fragment or <>;
4. intropolation using { 2 + 3 }
5. use className instead of class attribute
6. htmlFor instead of for attribute on lable html elements
7. use defaultValue instead of value on input element to create uncontrolled inputs
8. use camel cased so refer type for events for eg, onClick, onMouseOver
9. while using inline style use a config object
10. style properties should be camel cased
11. elements name begin with lowercase like h1, div, img, input, button etc
12. jsx classes, function names must begin with uppercase characters like Panel, UserForm, Datagrid etc

Components

Components / Building blocks of an application

Composition



Component / Types

Function components are stateless hence less dynamic

Class components are stateful and are dynamic

Components have a lifecycle of their own

- mounting
- updating
- unmounting

Components have

- their own states and
- can inherit properties from parent reffered as props

Redux

Vijay shivakumar

What is Redux ?

Manages Data Store that can be accessed across you app

Redux makes state management more predictable by having a single source or truth

We can set strict rules for how the state can be updated

What is Redux ?

A store — an immutable object that holds the applications state data

A reducer — a function that returns state data, triggered by an action type

An action — an object that tells the reducer how to change the state. It must contain a type property, and it can contain an optional payload property

Three Principles of Redux

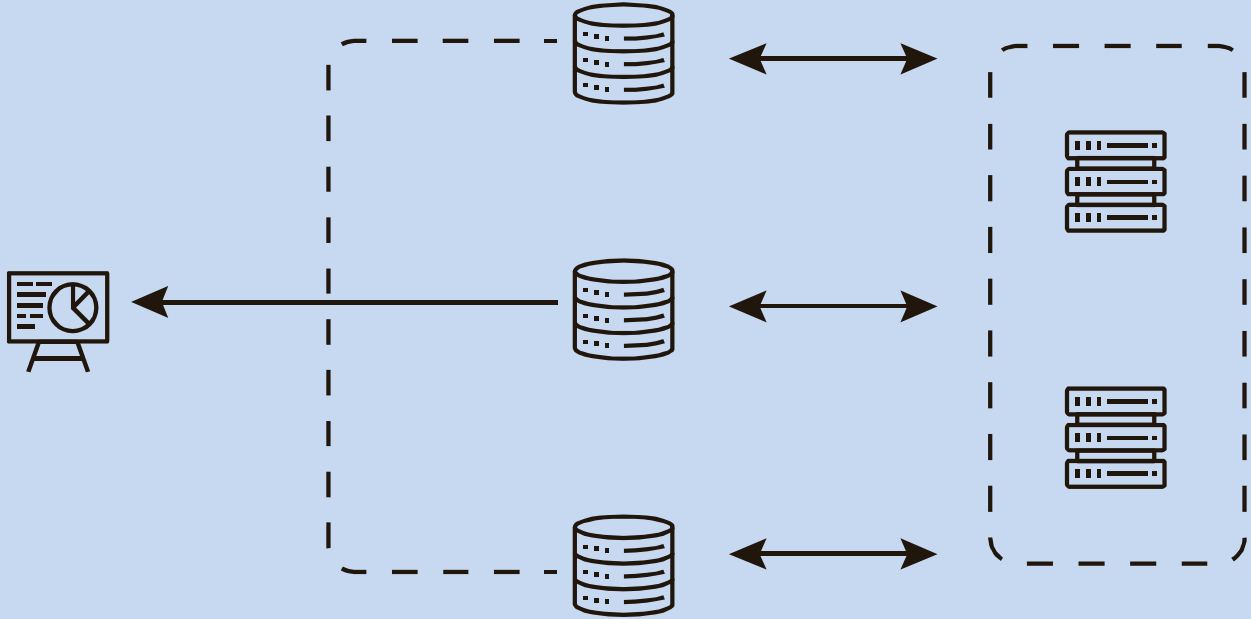
Application's state is stored in a single object tree which is managed by redux store.

Only way to change the state is via a reducer function which knows what type of action happened.

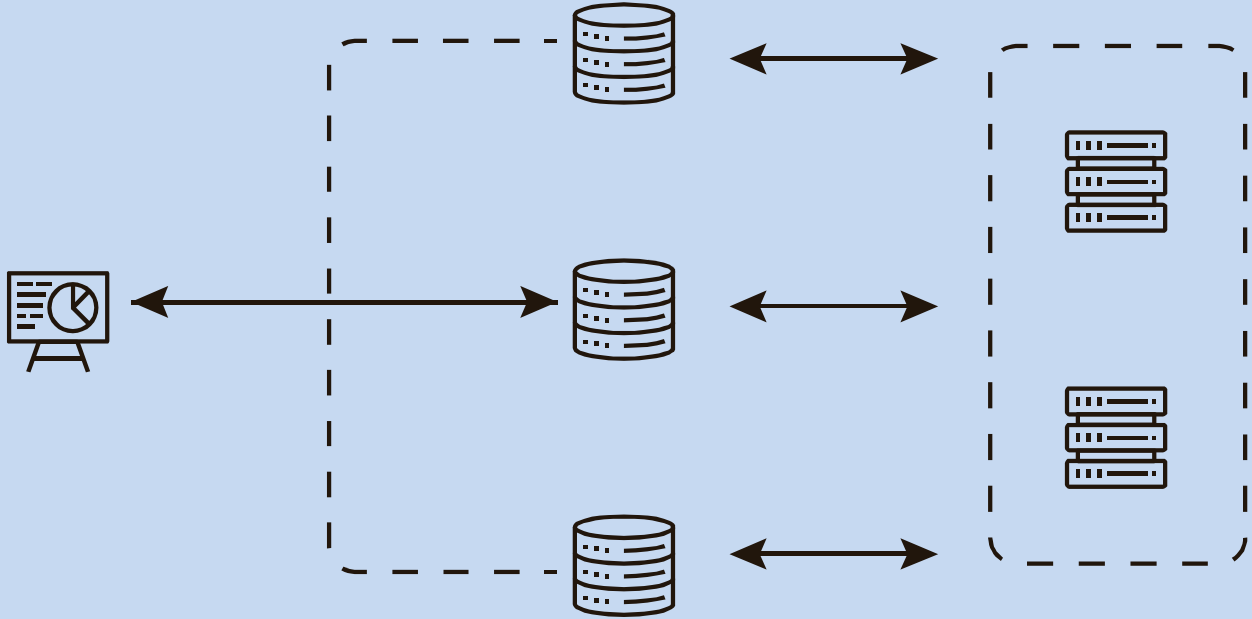
(should not update the state by any other means)

How the state tree is transformed by action that are directed by reducer function

Why Redux ?



Why Redux ?



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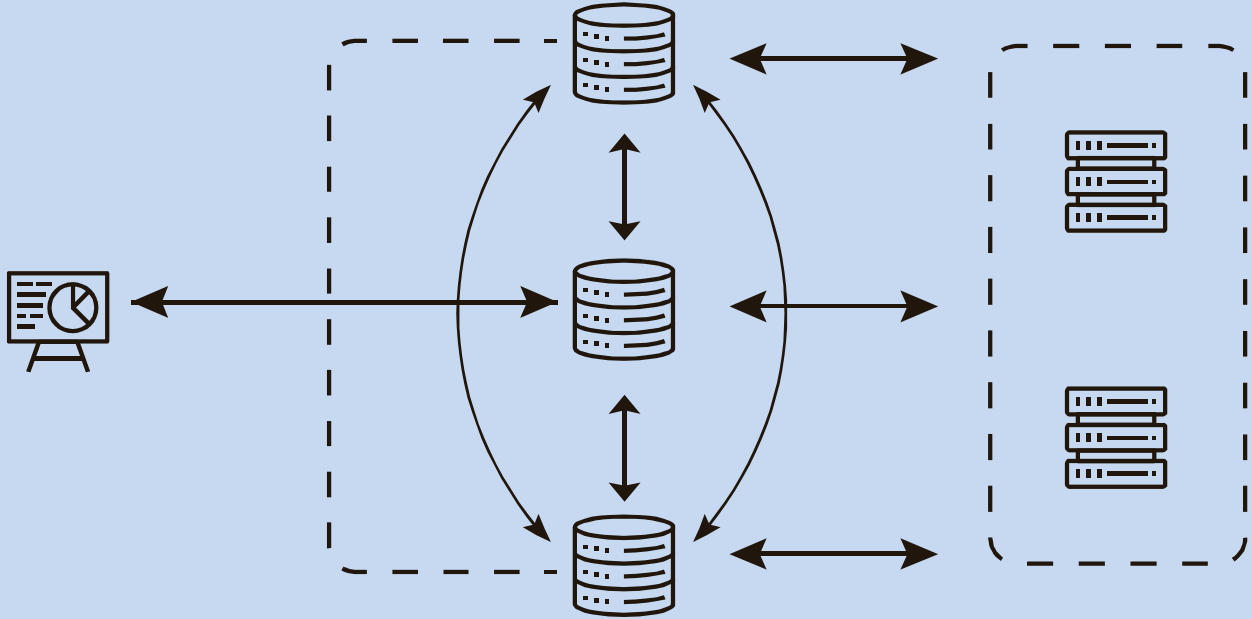

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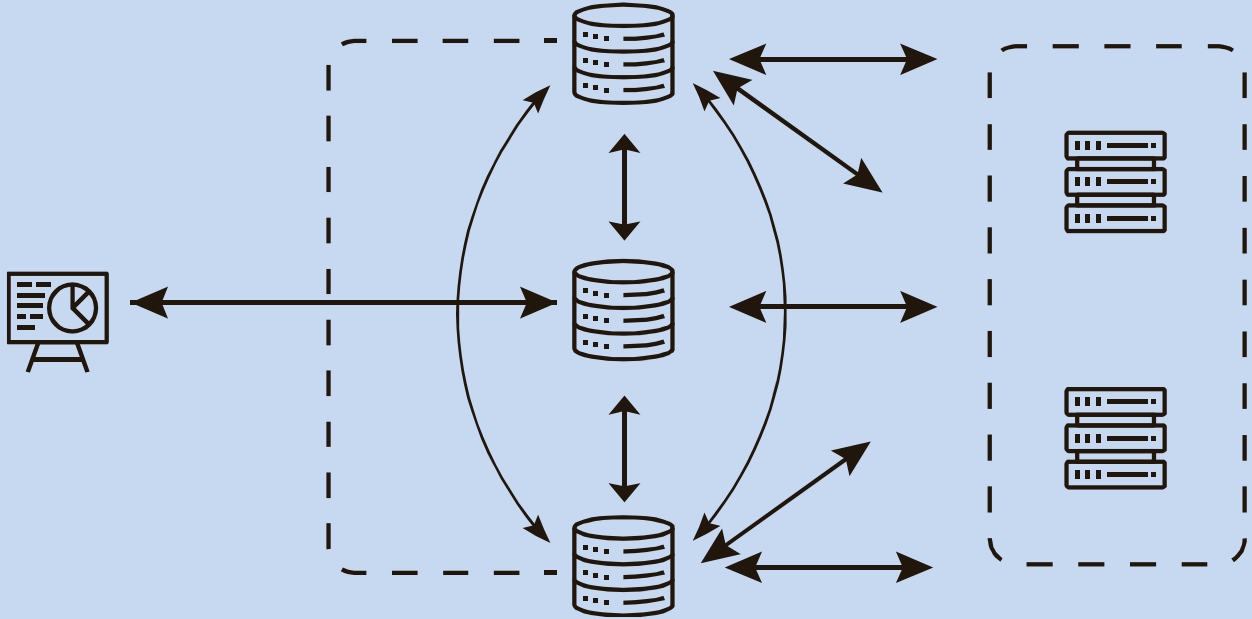
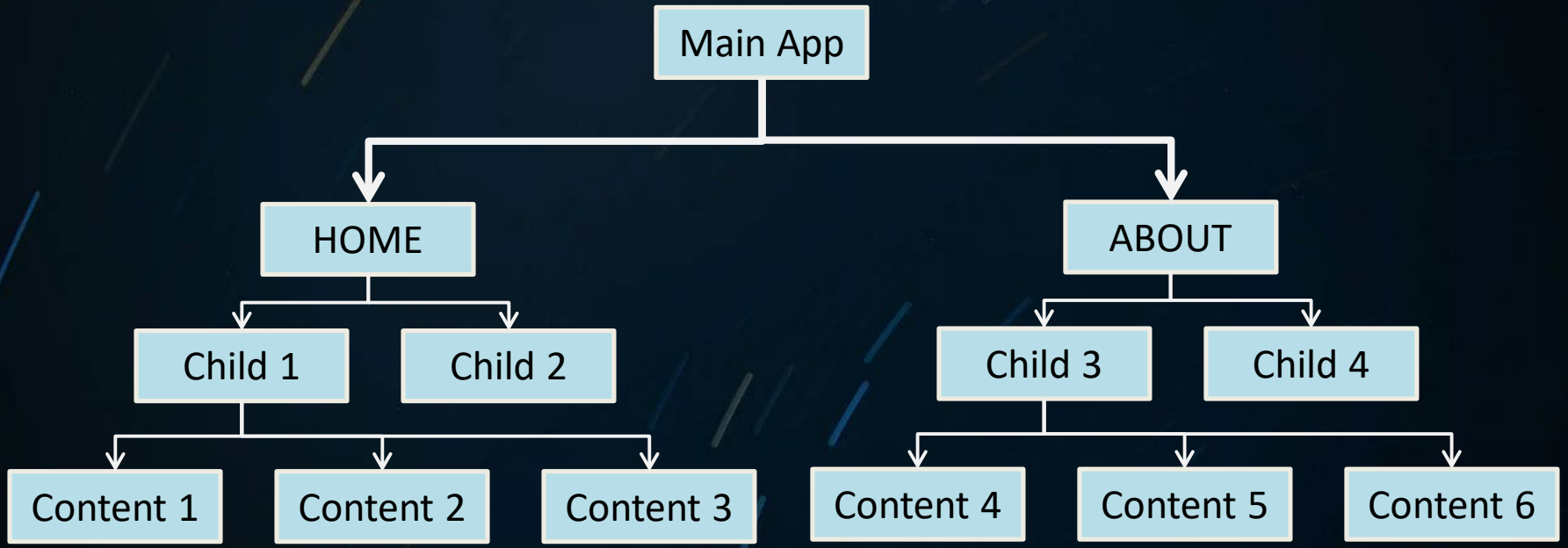


Data flow issues



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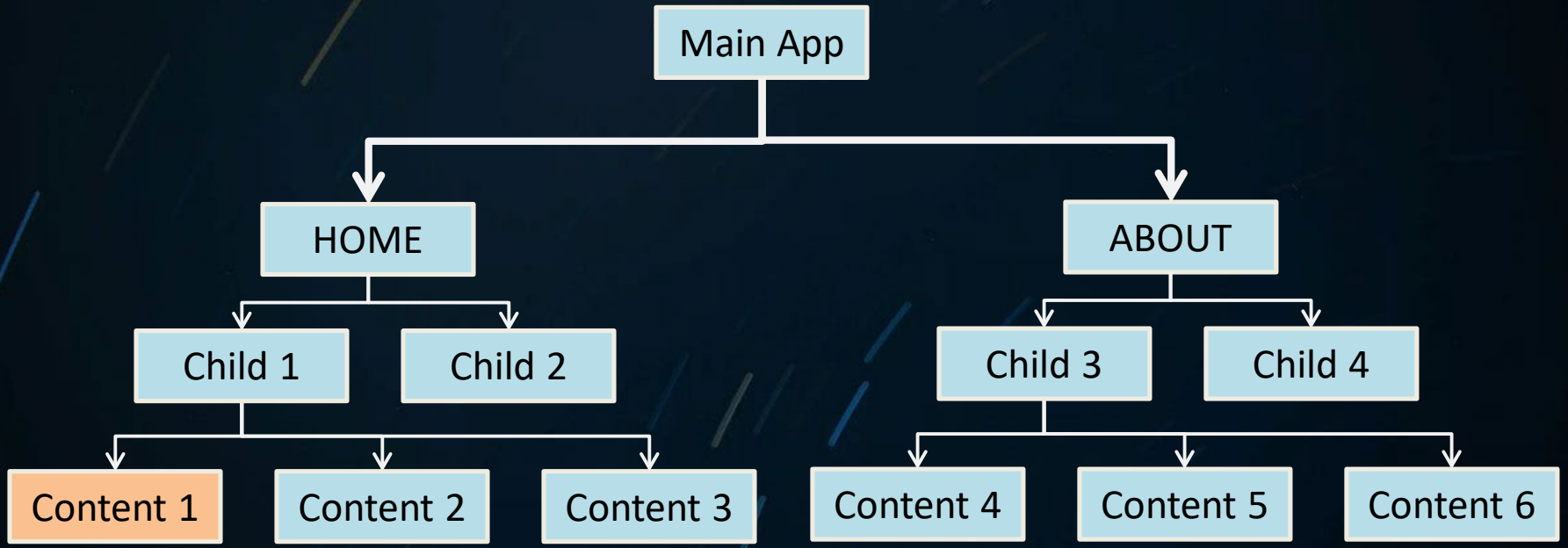

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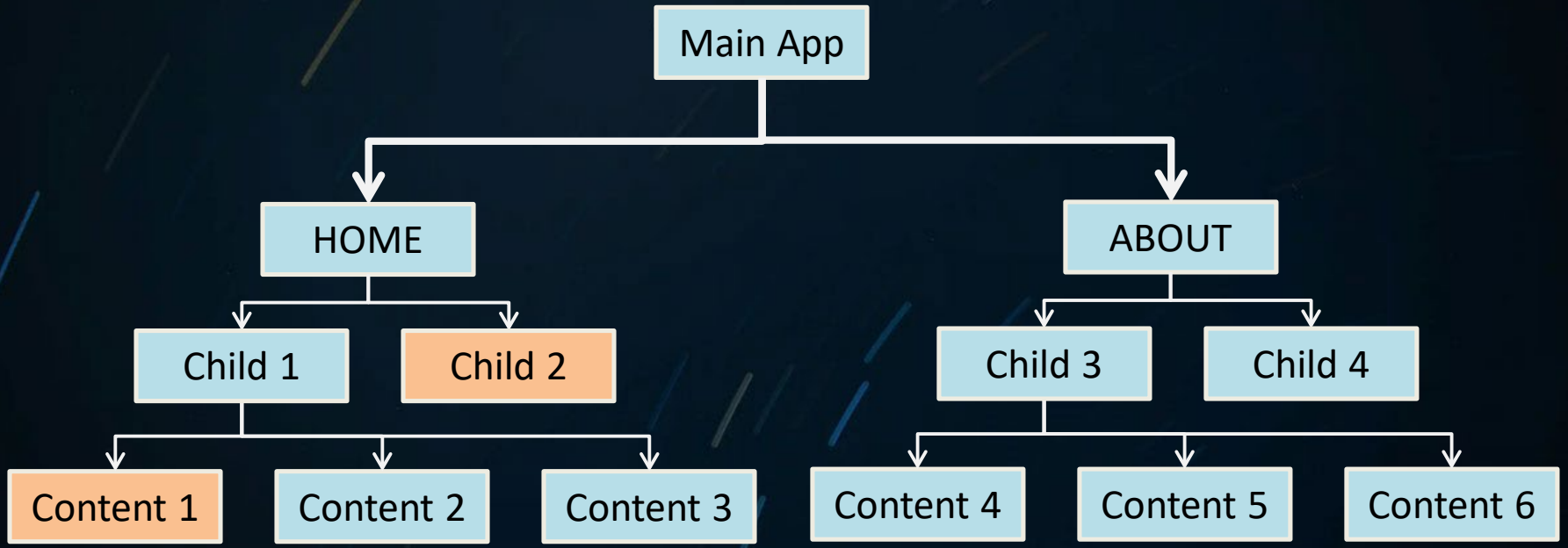

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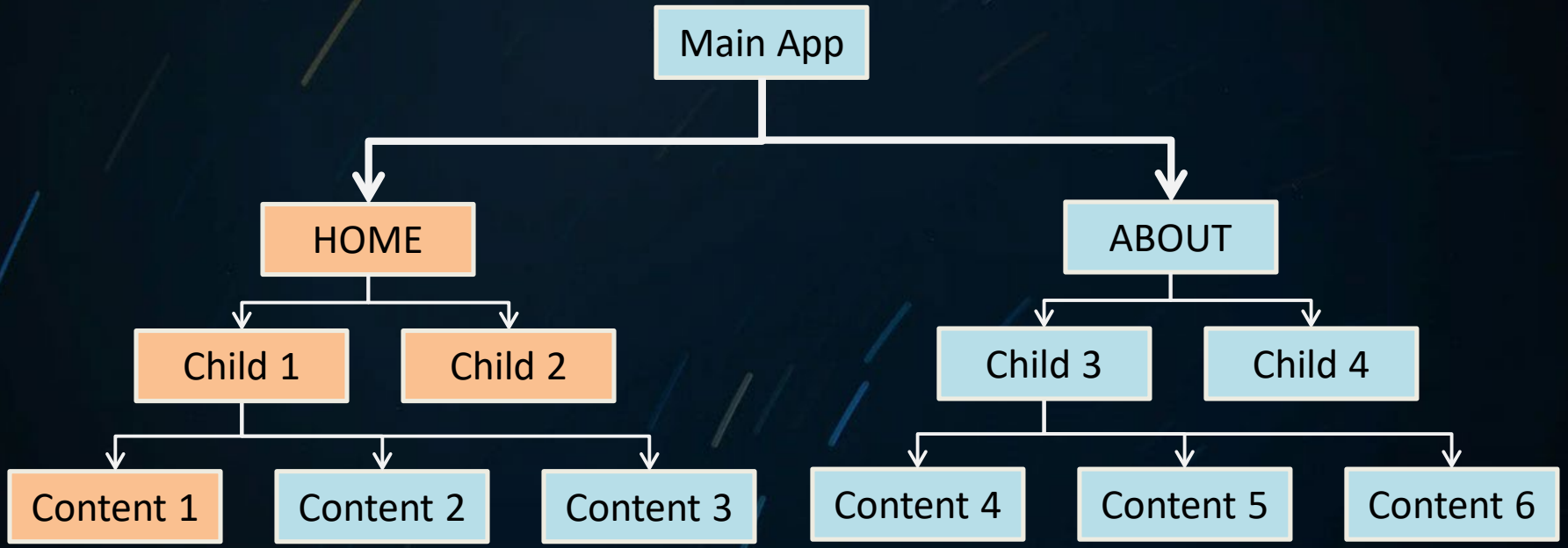

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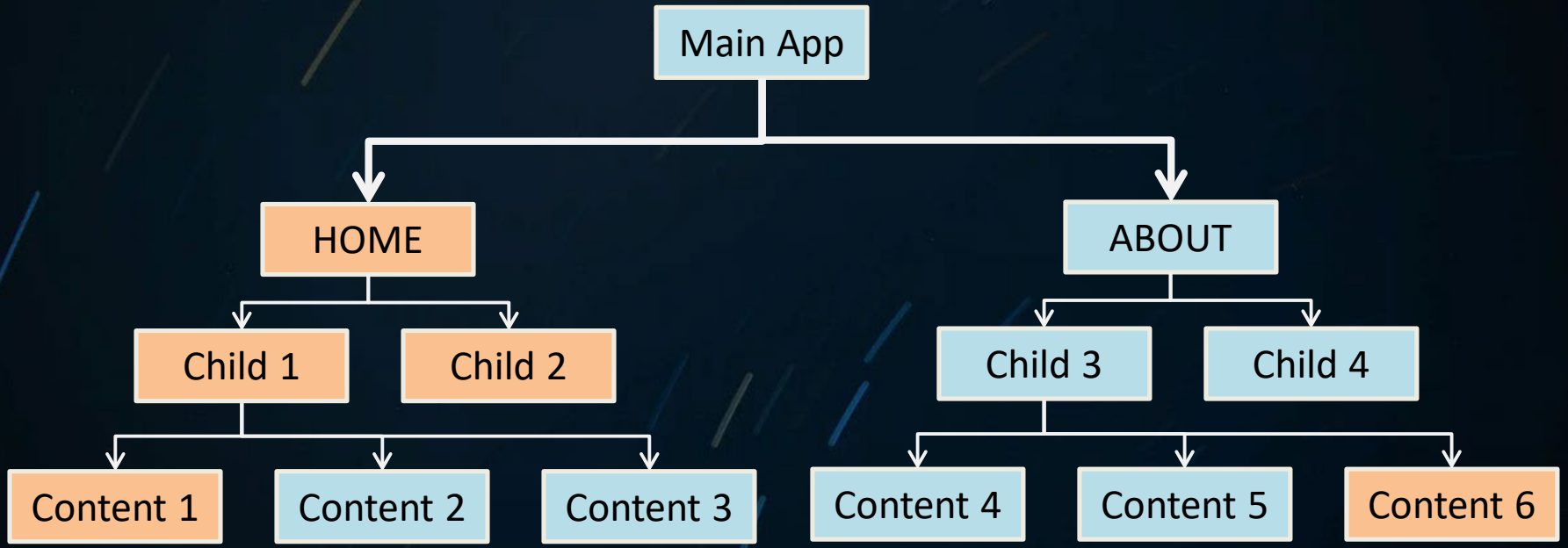

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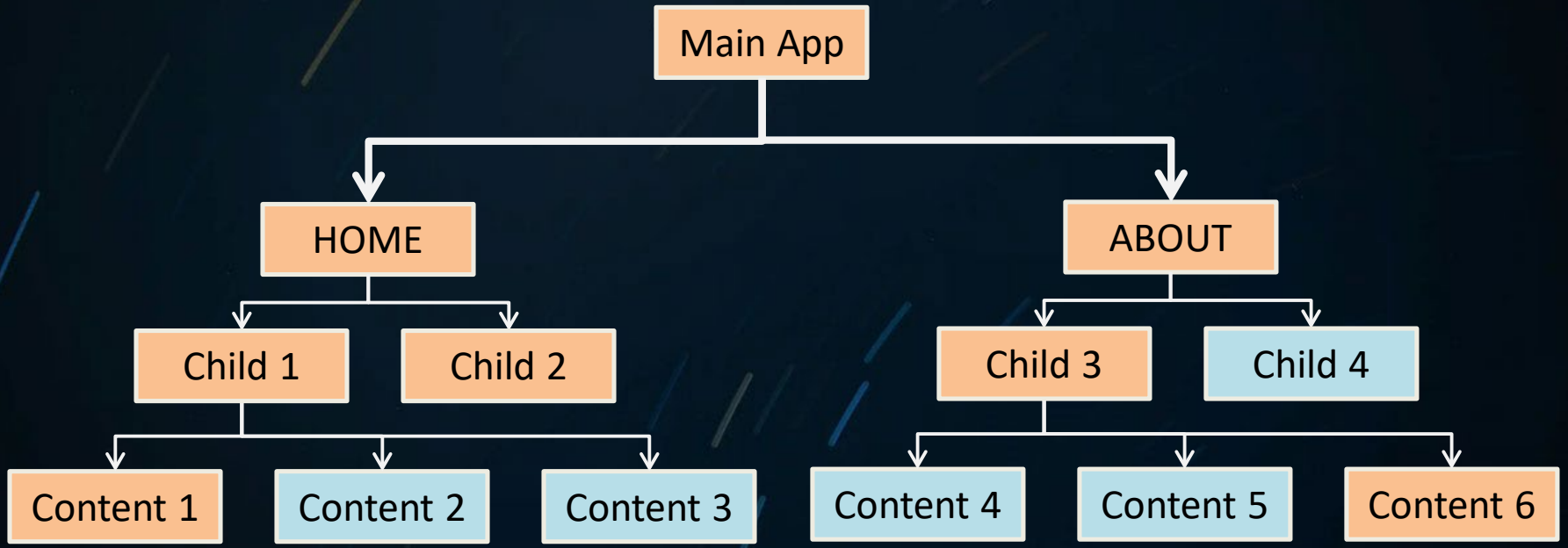

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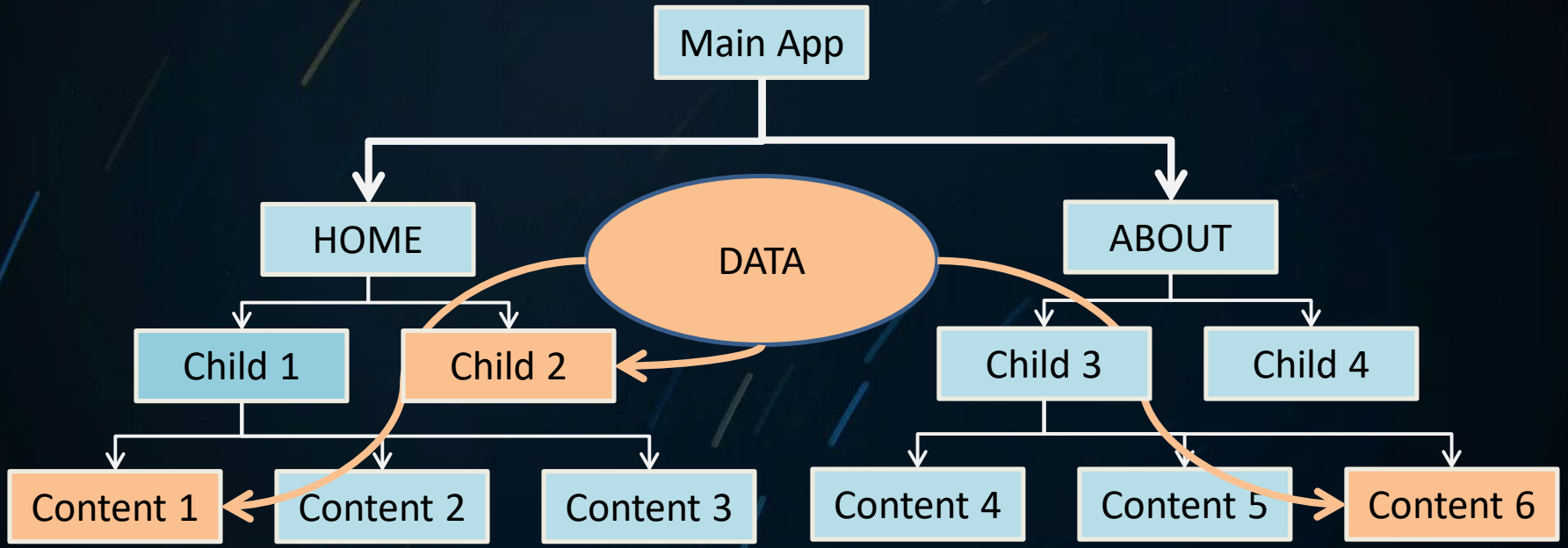
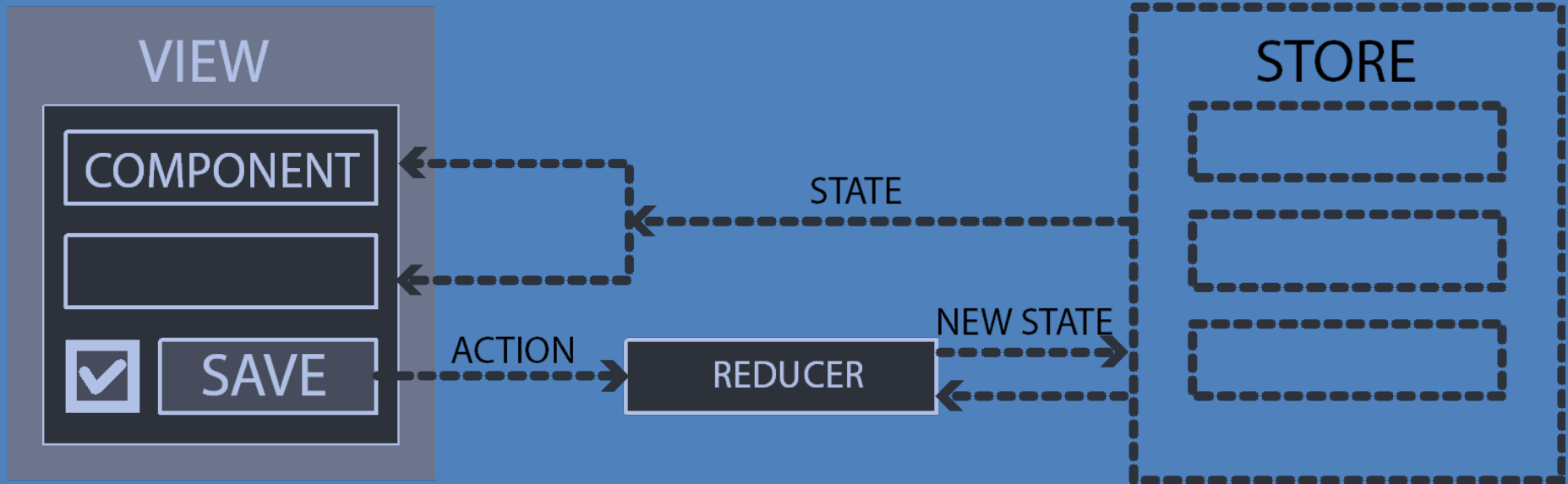


Redux Architecture



Testing

What is Testing and Why is it needed ?

Testing is done to verify and validate behavior of code written by you.

Tests are used for documentation

Tests are specification for how our code should work

Implements best practices conventions for development in a team environment

Validated code gives confidence for production

Allows us to generates good quality code

Types of test

End to end

- complex
- time consuming
- simulates user behavior as if a real user is engaged with application
- usually done by a dedicated team who follow requirement guidelines

Integrity

- Check how multiple units of your application work together slightly complex and time consuming

Unit

- A component's properties and functionality is verified
- component's behavior and its output is verified to match requirements

React Testing Library (RTL)

Alternate to Enzyme

Uses Jest to get the job done

Is opinionated

Helps find elements by accessibility markers instead of test ids

Provides a virtual DOM for testing

Provides API to search in virtual DOM

Interact with virtual DOM

React Testing Library needs Jest to run tests and to make assertions

Create a file that has .test.js

vijay.shivu@gmail.com