PRACTICAL REACT WITH TYPESCRIPT

Setup

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  - `git clone https://github.com/rudfoss/practical-react-with-typescript.git`

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Agenda

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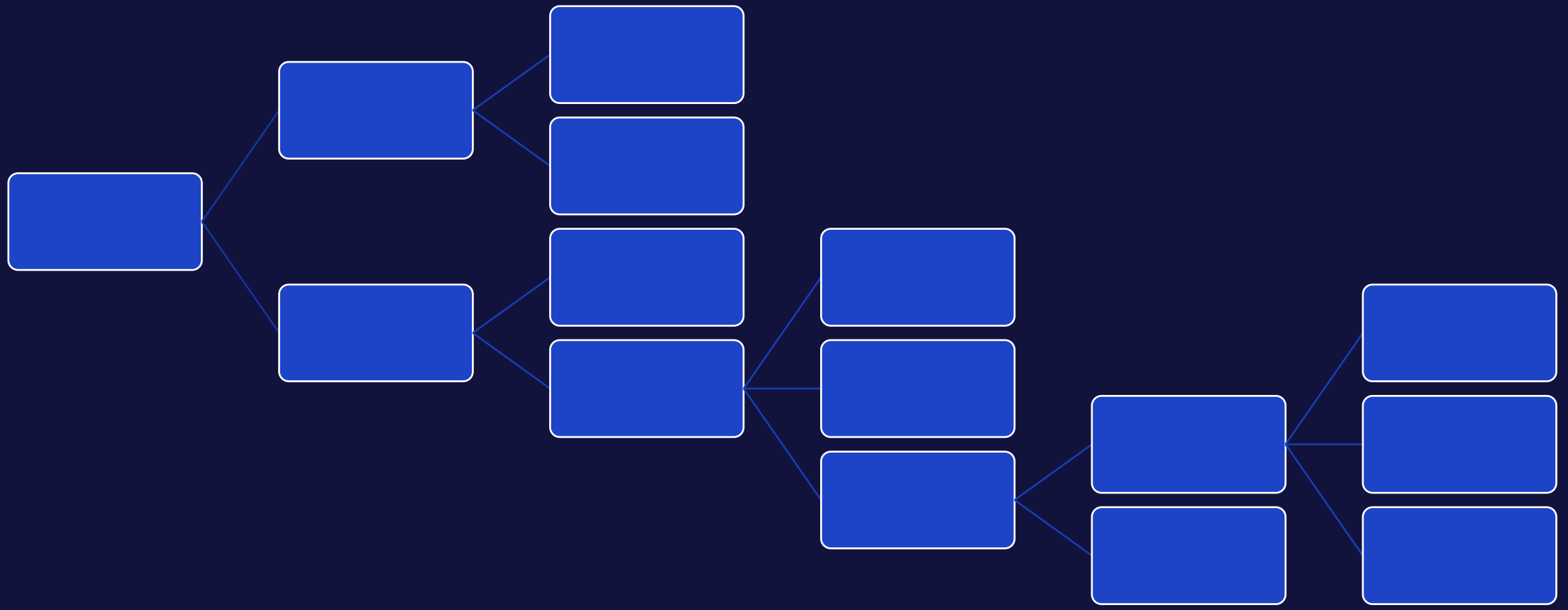
Anatomy of React



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TextField

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<> BooleanField

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Reusable fields

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Anatomy of a component

```tsx
export interface TextFieldProps {
  label: string
}
```

props

component

```tsx
export const TextField = ({ label }: TextFieldProps) => {
  const id = useId()
  const [value, setValue] = useState("")

  return (
    <div>
      <label htmlFor={id}>{label}</label>
      <input id={id} type="text" value={value} onChange={(evt) => setValue(evt.target.value)} />
      <p>{value}</p>
    </div>
  )
}
```

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      <label
```

Anatomy of a component

use* hooks

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```

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Anatomy of a component

useState

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ex                                    dProps) => {
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Anatomy of a component

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```

jsx

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Anatomy of a component

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    </div>
  )
}
```

children label

children label TextField

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Anatomy of a component

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exp
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useState

destructure

Anatomy of a component

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      <p>{value}</p>
    </div>
  )
}
```

value input

onChange function

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Anatomy of a component

- Component:

- Props
- Hooks
- State
- Children
- JSX
- { }

JSX

Anatomy of an event

```tsx
export interface TextFieldProps {
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  )
}
```

input*

input **onChange** **input**

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Anatomy of an event

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  )
}
```

event handler

setter

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Anatomy of an event

```tsx
export interface TextFieldProps {
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```

State change → re-render updated data

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```

Anatomy of an event

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    </div>
  )
}
```

value

updating the UI

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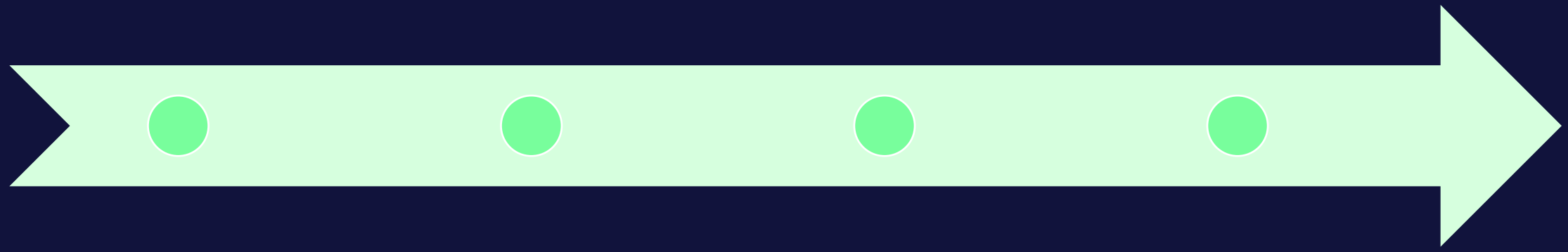
Anatomy of an event



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Component lifecycle

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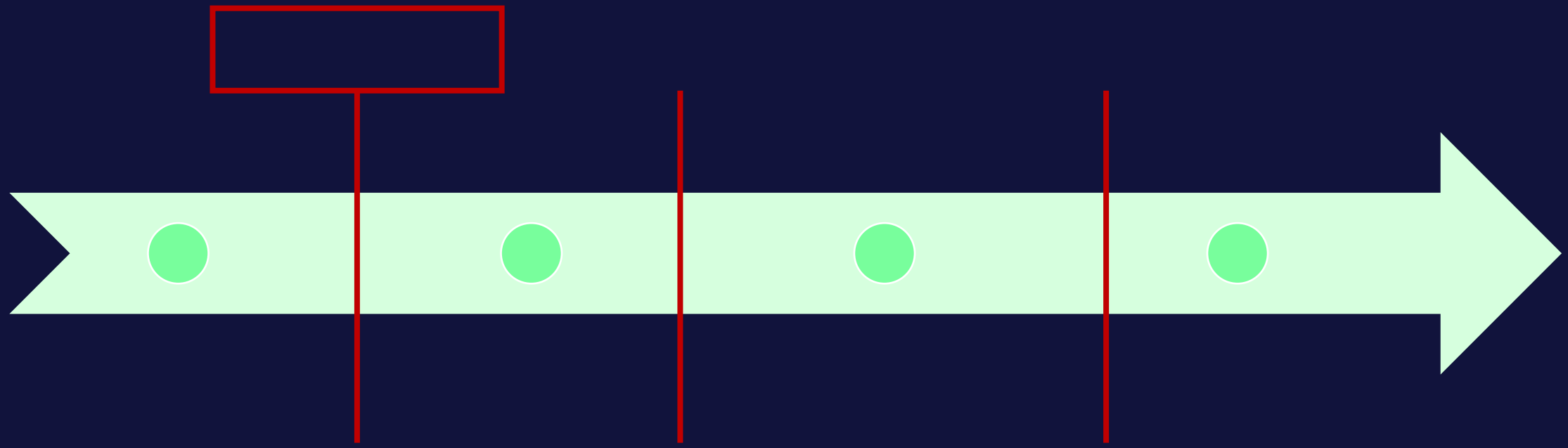
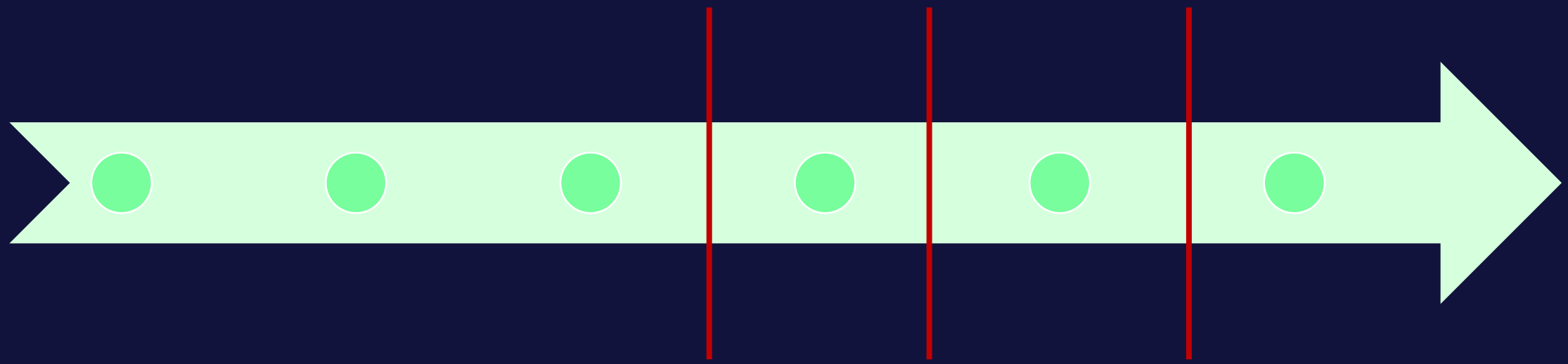
Component lifecycle

TextField



Component lifecycle

TextField



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ClickUntil

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<> NumericField

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<> ClickUntilForm

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Styling

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Style TextField

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<> Style components

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EoD 1

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Organizing our repository

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Immutability

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UserDetails

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<> GroupDetails

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Loops

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useMemo

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Routing

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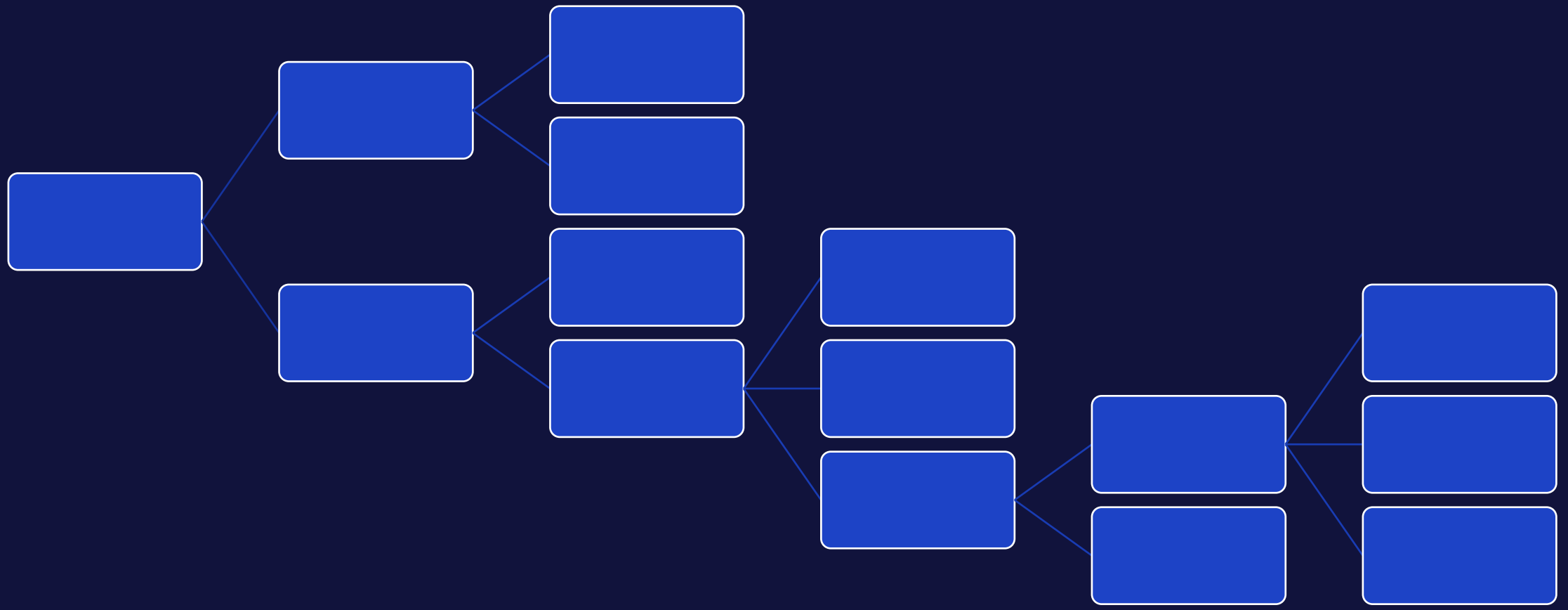
Anatomy of routing



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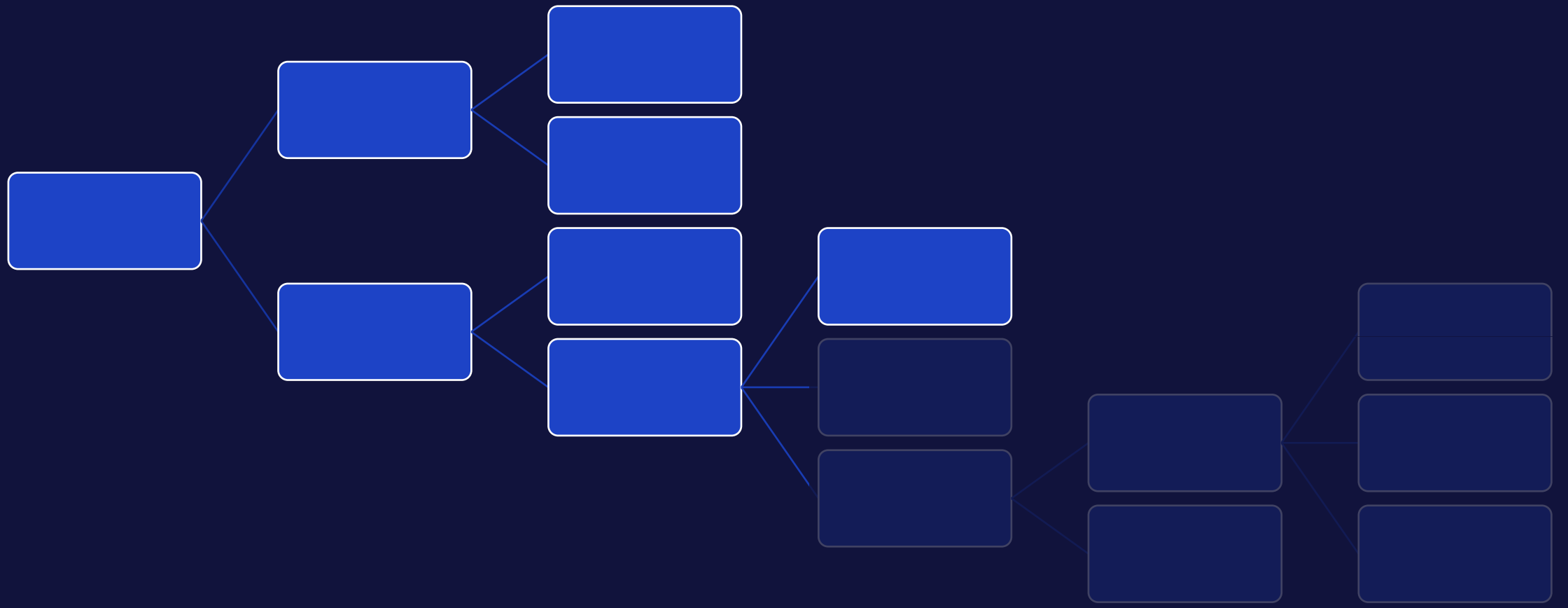
Anatomy of routing

/home



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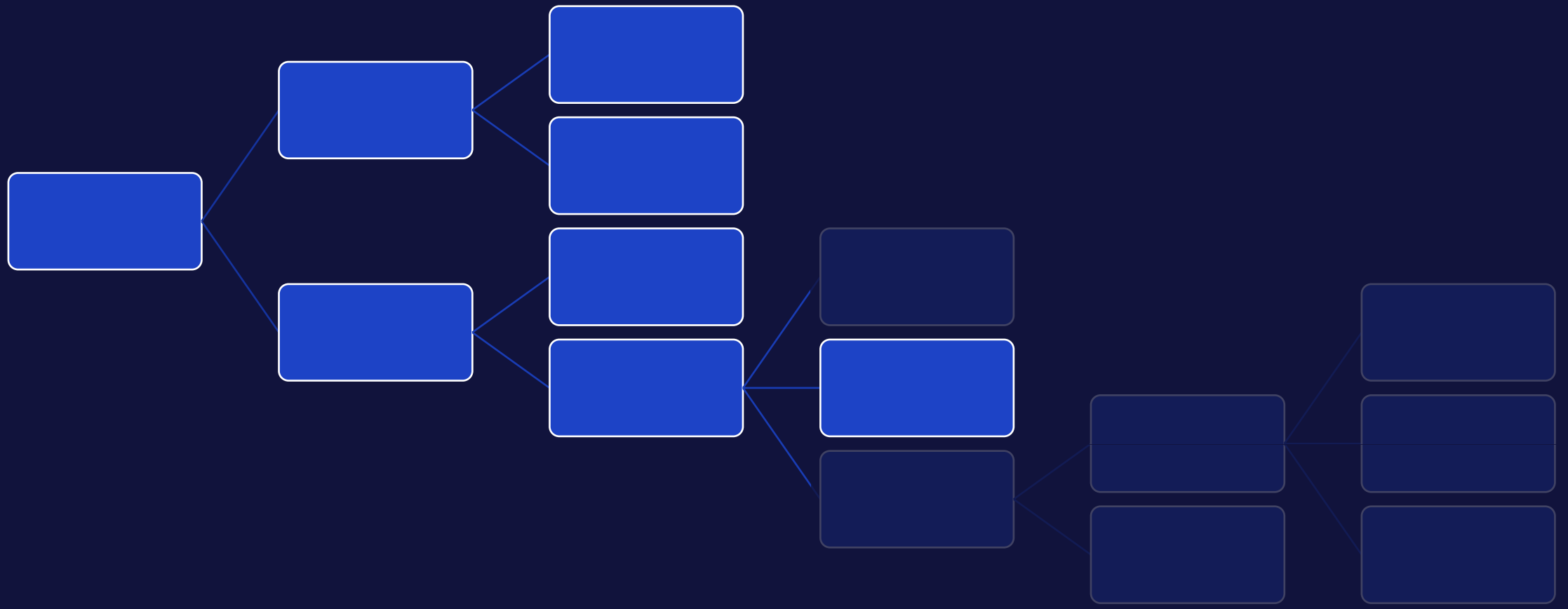
Anatomy of routing

/login



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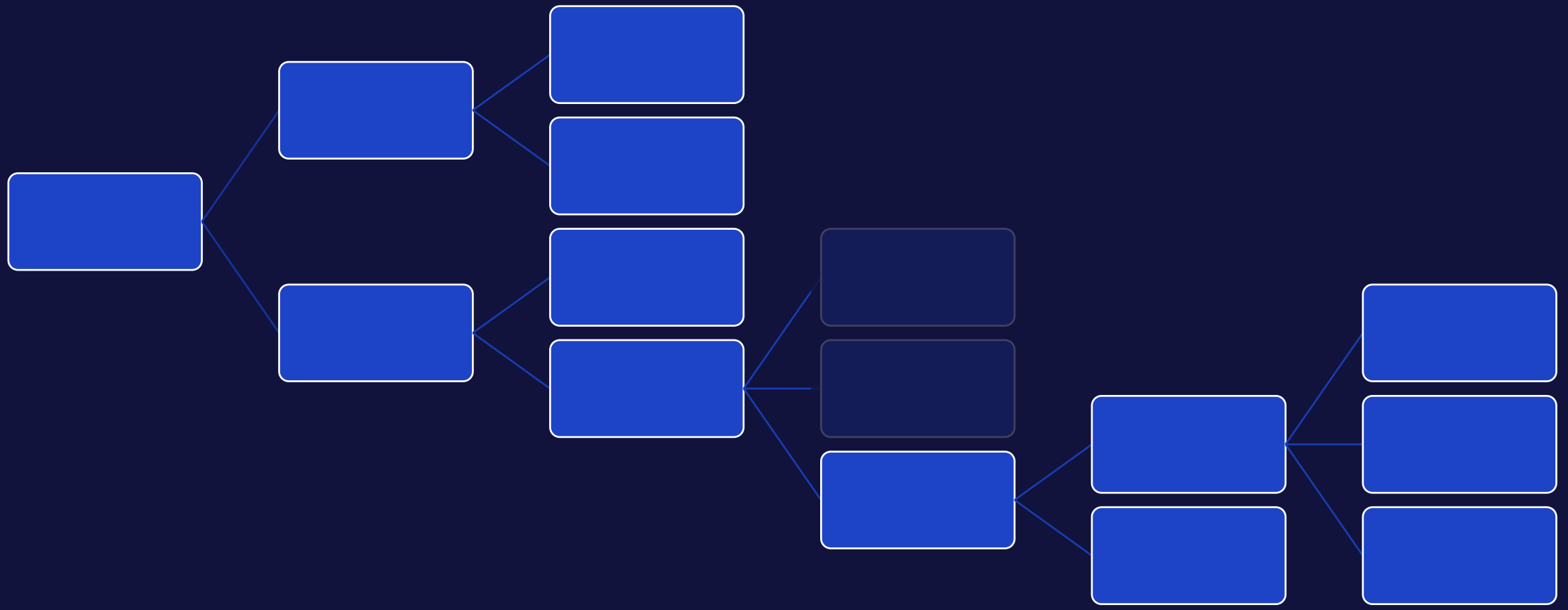
Anatomy of routing

/profile



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HomePage and UserDetailsPage

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MainLayout

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<> UsersTable Page and UserDetails Page

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/users

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EoD 2

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Hooks

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Most common react hooks

- useId:
- useState:
- useMemo:
- useEffect:

- useRef: does not

useRandom

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<> useWindowTitle

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Error handling

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- `errorElement`

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<> useThrowIfNetworkUnavailable

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TypeScript Generics

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TypeScript Generics

```ts
interface ContainerFor<TType> {
  id: string
  value: TType
}
```

```ts
const stringContainer: ContainerFor<string> = {
  id: "123",
  value: "foo"
}

const booleanContainer: ContainerFor<boolean> = {
  id: "123",
  value: true
}

interface Name {
  firstName: string
  lastName: string
}
const objectContainer: ContainerFor<Name> = {
  id: "123123",
  value: {
    firstName: "Test",
    lastName: "Testington"
  }
}
```

TypeScript Generics

```ts
interface ContainerFor<TType extends string | boolean> {
  id: string
  value: TType
}
```

```ts
const stringContainer: ContainerFor<string> = {
  id: "123",
  value: "foo"
}

const booleanContainer: ContainerFor<boolean> = {
  id: "123",
  value: true
}
```

TypeScript Generics

```ts
interface GenericInterface<T> {
  id: string
  value: T
}

type GenericType<T> = {
  id: string
  value: T
}

const genericFn = <T, T2>(firstArg: T, secondArg: T2) => {
  //...
}

function genericFn2<T, TReturn>(firstArg: T): TReturn {
  //...
}
```

TypeScript Generics with React

```tsx
export interface GenericComponentProps<TType> {
  label: string
  value: TType
}

export const GenericComponent = <TType,>(props: GenericComponentProps<TType>) => {
  // ..
}
```

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<> ChoiceField

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<> ChoiceField

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Contexts

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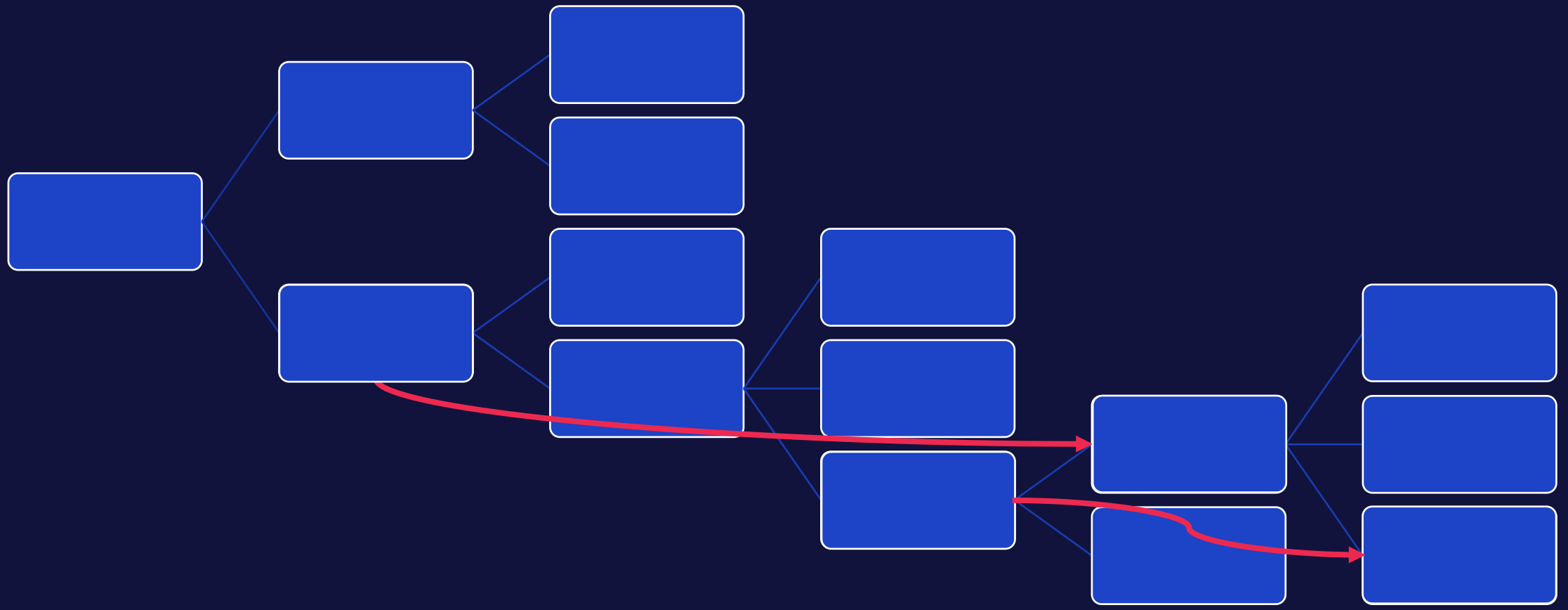
Anatomy of Context



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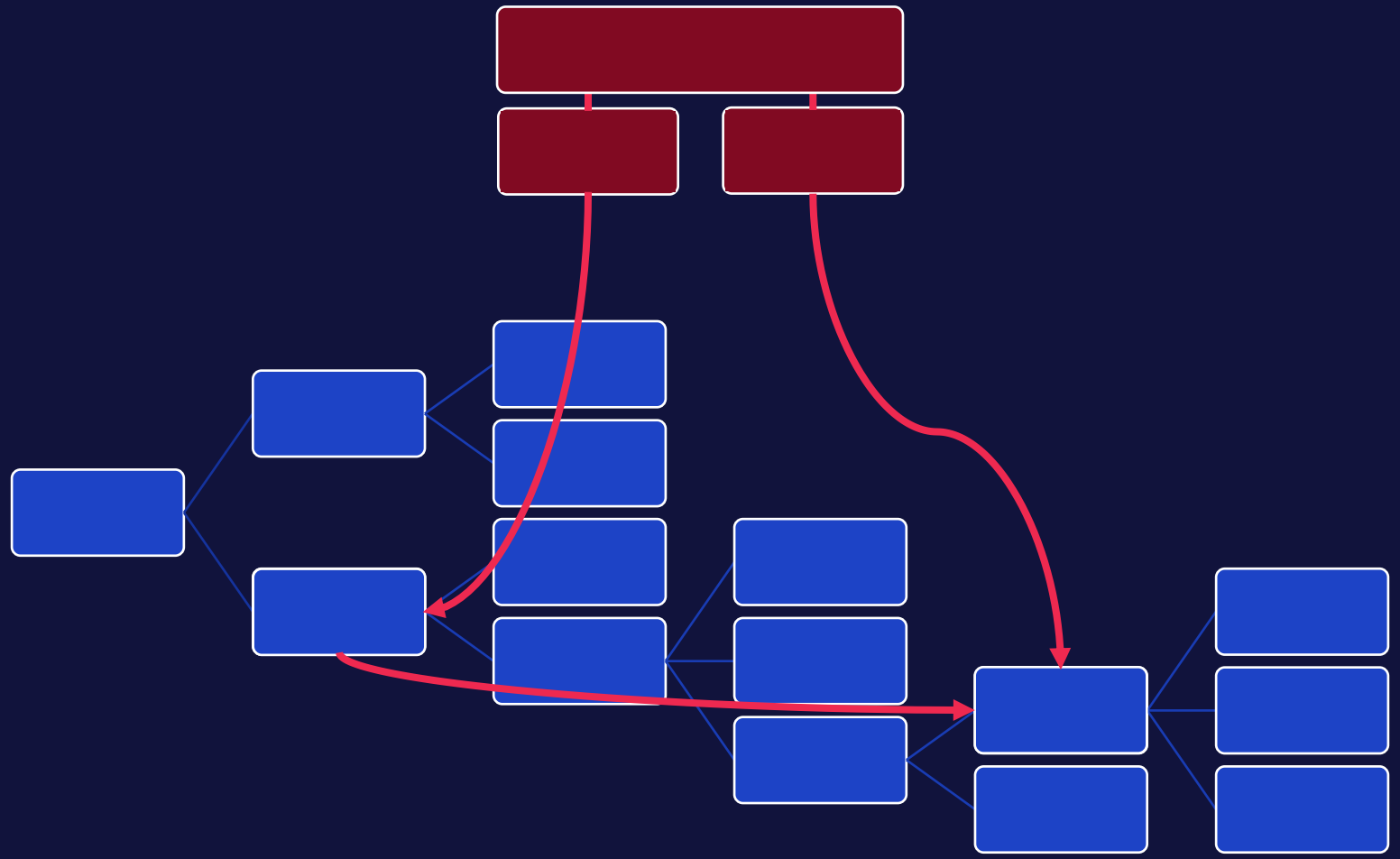
Anatomy of Context



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NavContext

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<> DisableFieldsContext

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State management scopes

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Communication with a server

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Generating clients

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<> ServerSideUserTable

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UserDetails

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Testing

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Optimizations

- **Avoid unecessary re-renders**
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Resources

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