

Curso React/Redux

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Sumário

Apostila do curso de React/Redux da Cod3r.

<https://www.cod3r.com.br>

1. Introdução

1.1. Visão Geral do Curso

1.2. Assine o Nosso Canal



Olá amigos, convido vocês a conhecer o canal da COD3R no Youtube.

Visite o canal: <https://www.youtube.com/aulasdeprogramacao>

1.3. Repositório do Curso



Os arquivos do curso estão disponíveis no GitHub.

Repositório do curso: <https://github.com/cod3rcursos/curso-react-redux>

1.4. Configuração do Ambiente

2. Webpack

2.1. Visão Geral e Instalação

Abra o terminal e dentro da pasta Desktop execute o seguinte comando:

Listagem 1 - Criar pasta `exercicios_webpack`

`exercicios_webpack/`

```
mkdir exercicios_webpack && cd exercicios_webpack
```

Listagem 2 - Criar arquivo `package.json`

`exercicios_webpack/package.json`

```
npm init -y
```

Listagem 3 - Instalando as dependências

```
npm i --save-dev webpack@1.14.0 webpack-dev-server@1.16.2
```

Listagem 4 - Criar arquivo `.gitignore`

`exercicios_webpack/.gitignore`

```
node_modules  
*.log
```

2.2. Configuração Inicial

Listagem 5 - Criar arquivo webpack.config.js

exercicios_webpack/webpack.config.js

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  }
}
```

2.3. Criando o index.html



Criar uma pasta chamada `ex` que contém o arquivos `index.js` e também criar uma pasta chamada `public` que contém o arquivo `index.html`, nestas pastas poderão ser *criadas, sobreescritas, alteradas e apagadas* os arquivos a qualquer momento durante as aulas.

Listagem 6 - Criar arquivo index.html

exercicios_webpack/public/index.html

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <title>Exercícios de Webpack</title>
</head>
<body>
  <script src="bundle.js"></script>
</body>
</html>
```

2.4. Testando a Configuração

Listagem 7 - Alterar arquivo index.js

exercicios_webpack/ex/index.js (na linha 1)

```
console.log('Webpack')
```

Listagem 8 - Alterar arquivo package.json

exercicios_webpack/package.json (aprox. linha 7)

```
"test": "echo \"Error: no test specified\" && exit 1"
```

por:

```
"dev": "webpack-dev-server --progress --colors --inline --hot"
```



Quando o build terminar vai mostrar a mensagem: *webpack: Bundle is now VALID.*



Verificar o funcionamento: abra o navegador e digite <http://localhost:8080> e na ferramentas de desenvolvedor (Inspecionar) na opção console vai mostrar a palavra **Webpack**.

Listagem 9 - Executar a aplicação

Abra o terminal e dentro da pasta exercicios_webpack

```
npm run dev
```

2.5. Usando o Sistema de Módulos do CommonsJS

Listagem 10 - Criar arquivo logger.js

exercicios_webpack/ex/logger.js

```
function info(text) {
  console.log(`INFO: ${text}`)
}

module.exports = { info }
```

Listagem 11 - Sobrescrever arquivo index.js

exercicios_webpack/ex/index.js

```
const logger = require('./logger')
logger.info('Usando o padrão CommonJS!')
```

2.6. Importância da referência

Listagem 12 - Criar arquivo duvidaCruel.js

exercicios_webpack/ex/duvidaCruel.js

```
console.log('Sou carregado?')
```



Para abrir o terminal no Visual Studio Code use o atalho **ctrl + `**

Listagem 13 - Executar Webpack no terminal

exercicios_webpack\$

```
./node_modules/.bin/webpack
```

Listagem 14 - Sobrescrever arquivo index.js

exercicios_webpack/ex/index.js

```
require('./duvidacruel')
```

Listagem 15 - Executar Webpack no terminal

exercicios_webpack\$

```
./node_modules/.bin/webpack
```



Gerado o arquivo *exercicios_webpack/public/bundle.js* vai conter o conteúdo de todas as dependências a partir do ponto de entrada até a saída.

2.7. Usando EcmaScript 2015 sem Babel

Listagem 16 - sobrescrever arquivo index.js

exercicios_webpack/ex/index.js

```
class Pessoa {  
    constructor(nome) {  
        this.nome = nome  
    }  
  
    toString() {  
        return `Pessoa: ${this.nome}`  
    }  
}  
  
const pessoa = new Pessoa('Guilherme')  
console.log(pessoa.toString())
```



Para abrir o terminal no Visual studio Code use o atalho **ctrl + `**

Listagem 17 - Executar Webpack no terminal

exercicios_webpack\$

```
./node_modules/.bin/webpack
```



Agora no arquivo **bundle.js** que agora contém a classe *Pessoa*.

Listagem 18 - Alterar arquivo index.js

exercicios_webpack/ex/index.js

```
const pessoa = new Pessoa('Guilherme')  
console.log(pessoa.toString())
```



Mover a classe Pessoa para o novo arquivo **ex/pessoa.js**

Listagem 19 - Alterar arquivo *pessoa.js*

exercicios_webpack/ex/pessoa.js

```
export default class Pessoa {
    constructor(nome) {
        this.nome = nome
    }

    toString() {
        return `Pessoa: ${this.nome}`
    }
}
```

Listagem 20 - Alterar arquivo *index.js*

exercicios_webpack/ex/index.js (na linha 1)

```
import Pessoa from './pessoa'

const pessoa = new Pessoa('Guilherme')
console.log(pessoa.toString())
```

2.8. Usando o Sistema de Módulos do ES2015 (Babel)

Listagem 21 - Alterar arquivo webpack.config.js

exercicios_webpack/webpack.config.js (aprox. linha 12)

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  module: {
    loaders: [
      {
        test: /\.js$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015']
        }
      }
    ]
  }
}
```



Abra o terminal e dentro da pasta do projeto exercicios_webpack execute o seguinte comando:

Listagem 22 - Instalando as dependências

```
npm i --save-dev babel-core@6.22.1 babel-loader@6.2.10 babel-preset-es2015@6.22.0
```

Listagem 23 - Executar a aplicação

```
npm run dev
```

2.9. Interpretando o Operador Spread (Plugin Babel)

Listagem 24 - Sobrescrever arquivo index.js

exercicios_webpack/ex/index.js

```
const produto = {
    nome: 'Caneta Bic Preta',
    preco: 1.90,
    desconto: 0.05
}

function clone(objeto) {
    return { ...objeto }
}

const novoProduto = clone(produto)
novoProduto.nome = 'Caneta Bic Azul'

console.log(produto, novoProduto)
```

Listagem 25 - Alterar arquivo webpack.config.js

exercicios_webpack/webpack.config.js (aprox. linha 19)

```
const webpack = require('webpack')

module.exports = {
    entry: './ex/index.js',
    output: {
        path: __dirname + '/public',
        filename: './bundle.js'
    },
    devServer: {
        port: 8080,
        contentBase: './public'
    },
    module: {
        loaders: [
            {
                test: /\.js$/,
                loader: 'babel-loader',
                exclude: /node_modules/,
                query: {
                    presets: ['es2015'],
                    plugins: ['transform-object-rest-spread']
                }
            }
        ]
    }
}
```



Abra o terminal e dentro da pasta do projeto exercicios_webpack execute o seguinte comando:

Listagem 26 - Instalando as dependências

```
npm i --save-dev babel-plugin-transform-object-rest-spread@6.22.0
```

Listagem 27 - Executar a aplicação

```
npm run dev
```

2.10. Adicionando o Preset do React

Abra o terminal e dentro da pasta do projeto exercicios_webpack execute o seguinte comando:

Listagem 28 - Instalando as dependências

```
npm i --save-dev react@15.4.2
```

Listagem 29 - Executar a aplicação

```
npm run dev
```

Listagem 30 - Sobrescrever arquivo index.js

exercicios_webpack/ex/index.js

```
import 'react'

export default props => (
  <h1>Olá</h1>
)

console.log('Funcionou!')
```

Listagem 31 - Alterar arquivo webpack.config.js

exercicios_webpack/webpack.config.js (aprox. linha 19)

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  module: {
    loaders: [
      {
        test: /\.js$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react'],
          plugins: ['transform-object-rest-spread']
        }
      }
    ]
  }
}
```



Abra o terminal e dentro da pasta do projeto exercicios_webpack execute o seguinte comando:

Listagem 32 - Instalando as dependências

```
npm i --save-dev babel-preset-react@6.22.0
```

Listagem 33 - Executar a aplicação

```
npm run dev
```

2.11. Adicionando o Loader para CSS



Criar arquivo css em `ex/estilo.css`

Listagem 34 - Alterar arquivo `estilo.css`

`exercicios_webpack/ex/estilo.css`

```
body{  
    background-color: #253B6E;  
}
```

Listagem 35 - Alterar arquivo `index.js`

`exercicios_webpack/ex/index.js` (na linha 1)

```
import './estilo.css'  
import 'react'  
  
export default props => (  
    <h1>Olá</h1>  
)  
  
console.log('Funcionou!')
```

Listagem 36 - Alterar arquivo webpack.config.js

exercicios_webpack/webpack.config.js (aprox. linha 2, 14 e 26)

```
const webpack = require('webpack')
const ExtractTextPlugin = require('extract-text-webpack-plugin')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  plugins: [
    new ExtractTextPlugin('app.css')
  ],
  module: {
    loaders: [
      {
        test: /\.js$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react'],
          plugins: ['transform-object-rest-spread']
        }
      },
      {
        test: /\.css$/,
        loader: ExtractTextPlugin.extract("style-loader", "css-loader")
      }
    ]
  }
}
```

Listagem 37 - Alterar arquivo index.html

exercicios_webpack/public/index.html (aprox. linha 6)

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Exercícios de Webpack</title>
    <link rel='stylesheet' href='app.css'>
  </head>
  <body>
    <script src="bundle.js"></script>
  </body>
</html>
```



Abra o terminal e dentro da pasta do projeto exercicios_webpack execute o seguinte comando:

Listagem 38 - Instalando as dependências

```
npm i --save-dev extract-text-webpack-plugin@1.0.1 style-loader@0.13.1 css-loader@0.26.1
```

Listagem 39 - Executar a aplicação

```
npm run dev
```



Para abrir o terminal no Visual studio Code use o atalho **ctrl + '**

Listagem 40 - Executar Webpack no terminal

exercicios_webpack\$

```
./node_modules/.bin/webpack
```



Agora foi gerado dois arquivos: **bundle.js** e **app.css**

3. React

3.1. Configurando o Projeto

Abra o terminal e dentro da pasta Desktop execute o seguinte comando:

Listagem 41 - Criar pasta `exercicios_react`

`exercicios_react/`

```
mkdir exercicios_react && cd exercicios_react
```

Listagem 42 - Criar arquivo `package.json`

`exercicios_react/package.json`

```
npm init -y
```

Listagem 43 - Instalando as dependências

```
npm i --save-dev react@15.4.2 react-dom@15.4.2 babel-core@6.22.1 babel-loader@6.2.10 babel-preset-es2015@6.22.0 babel-preset-react@6.22.0 webpack@1.14.0 webpack-dev-server@1.16.2
```

Listagem 44 - Criar arquivo `.gitignore`

`exercicios_react/.gitignore`

```
node_modules  
*.log
```

3.2. Configurando o Build com Webpack

Listagem 45 - Criar arquivo webpack.config.js

exercicios_react/webpack.config.js

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  module: {
    loaders: [{
      test: /\.jsx?$/,
      loader: 'babel-loader',
      exclude: /node_modules/,
      query: {
        presets: ['es2015', 'react']
      }
    }]
  }
}
```

3.3. Criando o arquivo index.html



Criar uma pasta chamada `public` em `exercicios_react/public`

Listagem 46 - Criar arquivo index.html

exercicios_react/public/index.html

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <title>Exercícios de React</title>
</head>
<body>
  <script src="bundle.js"></script>
</body>
</html>
```

3.4. Olá React

Listagem 47 - Alterar arquivo webpack.config.js

exercicios_react/webpack.config.js (aprox. linha 4)

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.jsx',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  module: {
    loaders: [
      {
        test: /\.jsx?$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react']
        }
      }
    ]
  }
}
```



Criar uma pasta chamada `ex` em `exercicios_react/ex`

Listagem 48 - Criar arquivo index.jsx

exercicios_react/ex/index.jsx

```
import React from 'react'
import ReactDOM from 'react-dom'

ReactDOM.render(<h1>Olá React</h1>, document.getElementById('app'))
```

Listagem 49 - Alterar arquivo package.json

exercicios_react/package.json (aprox. linha 7)

```
"test": "echo \"Error: no test specified\" && exit 1"
```

por:

```
"dev": "webpack-dev-server --progress --colors --inline --hot"
```



Quando o build terminar vai mostrar a mensagem: *webpack: Bundle is now VALID.*



Verificar o funcionamento: abra o navegador e digite <http://localhost:8080> e na página vai mostrar o título **Olá React**.

Listagem 50 - Executar a aplicação

Abra o terminal e dentro da pasta exercicios_react

```
npm run dev
```

3.5. Primeiro Componente

Listagem 51 - Criar arquivo component.jsx

exercicios_react/ex/component.jsx

```
import React from 'react'

function() {
    return <h1>Primeiro Componente!</h1>
}
```

Listagem 52 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 5)

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import Component from './component.jsx'  
  
ReactDOM.render(<Component />, document.getElementById('app'))
```

Listagem 53 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'  
  
export default function() {  
    return <h1>Primeiro Componente!</h1>  
}
```

Listagem 54 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3)

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import Component from './component'  
  
ReactDOM.render(<Component />, document.getElementById('app'))
```

Listagem 55 - Alterar arquivo webpack.config.js

exercicios_react/webpack.config.js (aprox. linha 13)

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  resolve: {
    extensions: ['', '.js', '.jsx']
  },
  module: {
    loaders: [
      {
        test: /\.jsx?$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react']
        }
      }
    ]
  }
}
```

Listagem 56 - Executar a aplicação

Abra o terminal e dentro da pasta exercicios_react

```
npm run dev
```

3.6. Primeiro Componente (Arrow Function)

Listagem 57 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'

export default () => (
  <h1>Primeiro Componente!</h1>
)
```

3.7. Usando as Propriedades do Componente

Listagem 58 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'

export default (props) => (
  <h1>{props.value}</h1>
)
```

Listagem 59 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 5)

```
import React from 'react'
import ReactDOM from 'react-dom'
import Component from './component'

ReactDOM.render(<Component value='Show!' />, document.getElementById('app'))
```

Listagem 60 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'

export default props => (
  <h1>{props.value}</h1>
)
```

3.8. Exportando mais de um Componente

Listagem 61 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'

const Primeiro = props => (
    <h1>Primeiro Componente!</h1>
)

const Segundo = props => <h1>Segundo Componente!</h1>

export { Primeiro, Segundo }
```

Listagem 62 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 5)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { Primeiro, Segundo } from './component'

ReactDOM.render(
    <div>
        <Primeiro />
        <Segundo />
    </div>
, document.getElementById('app'))
```

Listagem 63 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3, 7 e 9)

```
import React from 'react'

export const Primeiro = props => (
    <h1>Primeiro Componente!</h1>
)

export const Segundo = props => <h1>Segundo Componente!</h1>

//export { Primeiro, Segundo }
```

Listagem 64 - Alterar arquivo component.jsx

exercicios_react/ex/component.jsx (aprox. linha 3)

```
import React from 'react'

export default = props => (
  <h1>Primeiro Componente!</h1>
)

export const Segundo = props => <h1>Segundo Componente!</h1>

//export { Primeiro, Segundo }
```

Listagem 65 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3)

```
import React from 'react'
import ReactDOM from 'react-dom'
import Primeiro, { Segundo } from './component'

ReactDOM.render(
  <div>
    <Primeiro />
    <Segundo />
  </div>
, document.getElementById('app'))
```

3.9. Componentes Filhos

Listagem 66 - Criar arquivo member.jsx

exercicios_react/ex/member.jsx

```
import React from 'react'

export default props => (
  <div>{props.name} <strong>{props.lastName}</strong><div>
```

Listagem 67 - Criar arquivo silvaFamily.jsx

exercicios_react/ex/silvaFamily.jsx

```
import React from 'react'
import Member from './member'

export default props => (
  <div>
    <Member name='João' lastName='Silva' />
    <Member name='Maria' lastName='Silva' />
    <Member name='Jose' lastName='Silva' />
    <Member name='Pedro' lastName='Silva' />
  </div>
)
```

Listagem 68 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 6)

```
import React from 'react'
import ReactDOM from 'react-dom'
import SilvaFamily from './silvaFamily'

ReactDOM.render(
  <SilvaFamily />
, document.getElementById('app'))
```

3.10. Componentes Filhos

Listagem 69 - Criar arquivo family.jsx

exercicios_react/ex/family.jsx

```
import React from 'react'

export default props => (
  <div>
    <h1>Família</h1>
    {props.children}
  </div>
)
```

Listagem 70 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 7)

```
import React from 'react'
import ReactDOM from 'react-dom'
import Family from './family'
import Member from './member'

ReactDOM.render(
  <Family lastName='Silva'>
    <Member name='Guilherme' />
  </Family>
, document.getElementById('app'))
```

3.11. Passando Propriedades para Componentes Filhos (Parte 1)

Listagem 71 - Alterar arquivo family.jsx

exercicios_react/ex/family.jsx (aprox. linha 6)

```
import React from 'react'

export default props => (
  <div>
    <h1>Família</h1>
    { React.cloneElement(props.children, {...props}) }
  </div>
)
```



No terminal pare a aplicação apertando **ctrl + c** e execute o seguinte comando:

Listagem 72 - Instalando as dependências

```
npm i --save-dev babel-plugin-transform-object-rest-spread@6.22.0
```

Listagem 73 - Alterar arquivo webpack.config.js

exercicios_react/webpack.config.js (aprox. linha 22)

```
const webpack = require('webpack')

module.exports = {
  entry: './ex/index.js',
  output: {
    path: __dirname + '/public',
    filename: './bundle.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public'
  },
  module: {
    loaders: [
      {
        test: /\.jsx?$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react'],
          plugins: ['transform-object-rest-spread']
        }
      }
    ]
  }
}
```

Listagem 74 - Executar a aplicação

No terminal execute o seguinte comando:

```
npm run dev
```

Listagem 75 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 9)

```
import React from 'react'
import ReactDOM from 'react-dom'
import Family from './family'
import Member from './member'

ReactDOM.render(
  <Family lastName='Silva'>
    <Member name='Guilherme' />
    <Member name='Rafael' />
    <Member name='Julia' />
  </Family>
, document.getElementById('app'))
```

3.12. Passando Propriedades para Componentes Filhos (Parte 2)

Listagem 76 - Alterar arquivo family.jsx

exercicios_react/ex/family.jsx (aprox. linha 6)

```
import React from 'react'

export default props => (
  <div>
    <h1>Família</h1>
    { React.Children.map(props.children,
      child => React.cloneElement(child, {...props})) }
  </div>
)
```



Criar uma pasta chamada `utils` em `exercicios_react/utils`

Listagem 77 - Criar arquivo reactUtils.js

exercicios_react/utils/reactUtils.js

```
import React from 'react'

function childrenWithProps(children, props){
    return React.Children.map(props.children,
        child => React.cloneElement(child, {...props}))
}

export { childrenWithProps }
```

Listagem 78 - Alterar arquivo family.jsx

exercicios_react/ex/family.jsx (aprox. linha 2 e 7)

```
import React from 'react'
import { childrenWithProps } from '../utils/reactUtils'
export default props => (
    <div>
        <h1>Família</h1>
        { childrenWithProps(props.children, props) }
    </div>
)
```

3.13. Componente de Classe

Listagem 79 - Criar arquivo classComponent.jsx

exercicios_react/ex/classComponent.jsx

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

export default class ClassComponent extends Component{
    render() {
        return(
            <h1>{this.props.value}</h1>
        )
    }
}
```

Listagem 80 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 6)

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import ClassComponent from './classComponent'  
  
ReactDOM.render(  
  <ClassComponent value='Componente Classe' />  
, document.getElementById('app'))
```

3.14. Componente com Estado (Ex. Contador)

Listagem 81 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 6)

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import ClassComponent from './classComponent'  
  
ReactDOM.render(  
  <ClassComponent value={10} />  
, document.getElementById('app'))
```

Listagem 82 - Alterar arquivo classComponent.jsx

exercicios_react/ex/classComponent.jsx (aprox. linha 4)

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

export default class ClassComponent extends Component{
  constructor(props){
    super(props)
    this.state = { value: props.initialValue }
  }

  sum(delta){
    this.setState({ value: this.state.value + delta })
  }

  render() {
    return(
      <div>
        <h1>{this.props.label}</h1>
        <h2>{this.state.value}</h2>
        <button onClick={() => this.sum(-1)}>Dec</button>
        <button onClick={() => this.sum(1)}>Inc</button>
      </div>
    )
  }
}
```

Listagem 83 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 6)

```
import React from 'react'
import ReactDOM from 'react-dom'
import ClassComponent from './classComponent'

ReactDOM.render(
  <ClassComponent label='Contador' initialValue={10} />
, document.getElementById('app'))
```

3.15. Componentes Controlados/Não Controlados

Listagem 84 - Criar arquivo field.jsx

exercicios_react/ex/field.jsx

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

class Field extends Component{
    constructor(props){
        super(props)
        this.state = { value: props.initialValue }
    }

    handleChange(event) {
        this.setState({ value: event.target.value })
    }

    render(){
        return (
            <div>
                <label>{this.state.value}</label><br />
                <input onChange={this.handleChange} value={this.state.value} />
            </div>
        )
    }
}

export default Field
```

Listagem 85 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 3 e 6)

```
import React from 'react'
import ReactDOM from 'react-dom'
import Field from './field'

ReactDOM.render(
    <Field initialValue='Teste' />
, document.getElementById('app'))
```

Listagem 86 - Alterar arquivo field.jsx

exercicios_react/ex/field.jsx (aprox. linha 8)

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

class Field extends Component{
    constructor(props){
        super(props)
        this.state = { value: props.initialValue }
        this.handleChange = this.handleChange.bind(this)
    }

    handleChange(event) {
        this.setState({ value: event.target.value })
    }

    render(){
        return (
            <div>
                <label>{this.state.value}</label><br />
                <input onChange={this.handleChange} value={this.state.value} />
            </div>
        )
    }
}

export default Field
```

4. TodoApp (Backend)

4.1. Visão Geral

4.2. Configuração e Instalação

Abra o terminal e dentro da pasta **Desktop** execute o seguinte comando:

Listagem 87 - Criar pasta todo-app

todo-app/

```
mkdir todo-app && cd todo-app
```

Listagem 88 - Criar pasta backend

todo-app/backend

```
mkdir backend && cd backend
```

Listagem 89 - Criar arquivo package.json

todo-app/backend/package.json

```
npm init -y
```

Listagem 90 - Instalando as dependências

```
npm i --save-dev body-parser@1.15.2 express@4.14.0 mongoose@4.7.0 node-restful@0.2.5 pm2@2.1.5 nodemon@1.11.0
```

Listagem 91 - Abrir o Visual Studio Code

```
code .
```

Listagem 92 - Alterar arquivo package.json

todo-app/backend/package.json (aprox. linha 5 e 7)

```
{  
  "name": "backend",  
  "version": "1.0.0",  
  "description": "",  
  "main": "src/loader.js",  
  "scripts": {  
    "dev": "nodemon",  
    "production": "pm2 start src/loader.js --name todo-app"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC",  
  "devDependencies": {  
    "body-parser": "^1.15.2",  
    "express": "^4.14.0",  
    "mongoose": "^4.7.0",  
    "node-restful": "^0.2.5",  
    "nodemon": "^1.11.0",  
    "pm2": "^2.1.5"  
  }  
}
```

Listagem 93 - Criar arquivo .gitignore

todo-app/backend/.gitignore

```
node_modules  
*.log
```

4.3. Configurando o Servidor com o Express



Criar uma pasta chamada `src` em `backend/src`

Listagem 94 - Criar arquivo loader.js

todo-app/backend/src/loader.js

```
require('./config/server')
```



Criar uma pasta chamada config em src/config

Listagem 95 - Criar arquivo server.js

todo-app/backend/src/config/server.js

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())

server.listen(port, function() {
  console.log(`BACKEND is running on port ${port}.`)
})
```

Listagem 96 - Executar o backend da aplicação

Abra o terminal e dentro da pasta todo-app/backend

```
npm run dev
```

4.4. Conexão com o Banco de Dados

Listagem 97 - Criar arquivo database.js

todo-app/backend/src/config/database.js

```
const mongoose = require('mongoose')
mongoose.Promise = global.Promise
module.exports = mongoose.connect('mongodb://localhost/todo')
```

Listagem 98 - Alterar arquivo loader.js

todo-app/backend/src/loader.js (aprox. linha 2)

```
require('../config/server')
require('../config/database')
```

4.5. ODM e Criação da API REST



Criar uma pasta chamada `api` e dentro dela criar uma pasta chamada `todo` em `src/api/todo`

Listagem 99 - Criar arquivo `todo.js`

`todo-app/src/api/todo/todo.js`

```
const restful = require('node-restful')
const mongoose = restful.mongoose

const todoSchema = new mongoose.Schema({
  description: { type: String, required: true },
  done: { type: Boolean, required: true, default: false },
  createdAt: { type: Date, default: Date.now }
})

module.exports = restful.model('Todo', todoSchema)
```

Listagem 100 - Criar arquivo `todoService.js`

`todo-app/src/api/todo/todoService.js`

```
const Todo = require('../todo')

Todo.methods(['get', 'post', 'put', 'delete'])
Todo.updateOptions({new: true, runValidators: true})

module.exports = Todo
```

4.6. Mapeamento das Rotas

Listagem 101 - Criar arquivo routes.js

todo-app/backend/src/config/routes.js

```
const express = require('express')

module.exports = function(server) {

    // API Routes
    const router = express.Router()
    server.use('/api', router)

    // TODO Routes
    const todoService = require('../api/todo/todoService')
    todoService.register(router, '/todos')
}

}
```

Listagem 102 - Alterar arquivo loader.js

todo-app/backend/src/loader.js (aprox. linha 1 e 3)

```
const server = require('./config/server')
require('./config/database')
require('./config/routes')(server)
```

Listagem 103 - Alterar arquivo server.js

todo-app/backend/src/config/server.js (aprox. linha 14)

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())

server.listen(port, function() {
    console.log(`BACKEND is running on port ${port}.`)
})

module.exports = server
```

4.7. Testando a API (Postman)



Acesse o site do Postman: <https://www.getpostman.com> para instalar no computador ou usar a extensão Chrome para testar a Api.

4.8. Habilitando o CORS

Listagem 104 - Criar arquivo cors.js

todo-app/backend/src/config/cors.js

```
module.exports = function(req, res, next) {
    res.header('Access-Control-Allow-Origin', '*')
    res.header('Access-Control-Allow-Methods', 'GET, POST, OPTIONS, PUT, PATCH,
DELETE')
    res.header('Access-Control-Allow-Headers', 'Origin, X-Requested-With,
Content-Type, Accept')
    next()
}
```

Listagem 105 - Alterar arquivo server.js

todo-app/backend/src/config/server.js (aprox. linha 6 e 10)

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()
const allowCors = require('./cors')

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())
server.use(allowCors)

server.listen(port, function() {
    console.log(`BACKEND is running on port ${port}.`)
})

module.exports = server
```

4.9. Iniciando o Backend com PM2

Abra o terminal e dentro da pasta `backend` execute o seguinte comando:

Listagem 106 - Executar a aplicação com PM2

todo-app/backend

```
npm run production
```

Listagem 107 - Executar o monit do PM2

todo-app/backend

```
./node_modules/.bin/pm2 monit
```

5. TodoApp (Frontend)

5.1. Configuração e Instalação

Abra o terminal e dentro da pasta `todo-app` execute o seguinte comando:

Listagem 108 - Criar pasta frontend

```
todo-app/frontend
```

```
mkdir frontend && cd frontend
```

Listagem 109 - Criar arquivo package.json

```
todo-app/frontend/package.json
```

```
npm init -y
```

Listagem 110 - Instalando as dependências do Webpack

```
npm i --save-dev webpack@1.14.0 webpack-dev-server@1.16.2
```

Listagem 111 - Instalando as dependências do Babel

```
npm i --save-dev babel-core@6.22.1 babel-loader@6.2.10 babel-plugin-react-html-  
attrs@2.0.0 babel-plugin-transform-object-rest-spread@6.22.0 babel-preset-  
es2015@6.22.0 babel-preset-react@6.22.0
```

Listagem 112 - Instalando as dependências do CSS e file loader

```
npm i --save-dev extract-text-webpack-plugin@1.0.1 css-loader@0.26.1 style-  
loader@0.13.1 file-loader@0.9.0
```

Listagem 113 - Instalando as dependências do Bootstrap e Font Awesome

```
npm i --save-dev bootstrap@3.3.7 font-awesome@4.7.0
```

Listagem 114 - Instalando as dependências do React e Axios

```
npm install --save-dev react@15.4.2 react-dom@15.4.2 react-router@3.0.2  
axios@0.15.3
```

Listagem 115 - Abrir o Visual Studio Code

```
code .
```

Listagem 116 - Criar arquivo .gitignore

todo-app/frontend/.gitignore

```
node_modules  
*.log
```

5.2. Configurando o Build com Webpack

Listagem 117 - Criar arquivo webpack.config.js

todo-app/frontend/webpack.config.js

```
const webpack = require('webpack')
const ExtractTextPlugin = require('extract-text-webpack-plugin')

module.exports = {
  entry: './src/index.jsx',
  output: {
    path: __dirname + '/public',
    filename: './app.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public',
  },
  resolve: {
    extensions: ['', '.js', '.jsx'],
    alias: {
      modules: __dirname + '/node_modules'
    }
  },
  plugins: [
    new ExtractTextPlugin('app.css')
  ],
  module: {
    loaders: [
      {
        test: /\.js[x]?$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react'],
          plugins: ['transform-object-rest-spread']
        }
      },
      {
        test: /\.css$/,
        loader: ExtractTextPlugin.extract('style-loader', 'css-loader')
      },
      {
        test: /\.woff|\.woff2|\.ttf|\.eot|\.svg*\.*$/,
        loader: 'file'
      }
    ]
  }
}
```

Listagem 118 - Alterar arquivo package.json

todo-app/frontend/package.json (aprox. linha 7 e 8)

```
{  
  "name": "frontend",  
  "version": "1.0.0",  
  "description": "",  
  "main": "index.js",  
  "scripts": {  
    "dev": "webpack-dev-server --progress --colors --inline --hot",  
    "production": "webpack --progress -p"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC",  
  "devDependencies": {  
    "axios": "^0.15.3",  
    "babel-core": "^6.22.1",  
    "babel-loader": "^6.2.10",  
    "babel-plugin-react-html-attrs": "^2.0.0",  
    "babel-plugin-transform-object-rest-spread": "^6.22.0",  
    "babel-preset-es2015": "^6.22.0",  
    "babel-preset-react": "^6.22.0",  
    "bootstrap": "^3.3.7",  
    "css-loader": "^0.26.1",  
    "extract-text-webpack-plugin": "^1.0.1",  
    "file-loader": "^0.9.0",  
    "font-awesome": "^4.7.0",  
    "react": "^15.4.2",  
    "react-dom": "^15.4.2",  
    "react-redux": "^5.0.2",  
    "react-router": "^3.0.2",  
    "redux": "^3.6.0",  
    "redux-multi": "^0.1.12",  
    "redux-promise": "^0.5.3",  
    "redux-thunk": "^2.2.0",  
    "style-loader": "^0.13.1",  
    "webpack": "^1.14.0",  
    "webpack-dev-server": "^1.16.2"  
  }  
}
```

5.3. Criação do index.html



Criar uma pasta chamada `public` em `frontend/public`

Listagem 119 - Criar arquivo index.html

todo-app/frontend/public/index.html

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset='utf-8'>
    <meta name='viewport' content='width=device-width, initial-scale=1'>
    <title>Todo App</title>
    <link rel='stylesheet' href='app.css'>
  </head>
  <body>
    <div id="app" class='container'></div>
    <script src='app.js'></script>
  </body>
</html>
```

5.4. Componente App



Criar uma pasta chamada `src` e dentro dela criar uma pasta chamada `main` em `frontend/src/main`

Listagem 120 - Criar arquivo app.jsx

todo-app/frontend/src/main/app.jsx

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'
import 'modules/font-awesome/css/font-awesome.min.css'

import React from 'react'

export default props => (
  <div className='container'>
    <h1>Teste</h1>
  </div>
)
```

Listagem 121 - Criar arquivo index.jsx

todo-app/frontend/src/index.jsx

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import App from './main/app'  
  
ReactDOM.render(<App />, document.getElementById('app'))
```

Listagem 122 - Executar a aplicação

Abra o terminal e dentro da pasta todo-app/frontend

```
npm run dev
```



Verificar o funcionamento: abra o navegador e digite <http://localhost:8080> e na página vai mostrar o título **Teste**.

5.5. Componentes Todo e About



Criar uma pasta chamada **todo** em **src/todo**

Listagem 123 - Criar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx

```
import React, { Component } from 'react'  
  
export default class Todo extends Component {  
  render() {  
    return (  
      <div>  
        <h1>Todo</h1>  
      </div>  
    )  
  }  
}
```

Listagem 124 - Alterar arquivo app.jsx

todo-app/frontend/src/main/app.jsx (aprox. linha 5 e 9)

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'  
import 'modules/font-awesome/css/font-awesome.min.css'  
  
import React from 'react'  
import Todo from '../todo/todo'  
  
export default props => (  
  <div className='container'>  
    <Todo />  
  </div>  
)
```



Criar uma pasta chamada `about` em `src/about`

Listagem 125 - Criar arquivo about.jsx

todo-app/frontend/src/about/about.jsx

```
import React from 'react'  
  
export default props => (  
  <div>  
    <h1>Sobre</h1>  
  </div>  
)
```

Listagem 126 - Alterar arquivo app.jsx

todo-app/frontend/src/main/app.jsx (aprox. linha 6 e 11)

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'
import 'modules/font-awesome/css/font-awesome.min.css'

import React from 'react'
import Todo from '../todo/todo'
import About from '../about/about'

export default props => (
  <div className='container'>
    <Todo />
    <About />
  </div>
)
```

5.6. Componente Menu



Criar uma pasta chamada `template` em `src/template`

Listagem 127 - Criar arquivo menu.jsx

todo-app/frontend/src/template/menu.jsx

```
import React from 'react'

export default props => (
  <nav className='navbar navbar-inverse bg-inverse'>
    <div className='container'>
      <div className='navbar-header'>
        <a className='navbar-brand' href='#'>
          <i className='fa fa-calendar-check-o'></i> TodoApp
        </a>
      </div>

      <div id='navbar' className='navbar-collapse collapse'>
        <ul className="nav navbar-nav">
          <li><a href='/todos'>Tarefas</a></li>
          <li><a href='/about'>Sobre</a></li>
        </ul>
      </div>
    </div>
  </nav>
)
```

Listagem 128 - Alterar arquivo app.jsx

todo-app/frontend/src/main/app.jsx (aprox. linha 7 e 11)

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'
import 'modules/font-awesome/css/font-awesome.min.css'

import React from 'react'
import Todo from '../todo/todo'
import About from '../about/about'
import Menu from '../template/menu'

export default props => (
  <div className='container'>
    <Menu />
    <Todo />
    <About />
  </div>
)
```

5.7. Configurando as Rotas (React-Router)

Listagem 129 - Criar arquivo routes.jsx

todo-app/frontend/src/main/routes.jsx

```
import React from 'react'
import { Router, Route, Redirect, hashHistory } from 'react-router'

import Todo from '../todo/todo'
import About from '../about/about'

export default props => (
  <Router history={hashHistory}>
    <Route path='/todos' component={Todo} />
    <Route path='/about' component={About} />
    <Redirect from='*' to='/todos' />
  </Router>
)
```



Remover os imports de Todo e About e seus componentes.

Listagem 130 - Alterar arquivo app.jsx

todo-app/frontend/src/main/app.jsx (aprox. linha 6 e 11)

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'
import 'modules/font-awesome/css/font-awesome.min.css'

import React from 'react'
import Menu from '../template/menu'
import Routes from './routes'

export default props => (
  <div className='container'>
    <Menu />
    <Routes />
  </div>
)
```

5.8. Componente PageHeader

Listagem 131 - Criar arquivo pageHeader.jsx

todo-app/frontend/src/template/pageHeader.jsx

```
import React from 'react'

export default props => (
  <header className='page-header'>
    <h2>{props.name} <small>{props.small}</small></h2>
  </header>
)
```

Listagem 132 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 2 e 8)

```
import React, { Component } from 'react'
import PageHeader from '../template/pageHeader'

export default class Todo extends Component {
  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
      </div>
    )
  }
}
```

Listagem 133 - Alterar arquivo about.jsx

todo-app/frontend/src/about/about.jsx (aprox. linha 2 e 6)

```
import React from 'react'
import PageHeader from '../template/pageHeader'

export default props => (
  <div>
    <PageHeader name='Sobre' small='Nós'></PageHeader>

    <h2>Nossa História</h2>
    <p>Lorem ipsum dolor sit amet...</p>
    <h2>Missão e Visão</h2>
    <p>Lorem ipsum dolor sit amet...</p>
    <h2>Imprensa</h2>
    <p>Lorem ipsum dolor sit amet...</p>
  </div>
)
```

5.9. Componentes TodoForm e TodoList

Listagem 134 - Criar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx

```
import React from 'react'

export default props => (
  <div>
    <h1>Form</h1>
  </div>
)
```

Listagem 135 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 3, 4, 11 e 12)

```
import React, { Component } from 'react'
import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

export default class Todo extends Component {
  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
        <TodoForm />
        <TodoList />
      </div>
    )
  }
}
```

Listagem 136 - Criar arquivo todoList.jsx

todo-app/frontend/src/todo/todoList.jsx

```
import React from 'react'

export default props => (
  <div>
    <h1>List</h1>
  </div>
)
```

5.10. Estratégia de Implementação

5.11. Estrutura do Formulário

Listagem 137 - Sobrescrever arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx

```
import React from 'react'

export default props => (
  <div role='form' className='todoForm'>
    <div className='col-xs-12 col-sm-9 col-md-10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'></input>
    </div>

    <div className='col-xs-12 col-sm-3 col-md-2'>
      <button className='btn btn-primary'>
        <i className='fa fa-plus'></i>
      </button>
    </div>
  </div>
)
```

5.12. Componentes Grid e IconButton

Listagem 138 - Criar arquivo grid.jsx

todo-app/frontend/src/template/grid.jsx

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

export default class Grid extends Component {
  toCssClasses(numbers) {
    const cols = numbers ? numbers.split(' ') : []
    let classes = ''

    if(cols[0]) classes += `col-xs-${cols[0]}`
    if(cols[1]) classes += `col-sm-${cols[1]}`
    if(cols[2]) classes += `col-md-${cols[2]}`
    if(cols[3]) classes += `col-lg-${cols[3]}`

    return classes
  }

  render() {
    const gridClasses = this.toCssClasses(this.props.cols || 12)
    return (
      <div className={gridClasses}>
        {this.props.children}
      </div>
    )
  }
}
```

Listagem 139 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 2, 6, 9, 10 e 14)

```
import React from 'react'
import Grid from '../template/grid'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'></input>
    </Grid>
    <Grid cols='12 3 2'>
      <button className='btn btn-primary'>
        <i className='fa fa-plus'></i>
      </button>
    </Grid>
  </div>
)
```

Listagem 140 - Criar arquivo iconButton.jsx

todo-app/frontend/src/template/iconButton.jsx

```
import React from 'react'

export default props =>
  if(props.hide){
    return null
  } else {
    return (
      <button className={'btn btn-' + props.style}
        onClick={props.onClick}>
        <i className={'fa fa-' + props.icon}></i>
      </button>
    )
  }
)
```

Listagem 141 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 3 e 12)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'></input>
    </Grid>
    <Grid cols='12 3 2'>
      <IconButton style='primary' icon='plus'></IconButton>
    </Grid>
  </div>
)
```

5.13. Renderização Condicional (If)

Listagem 142 - Criar arquivo if.jsx

todo-app/frontend/src/template/if.jsx

```
import React from 'react'

export default props => {
  if(props.test) {
    return props.children
  } else {
    return false
  }
}
```

Listagem 143 - Sobrescrever arquivo iconButton.jsx

todo-app/frontend/src/template/iconButton.jsx

```
import React from 'react'
import If from './if'

export default props => (
  <If test={!props.hide}>
    <button className={'btn btn-' + props.style}
      onClick={props.onClick}>
      <i className={'fa fa-' + props.icon}></i>
    </button>
  </If>
)
```

5.14. Evento Adicionar

Listagem 144 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 13)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'></input>
    </Grid>
    <Grid cols='12 3 2'>
      <IconButton style='primary' icon='plus'
        onClick={props.handleAdd}></IconButton>
    </Grid>
  </div>
)
```

Listagem 145 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 7 e 20)

```
import React, { Component } from 'react'
import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.handleAdd = this.handleAdd.bind(this)
  }

  handleAdd() {
    console.log(this)
  }

  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
        <TodoForm handleAdd={this.handleAdd} />
        <TodoList />
      </div>
    )
  }
}
```

5.15. Evento onChange

Listagem 146 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 10 e 11)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'
        onChange={props.handleChange}
        value={props.description}></input>
    </Grid>
    <Grid cols='12 3 2'>
      <IconButton style='primary' icon='plus'
        onClick={props.handleAdd}></IconButton>
    </Grid>
  </div>
)
```

Listagem 147 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 9, 11, 15, 20, 23 e 27)

```
import React, { Component } from 'react'
import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)
  }

  handleChange(e) {
    this.setState({ ...this.state, description: e.target.value })
  }

  handleAdd() {
    console.log(this.state.description)
  }

  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
        <TodoForm description={this.state.description}
                  handleChange={this.handleChange}
                  handleAdd={this.handleAdd} />
        <TodoList />
      </div>
    )
  }
}
```

5.16. Evento Adicionar (Integração Backend)

Listagem 148 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 2, 8 e 24)

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

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

const URL = 'http://localhost:3003/api/todos'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)
  }

  handleChange(e) {
    this.setState({ ...this.state, description: e.target.value })
  }

  handleAdd() {
    const description = this.state.description
    axios.post(URL, { description })
      .then(resp => console.log('Funcionou!'))
  }

  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
        <TodoForm description={this.state.description}>
          handleChange={this.handleChange}
          handleAdd={this.handleAdd} />
        <TodoList />
      </div>
    )
  }
}
```

5.17. Consulta e Exclusão de TODOS

Listagem 149 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 18, 20, 23, 34, 37 e 49)

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

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

const URL = 'http://localhost:3003/api/todos'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)

    this.handleRemove = this.handleRemove.bind(this)

    this.refresh()
  }

  refresh() {
    axios.get(`${URL}?sort=-createdAt`)
      .then(resp => this.setState({...this.state, description: '', list: resp.data}))
  }

  handleChange(e) {
    this.setState({...this.state, description: e.target.value})
  }

  handleAdd() {
    const description = this.state.description
    axios.post(URL, { description })
      .then(resp => this.refresh())
  }

  handleRemove(todo) {
    axios.delete(`${URL}/${todo._id}`)
      .then(resp => this.refresh())
  }

  render() {
    return (
      <div>
        <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
    
```

```

        <TodoForm description={this.state.description}
                  handleChange={this.handleChange}
                  handleAdd={this.handleAdd} />
        <TodoList list={this.state.list}
                  handleRemove={this.handleRemove} />
    </div>
)
}
}

```

Listagem 150 - Sobrescrever arquivo todoList.jsx

todo-app/frontend/src/todo/todoList.jsx

```

import React from 'react'
import IconButton from '../template/iconButton'

export default props => {

    const renderRows = () => {
        const list = props.list || []
        return list.map(todo => (
            <tr key={todo._id}>
                <td>{todo.description}</td>
                <td>
                    <IconButton style='danger' icon='trash-o'
                               onClick={() => props.handleRemove(todo)}></IconButton>
                </td>
            </tr>
        ))
    }

    return (
        <table className='table'>
            <thead>
                <tr>
                    <th>Descrição</th>
                    <th>Ações</th>
                </tr>
            </thead>
            <tbody>
                {renderRows()}
            </tbody>
        </table>
    )
}

```

5.18. Marcar como Concluído/Pendente

Listagem 151 - Alterar arquivo todoList.jsx

todo-app/frontend/src/todo/todoList.jsx (aprox. linha 10 e 12)

```
import React from 'react'
import IconButton from '../template/iconButton'

export default props => {

    const renderRows = () => {
        const list = props.list || []
        return list.map(todo => (
            <tr key={todo._id}>
                <td className={todo.done ? 'markAsDone' : ''}
}=>{todo.description}</td>
                <td>
                    <IconButton style='success' icon='check' hide={todo.done}
props.handleMarkAsDone(todo)}></IconButton>
                    <IconButton style='warning' icon='undo' hide={!todo.done}
props.handleMarkAsPending(todo)}></IconButton>
                    <IconButton style='danger' icon='trash-o' hide={!todo.done}
onClick={() => props.handleRemove(todo)}></IconButton>
                </td>
            </tr>
        ))
    }

    return (
        <table className='table'>
            <thead>
                <tr>
                    <th>Descrição</th>
                    <th>Ações</th>
                </tr>
            </thead>
            <tbody>
                {renderRows()}
            </tbody>
        </table>
    )
}
```

Listagem 152 - Alterar arquivo todo.jsx

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

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

const URL = 'http://localhost:3003/api/todos'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)

    this.handleMarkAsDone = this.handleMarkAsDone.bind(this)
    this.handleMarkAsPending = this.handleMarkAsPending.bind(this)
    this.handleRemove = this.handleRemove.bind(this)

    this.refresh()
  }

  refresh() {
    axios.get(`${URL}?sort=-createdAt`)
      .then(resp => this.setState({ ...this.state, description: '', list: resp.data }))
  }

  handleChange(e) {
    this.setState({ ...this.state, description: e.target.value })
  }

  handleAdd() {
    const description = this.state.description
    axios.post(URL, { description })
      .then(resp => this.refresh())
  }

  handleRemove(todo) {
    axios.delete(`${URL}/${todo._id}`)
      .then(resp => this.refresh())
  }

  handleMarkAsDone(todo) {
    axios.put(`${URL}/${todo._id}`, { ...todo, done: true })
      .then(resp => this.refresh())
  }
}
```

```

handleMarkAsPending(todo) {
  axios.put(`#${URL}/${todo._id}`, { ...todo, done: false })
    .then(resp => this.refresh())
}

render() {
  return (
    <div>
      <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
      <TodoForm description={this.state.description}
        handleChange={this.handleChange}
        handleAdd={this.handleAdd} />
      <TodoList list={this.state.list}
        handleMarkAsDone={this.handleMarkAsDone}
        handleMarkAsPending={this.handleMarkAsPending}
        handleRemove={this.handleRemove} />
    </div>
  )
}
}

```

Listagem 153 - Criar arquivo custom.css

todo-app/frontend/src/template/custom.css

```

.btn {
  margin-right: 5px;
}

.markedAsDone {
  text-decoration: line-through;
  color: #777;
}

```

Listagem 154 - Alterar arquivo app.jsx

todo-app/frontend/src/main/app.jsx (aprox. linha 3)

```
import 'modules/bootstrap/dist/css/bootstrap.min.css'
import 'modules/font-awesome/css/font-awesome.min.css'
import '../template/custom.css'

import React from 'react'
import Menu from '../template/menu'
import Routes from './routes'

export default props => (
  <div className='container'>
    <Menu />
    <Routes />
  </div>
)
```

5.19. Pesquisa de TODOs

Listagem 155 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 16)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'
        onChange={props.handleChange}
        value={props.description}></input>
    </Grid>
    <Grid cols='12 3 2'>
      <IconButton style='primary' icon='plus'
        onClick={props.handleAdd}></IconButton>
      <IconButton style='info' icon='search'
        onClick={props.handleSearch}></IconButton>
    </Grid>
  </div>
)
```

Listagem 156 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 17, 26, 32, 48, 53, 58 e 69)

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

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

const URL = 'http://localhost:3003/api/todos'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)
    this.handleSearch = this.handleSearch.bind(this)

    this.handleMarkAsDone = this.handleMarkAsDone.bind(this)
    this.handleMarkAsPending = this.handleMarkAsPending.bind(this)
    this.handleRemove = this.handleRemove.bind(this)

    this.refresh()
  }

  refresh(description = '') {
    const search = description ? `&description__regex=/${description}/` : ''
    axios.get(`${URL}?sort=-createdAt${search}`)
      .then(resp => this.setState({ ...this.state, description, list: resp.data}))
  }

  handleSearch() {
    this.refresh(this.state.description)
  }

  handleChange(e) {
    this.setState({ ...this.state, description: e.target.value })
  }

  handleAdd() {
    const description = this.state.description
    axios.post(URL, { description })
      .then(resp => this.refresh())
  }

  handleRemove(todo) {
```

```

        axios.delete(`#${URL}/${todo._id}`)
            .then(resp => this.refresh(this.state.description))
    }

handleMarkAsDone(todo) {
    axios.put(`#${URL}/${todo._id}`, { ...todo, done: true })
        .then(resp => this.refresh(this.state.description))
}

handleMarkAsPending(todo) {
    axios.put(`#${URL}/${todo._id}`, { ...todo, done: false })
        .then(resp => this.refresh(this.state.description))
}

render() {
    return (
        <div>
            <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
            <TodoForm description={this.state.description}>
                handleChange={this.handleChange}
                handleAdd={this.handleAdd}
                handleSearch={this.handleSearch} />
            <TodoList list={this.state.list}>
                handleMarkAsDone={this.handleMarkAsDone}
                handleMarkAsPending={this.handleMarkAsPending}
                handleRemove={this.handleRemove} />
            </div>
        )
    }
}

```

5.20. Melhorias de CSS e Limpar Formulário

Listagem 157 - Alterar arquivo custom.css

todo-app/frontend/src/template/custom.css (aprox. linha 10)

```
.btn {  
    margin-right: 5px;  
}  
  
.markedAsDone {  
    text-decoration: line-through;  
    color: #777;  
}  
  
.tableActions {  
    width: 105px;  
}  
  
.todoForm {  
    padding-bottom: 60px;  
}
```

Listagem 158 - Alterar arquivo todoList.jsx

todo-app/frontend/src/todo/todoList.jsx (aprox. linha 28)

```
import React from 'react'
import IconButton from '../template/iconButton'

export default props => {

  const renderRows = () => {
    const list = props.list || []
    return list.map(todo => (
      <tr key={todo._id}>
        <td className={todo.done ? 'markAsDone' : ''}>
          {todo.description}</td>
        <td>
          <IconButton style='success' icon='check' hide={todo.done}>
            onClick={() =>
              props.handleMarkAsDone(todo)}</IconButton>
          <IconButton style='warning' icon='undo' hide={!todo.done}>
            onClick={() =>
              props.handleMarkAsPending(todo)}</IconButton>
          <IconButton style='danger' icon='trash-o' hide={!todo.done}>
            onClick={() => props.handleRemove(todo)}</IconButton>
        </td>
      </tr>
    ))
  }

  return (
    <table className='table'>
      <thead>
        <tr>
          <th>Descrição</th>
          <th className='tableActions'>Ações</th>
        </tr>
      </thead>
      <tbody>
        {renderRows()}
      </tbody>
    </table>
  )
}
```

Listagem 159 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 18)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => (
  <div role='form' className='todoForm'>
    <Grid cols='12 9 10'>
      <input id='description' className='form-control'
        placeholder='Adicione uma tarefa'
        onChange={props.handleChange}
        value={props.description}></input>
    </Grid>
    <Grid cols='12 3 2'>
      <IconButton style='primary' icon='plus'
        onClick={props.handleAdd}></IconButton>
      <IconButton style='info' icon='search'
        onClick={props.handleSearch}></IconButton>
      <IconButton style='default' icon='close'
        onClick={props.handleClear}></IconButton>
    </Grid>
  </div>
)
```

Listagem 160 - Alterar arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx (aprox. linha 18, 61 e 75)

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

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

const URL = 'http://localhost:3003/api/todos'

export default class Todo extends Component {
  constructor(props) {
    super(props)
    this.state = { description: '', list: [] }

    this.handleChange = this.handleChange.bind(this)
    this.handleAdd = this.handleAdd.bind(this)
    this.handleSearch = this.handleSearch.bind(this)
```

```

        this.handleClear = this.handleClear.bind(this)

        this.handleMarkAsDone = this.handleMarkAsDone.bind(this)
        this.handleMarkAsPending = this.handleMarkAsPending.bind(this)
        this.handleRemove = this.handleRemove.bind(this)

        this.refresh()
    }

refresh(description = '') {
    const search = description ? `&description__regex=/${description}/` : ''
    axios.get(`${URL}?sort=-createdAt${search}`)
        .then(resp => this.setState({...this.state, description, list:
resp.data}))
}

handleSearch() {
    this.refresh(this.state.description)
}

handleChange(e) {
    this.setState({...this.state, description: e.target.value })
}

handleAdd() {
    const description = this.state.description
    axios.post(URL, { description })
        .then(resp => this.refresh())
}

handleRemove(todo) {
    axios.delete(`${URL}/${todo._id}`)
        .then(resp => this.refresh(this.state.description))
}

handleMarkAsDone(todo) {
    axios.put(`${URL}/${todo._id}`, { ...todo, done: true })
        .then(resp => this.refresh(this.state.description))
}

handleMarkAsPending(todo) {
    axios.put(`${URL}/${todo._id}`, { ...todo, done: false })
        .then(resp => this.refresh(this.state.description))
}

handleClear() {
    this.refresh()
}

render() {
    return (

```

```
<div>
    <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
    <TodoForm description={this.state.description}
        handleChange={this.handleChange}
        handleAdd={this.handleAdd}
        handleSearch={this.handleSearch}
        handleClear={this.handleClear} />
    <TodoList list={this.state.list}
        handleMarkAsDone={this.handleMarkAsDone}
        handleMarkAsPending={this.handleMarkAsPending}
        handleRemove={this.handleRemove} />
</div>
)
}
}
```

5.21. Adicionar Teclas de Atalhos

Listagem 161 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 5, 6, 20 e 32)

```
import React from 'react'
import Grid from '../template/grid'
import IconButton from '../template/iconButton'

export default props => {
  const keyHandler = (e) => {
    if(e.key === 'Enter'){
      e.shiftKey ? props.handleSearch() : props.handleAdd()
    } else if(e.key === 'Escape') {
      props.handleClear()
    }
  }

  return (
    <div role='form' className='todoForm'>
      <Grid cols='12 9 10'>
        <input id='description' className='form-control'
          placeholder='Adicione uma tarefa'
          onChange={props.handleChange}
          onKeyUp={keyHandler}
          value={props.description}></input>
      </Grid>
      <Grid cols='12 3 2'>
        <IconButton style='primary' icon='plus'
          onClick={props.handleAdd}></IconButton>
        <IconButton style='info' icon='search'
          onClick={props.handleSearch}></IconButton>
        <IconButton style='default' icon='close'
          onClick={props.handleClear}></IconButton>
      </Grid>
    </div>
  )
}
```

6. React com Redux

6.1. Palavras Iniciais e Instalação

Abra o terminal e dentro da pasta `exercicios_react` execute o seguinte comando:

Listagem 162 - Instalando as dependências

```
npm i --save-dev react-redux@5.0.2 redux@3.6.0
```

Listagem 163 - Executar a aplicação

```
npm run dev
```

6.2. Conhecendo o Redux

6.3. Configurando o Redux

Listagem 164 - Alterar arquivo `index.jsx`

`exercicios_react/ex/index.jsx` (aprox. linha 3, 4, 7 e 12)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { combineReducers, createStore } from 'redux'
import { Provider } from 'react-redux'
import Field from './field'

const reducers = combineReducers({
  field: () => ({ value: 'Opa' })
})

ReactDOM.render(
  <Provider store={createStore(reducers)}>
    <Field initialValue='Teste' />
  </Provider>
, document.getElementById('app'))
```

6.4. Ex 01 - Integrando o React-Redux (Parte 1)

Listagem 165 - Alterar arquivo field.js

exercicios_react/ex/field.js (aprox. linha 2, 5, 8, 15 e 21)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'

class Field extends Component {
  render() {
    return (
      <div>
        <label>{this.props.value}</label><br />
        <input onChange={this.handleChange} value={this.props.value} />
      </div>
    )
  }
}

function mapStateToProps(state) {
  return {
    value: state.field.value
  }
}

export default connect(mapStateToProps)(Field)
```

6.5. Ex 01 - Integrando o React-Redux (Parte 2)

Listagem 166 - Criar arquivo fieldActions.js

exercicios_react/ex/fieldActions.js

```
export function changeValue(e) {
  console.log('changeValue')
  return {
    type: 'VALUE_CHANGED',
    payload: e.target.value
  }
}
```

Listagem 167 - Alterar arquivo field.js

exercicios_react/ex/field.js (aprox. linha 3, 4, 11, 23 e 27)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { changeValue } from './fieldActions'

class Field extends Component {
    render() {
        return (
            <div>
                <label>{this.props.value}</label><br />
                <input onChange={this.props.changeValue} value={this.props.value}>
            />
            </div>
        )
    }
}

function mapStateToProps(state) {
    return {
        value: state.field.value
    }
}

function mapDispatchToProps(dispatch) {
    return bindActionCreators({ changeValue }, dispatch)
}

export default connect(mapStateToProps, mapDispatchToProps)(Field)
```

6.6. Ex 01 - Integrando o React-Redux (Parte 3)

Listagem 168 - Criar arquivo fieldReducer.js

exercicios_react/ex/fieldReducer.js

```
const INITIAL_STATE = { value: 'Opa' }

export default function(state = INITIAL_STATE, action) {
  switch(action.type) {
    case 'VALUE_CHANGED':
      return { value: action.payload }
    default:
      return state
  }
}
```

Listagem 169 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 6 e 9)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { combineReducers, createStore } from 'redux'
import { Provider } from 'react-redux'
import Field from './field'
import fieldReducer from './fieldReducer'

const reducers = combineReducers({
  field: fieldReducer
})

ReactDOM.render(
  <Provider store={createStore(reducers)}>
    <Field initialValue='Teste' />
  </Provider>
, document.getElementById('app'))
```

6.7. Ex 02 - Integrando o React-Redux (Parte 1)

Listagem 170 - Criar arquivo counterActions.js

exercicios_react/ex/counterActions.js

```
export function inc() {
    return { type: 'INC' }
}

export function dec() {
    return { type: 'DEC' }
}

export function stepChanged(e) {
    return {
        type: 'STEP_CHANGED',
        payload: e.target.value
    }
}
```

Listagem 171 - Criar arquivo counterReducer.js

exercicios_react/ex/counterReducer.js

```
const INITIAL_STATE = { step: 1, number: 0 }

export default function(state = INITIAL_STATE, action) {
    switch(action.type) {
        case 'INC':
            return { ...state, number: state.number + state.step }
        case 'DEC':
            return { ...state, number: state.number - state.step }
        case 'STEP_CHANGED':
            return { ...state, step: action.payload }
        default:
            return state
    }
}
```

Listagem 172 - Criar arquivo counter.jsx

exercicios_react/ex/counter.jsx

```
import React from 'react'

const Counter = props => (
  <div>0k</div>
)

export default Counter
```

6.8. Ex 02 - Integrando o React-Redux (Parte 2)

Listagem 173 - Alterar arquivo index.jsx

exercicios_react/ex/index.jsx (aprox. linha 5, 6, 9 e 14)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { combineReducers, createStore } from 'redux'
import { Provider } from 'react-redux'
import counterReducer from './counterReducer'
import Counter from './counter'

const reducers = combineReducers({
  counter: counterReducer
})

ReactDOM.render(
  <Provider store={createStore(reducers)}>
    <Counter />
  </Provider>
, document.getElementById('app'))
```

Listagem 174 - Sobrescrever arquivo counter.jsx

exercicios_react/ex/counter.jsx

```
import React from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import { inc, dec, stepChanged } from './counterActions'

const Counter = props => (
  <div>
    <h1>{props.counter.number}</h1>
    <input onChange={props.stepChanged}
           value={props.counter.step} type='number' />
    <button onClick={props.dec}>Dec</button>
    <button onClick={props.inc}>Inc</button>
  </div>
)

const mapStateToProps = state => ({ counter: state.counter })
const mapDispatchToProps =
  dispatch => bindActionCreators({ inc, dec, stepChanged }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(Counter)
```

Listagem 175 - Alterar arquivo counterReducer.js

exercicios_react/ex/counterReducer.js (aprox. linha 10)

```
const INITIAL_STATE = { step: 1, number: 0 }

export default function(state = INITIAL_STATE, action) {
  switch(action.type) {
    case 'INC':
      return { ...state, number: state.number + state.step }
    case 'DEC':
      return { ...state, number: state.number - state.step }
    case 'STEP_CHANGED':
      return { ...state, step: +action.payload }
    default:
      return state
  }
}
```

7. TodoApp (Migração para Redux)

7.1. Instalando as Dependências

Abra o terminal e dentro da pasta `todo-app/frontend` execute o seguinte comando:

Listagem 176 - Instalando as dependências

```
npm i --save-dev redux@3.6.0 react-redux@5.0.2
```

Listagem 177 - Abrir o Visual Studio Code

```
code .
```

7.2. Configurando os Reducers

Listagem 178 - Criar arquivo reducers.js

todo-app/frontend/src/main/reducers.js

```
import { combineReducers } from 'redux'

const rootReducer = combineReducers({
  todo: () => ({
    description: 'Ler livro',
    list: [
      {
        _id: 1,
        description: 'Pagar fatura do cartão',
        done: true
      },
      {
        _id: 2,
        description: 'Reunião com a equipe às 10:00',
        done: false
      },
      {
        _id: 3,
        description: 'Consulta médicas na terça depois do almoço',
        done: false
      }
    ]
  })
}

export default rootReducer
```

7.3. Configurando o Redux

Listagem 179 - Alterar arquivo index.jsx

todo-app/frontend/src/index.jsx (aprox. linha 3, 4, 7, 9 e 11)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { createStore } from 'redux'
import { Provider } from 'react-redux'

import App from './main/app'
import reducers from './main/reducers'

const store = createStore(reducers)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

7.4. Conectar o TodoList com Redux

Listagem 180 - Alterar arquivo todoList.jsx

todo-app/frontend/src/todo/todoList.jsx (aprox. linha 5, 39 e 40)

```
import React from 'react'
import IconButton from '../template/iconButton'

const TodoList = props => {

    const renderRows = () => {
        const list = props.list || []
        return list.map(todo => (
            <tr key={todo._id}>
                <td className={todo.done ? 'markAsDone' : ''}>
                    {todo.description}</td>
                    <td>
                        <IconButton style='success' icon='check' hide={todo.done}>
                            onClick={() =>
                                props.handleMarkAsDone(todo)}</IconButton>
                        <IconButton style='warning' icon='undo' hide={!todo.done}>
                            onClick={() =>
                                props.handleMarkAsPending(todo)}</IconButton>
                        <IconButton style='danger' icon='trash-o' hide={!todo.done}>
                            onClick={() => props.handleRemove(todo)}</IconButton>
                    </td>
                </tr>
        ))
    }

    return (
        <table className='table'>
            <thead>
                <tr>
                    <th>Descrição</th>
                    <th className='tableActions'>Ações</th>
                </tr>
            </thead>
            <tbody>
                {renderRows()}
            </tbody>
        </table>
    )
}

const mapStateToProps = state => ({list: state.todo.list})
export default connect(mapStateToProps)(TodoList)
```

7.5. Conectar o TodoForm com Redux

Listagem 181 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 2, 7, 37 e 38)

```
import React from 'react'
import { connect } from 'react-redux'

import Grid from '../template/grid'
import IconButton from '../template/iconButton'

const TodoForm = props => {
  const keyHandler = (e) => {
    if(e.key === 'Enter'){
      e.shiftKey ? props.handleSearch() : props.handleAdd()
    } else if(e.key === 'Escape') {
      props.handleClear()
    }
  }

  return (
    <div role='form' className='todoForm'>
      <Grid cols='12 9 10'>
        <input id='description' className='form-control'
          placeholder='Adicione uma tarefa'
          onChange={props.handleChange}
          onKeyUp={keyHandler}
          value={props.description}></input>
      </Grid>
      <Grid cols='12 3 2'>
        <IconButton style='primary' icon='plus'
          onClick={props.handleAdd}></IconButton>
        <IconButton style='info' icon='search'
          onClick={props.handleSearch}></IconButton>
        <IconButton style='default' icon='close'
          onClick={props.handleClear}></IconButton>
      </Grid>
    </div>
  )
}

const mapStateToProps = state => ({description: state.todo.description})
export default connect(mapStateToProps)(TodoForm)
```

7.6. Action Creator changeDescription

Listagem 182 - Criar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js

```
export const changeDescription = event => ({  
    type: 'DESCRIPTION_CHANGED',  
    payload: event.target.value  
)
```

Listagem 183 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 3, 7, 23, 40 e 42)

```
import React from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import Grid from '../template/grid'
import IconButton from '../template/iconButton'
import { changeDescription } from './todoActions'

const TodoForm = props => {
  const keyHandler = (e) => {
    if(e.key === 'Enter'){
      e.shiftKey ? props.handleSearch() : props.handleAdd()
    } else if(e.key === 'Escape') {
      props.handleClear()
    }
  }

  return (
    <div role='form' className='todoForm'>
      <Grid cols='12 9 10'>
        <input id='description' className='form-control'
          placeholder='Adicione uma tarefa'
          onChange={props.changeDescription}
          onKeyUp={keyHandler}
          value={props.description}></input>
      </Grid>
      <Grid cols='12 3 2'>
        <IconButton style='primary' icon='plus'
          onClick={props.handleAdd}></IconButton>
        <IconButton style='info' icon='search'
          onClick={props.handleSearch}></IconButton>
        <IconButton style='default' icon='close'
          onClick={props.handleClear}></IconButton>
      </Grid>
    </div>
  )
}

const mapStateToProps = state => ({description: state.todo.description})
const mapDispatchToProps = dispatch =>
  bindActionCreators({ changeDescription }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoForm)
```

Listagem 184 - Criar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js

```
const INITIAL_STATE = {
  description: 'Ler livro',
  list: [
    {
      _id: 1,
      description: 'Pagar fatura do cartão',
      done: true
    },
    {
      _id: 2,
      description: 'Reunião com a equipe às 10:00',
      done: false
    },
    {
      _id: 3,
      description: 'Consulta médicas na terça depois do almoço',
      done: false
    }
  ]
}

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    default:
      return state
  }
}
```

Listagem 185 - Alterar arquivo reducers.js

todo-app/frontend/src/main/reducers.js (aprox. linha 5)

```
import { combineReducers } from 'redux'
import todoReducer from '../todo/todoReducer'

const rootReducer = combineReducers({
  todo: todoReducer
})

export default rootReducer
```

7.7. Configurando o Redux Dev Tools



Para instalar a extensão do plugin do *Redux DevTools* para Chrome acesse o link:
<https://chrome.google.com/webstore/detail/redux-devtools/lmhkpmbekcpmknklioeibfkpmmfibljd>

Listagem 186 - Alterar arquivo index.jsx

todo-app/frontend/src/index.jsx (aprox. linha 9 e 11)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { createStore } from 'redux'
import { Provider } from 'react-redux'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = createStore(reducers, devTools)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

7.8. Action Creator de Pesquisa

Listagem 187 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 1, 3 e 10)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
  type: 'DESCRIPTION_CHANGED',
  payload: event.target.value
})

export const search = () => {
  request = axios.get(`#${URL}?sort=-createdAt`)
  return {
    type: 'TODO_SEARCHED',
    payload: request
  }
}
```

Listagem 188 - Alterar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js (aprox. linha 22)

```
const INITIAL_STATE = {
  description: 'Ler livro',
  list: [
    {
      _id: 1,
      description: 'Pagar fatura do cartão',
      done: true
    },
    {
      _id: 2,
      description: 'Reunião com a equipe às 10:00',
      done: false
    },
    {
      _id: 3,
      description: 'Consulta médicas na terça depois do almoço',
      done: false
    }
  ]
}

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    case 'TODO_SEARCHED':
      return { ...state, list: action.payload.data }
    default:
      return state
  }
}
```

Listagem 189 - Sobrescrever arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import Grid from '../template/grid'
import IconButton from '../template/iconButton'
import { changeDescription, search } from './todoActions'

class TodoForm extends Component {
  constructor(props) {
```

```

        super(props)
        this.keyHandler = this.keyHandler.bind(this)
    }

    componentWillMount() {
        this.props.search()
    }

    keyHandler(e) {
        if(e.key === 'Enter'){
            e.shiftKey ? this.props.handleSearch() : this.props.handleAdd()
        } else if(e.key === 'Escape') {
            props.handleClear()
        }
    }

    render() {
        return (
            <div role='form' className='todoForm'>
                <Grid cols='12 9 10'>
                    <input id='description' className='form-control'
                        placeholder='Adicione uma tarefa'
                        onChange={this.props.changeDescription}
                        onKeyUp={this.keyHandler}
                        value={this.props.description}></input>
                </Grid>
                <Grid cols='12 3 2'>
                    <IconButton style='primary' icon='plus'
                        onClick={this.props.handleAdd}></IconButton>
                    <IconButton style='info' icon='search'
                        onClick={this.props.handleSearch}></IconButton>
                    <IconButton style='default' icon='close'
                        onClick={this.props.handleClear}></IconButton>
                </Grid>
            </div>
        )
    }
}

const mapStateToProps = state => ({description: state.todo.description})
const mapDispatchToProps = dispatch =>
    bindActionCreators({ changeDescription, search }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoForm)

```

7.9. Aplicando Middleware (Redux-Promise)

Abra o terminal e dentro da pasta `todo-app/frontend` execute o seguinte comando:

Listagem 190 - Instalando a dependência

```
npm i --save-dev redux-promise@0.5.3
```

Listagem 191 - Executar a aplicação

```
npm run dev
```

Listagem 192 - Alterar arquivo index.jsx

todo-app/frontend/src/index.jsx (aprox. linha 3, 5 e 12)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'
import promise from 'redux-promise'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = applyMiddleware(promise)(createStore)(reducers, devTools)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

Listagem 193 - Alterar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js (aprox. linha 1)

```
const INITIAL_STATE = { description: '', list: [] }

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    case 'TODO_SEARCHED':
      return { ...state, list: action.payload.data }
    default:
      return state
  }
}
```

7.10. Adicionar TODO

Listagem 194 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 18)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
    type: 'DESCRIPTION_CHANGED',
    payload: event.target.value
})

export const search = () => {
    request = axios.get(`#${URL}?sort=-createdAt`)
    return {
        type: 'TODO_SEARCHED',
        payload: request
    }
}

export const add = (description) => {
    const request = axios.post(URL, { description })
    return {
        type: 'TODO_ADDED',
        payload: request
    }
}
```

Listagem 195 - Alterar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js (aprox. linha 1)

```
const INITIAL_STATE = { description: '', list: [] }

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    case 'TODO_SEARCHED':
      return { ...state, list: action.payload.data }
    case 'TODO_ADDED':
      return { ...state, description: '' }
    default:
      return state
  }
}
```

Listagem 196 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 7, 20, 22, 29, 41, 43 e 53)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import Grid from '../template/grid'
import IconButton from '../template/iconButton'
import { add, changeDescription, search } from './todoActions'

class TodoForm extends Component {
  constructor(props) {
    super(props)
    this.keyHandler = this.keyHandler.bind(this)
  }

  componentWillMount() {
    this.props.search()
  }

  keyHandler(e) {
    const { add, search, description } = this.props
    if(e.key === 'Enter'){
      e.shiftKey ? search() : add(description)
    } else if(e.key === 'Escape') {
      props.handleClear()
    }
  }
}
```

```

    }

    render() {
        const { add, search, description } = this.props
        return (
            <div role='form' className='todoForm'>
                <Grid cols='12 9 10'>
                    <input id='description' className='form-control'
                        placeholder='Adicione uma tarefa'
                        onChange={this.props.changeDescription}
                        onKeyUp={this.keyHandler}
                        value={this.props.description}></input>
                </Grid>
                <Grid cols='12 3 2'>
                    <IconButton style='primary' icon='plus'
                        onClick={() => add(description)}></IconButton>
                    <IconButton style='info' icon='search'
                        onClick={() => search()}></IconButton>
                    <IconButton style='default' icon='close'
                        onClick={this.props.handleClear}></IconButton>
                </Grid>
            </div>
        )
    }
}

const mapStateToProps = state => ({description: state.todo.description})
const mapDispatchToProps = dispatch =>
    bindActionCreators({ add, changeDescription, search }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoForm)

```

7.11. Aplicando Middleware (Redux-Multi)

Abra o terminal e dentro da pasta `todo-app/frontend` execute o seguinte comando:

Listagem 197 - Instalando a dependência

```
npm i --save-dev redux-multi@0.1.12
```

Listagem 198 - Executar a aplicação

```
npm run dev
```

Listagem 199 - Alterar arquivo index.jsx

todo-app/frontend/src/index.jsx (aprox. linha 7 e 15)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'
import multi from 'redux-multi'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = applyMiddleware(multi, promise)(createStore)(reducers, devTools)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

Listagem 200 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 20)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
  type: 'DESCRIPTION_CHANGED',
  payload: event.target.value
})

export const search = () => {
  request = axios.get(`#${URL}?sort=-createdAt`)
  return {
    type: 'TODO_SEARCHED',
    payload: request
  }
}

export const add = (description) => {
  const request = axios.post(URL, { description })
  return [
    { type: 'TODO_ADDED', payload: request },
    search()
  ]
}
```

7.12. Aplicando Middleware (Redux-Thunk)

Abra o terminal e dentro da pasta `todo-app/frontend` execute o seguinte comando:

Listagem 201 - Instalando a dependência

```
npm i --save-dev redux-thunk@2.2.0
```

Listagem 202 - Executar a aplicação

```
npm run dev
```

Listagem 203 - Alterar arquivo index.jsx

todo-app/frontend/src/index.jsx (aprox. linha 8 e 15)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'
import multi from 'redux-multi'
import thunk from 'redux-thunk'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = applyMiddleware(thunk, multi, promise)(createStore)(reducers,
devTools)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

Listagem 204 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 18)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
  type: 'DESCRIPTION_CHANGED',
  payload: event.target.value
})

export const search = () => {
  request = axios.get(`#${URL}?sort=-createdAt`)
  return {
    type: 'TODO_SEARCHED',
    payload: request
  }
}

export const add = (description) => {
  return dispatch => {
    axios.post(URL, { description })
      .then(resp => dispatch({ type: 'TODO_ADDED', payload: resp.data }))
      .then(resp => dispatch(search()))
  }
}
```

7.13. Marcar como Concluído/Pendente

Listagem 205 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 26 e 33)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
    type: 'DESCRIPTION_CHANGED',
    payload: event.target.value
})

export const search = () => {
    request = axios.get(`#${URL}?sort=-createdAt`)
    return {
        type: 'TODO_SEARCHED',
        payload: request
    }
}

export const add = (description) => {
    return dispatch => {
        axios.post(URL, { description })
            .then(resp => dispatch({ type: 'TODO_ADDED', payload: resp.data }))
            .then(resp => dispatch(search()))
    }
}

export const markAsDone = (todo) => {
    return dispatch => {
        axios.put(`#${URL}/${todo._id}`, { ...todo, done: true })
            .then(resp => dispatch(search()))
    }
}

export const markAsPending = (todo) => {
    return dispatch => {
        axios.put(`#${URL}/${todo._id}`, { ...todo, done: false })
            .then(resp => dispatch(search()))
    }
}
```

Listagem 206 - Alterar arquivo todoList.jsx

```
import React from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import IconButton from '../template/iconButton'
import { markAsDone, markAsPending } from './todoActions'

const TodoList = props => {

  const renderRows = () => {
    const list = props.list || []
    return list.map(todo => (
      <tr key={todo._id}>
        <td className={todo.done ? 'markAsDone' : ''}>
          {todo.description}</td>
        <td>
          <IconButton style='success' icon='check' hide={todo.done}>
            onClick={() => props.markAsDone(todo)}</IconButton>
          <IconButton style='warning' icon='undo' hide={!todo.done}>
            onClick={() => props.markAsPending(todo)}</IconButton>
          <IconButton style='danger' icon='trash-o' hide={!todo.done}>
            onClick={() => props.handleRemove(todo)}</IconButton>
        </td>
      </tr>
    ))
  }

  return (
    <table className='table'>
      <thead>
        <tr>
          <th>Descrição</th>
          <th className='tableActions'>Ações</th>
        </tr>
      </thead>
      <tbody>
        {renderRows()}
      </tbody>
    </table>
  )
}

const mapStateToProps = state => ({list: state.todo.list})
const mapDispatchToProps = dispatch =>
  bindActionCreators({ markAsDone, markAsPending }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoList)
```

7.14. Exclusão de TODOs

Listagem 207 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 40)

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
    type: 'DESCRIPTION_CHANGED',
    payload: event.target.value
})

export const search = () => {
    request = axios.get(`#${URL}?sort=-createdAt`)
    return {
        type: 'TODO_SEARCHED',
        payload: request
    }
}

export const add = (description) => {
    return dispatch => {
        axios.post(URL, { description })
            .then(resp => dispatch({ type: 'TODO_ADDED', payload: resp.data }))
            .then(resp => dispatch(search()))
    }
}

export const markAsDone = (todo) => {
    return dispatch => {
        axios.put(`#${URL}/${todo._id}`, { ...todo, done: true })
            .then(resp => dispatch(search()))
    }
}

export const markAsPending = (todo) => {
    return dispatch => {
        axios.put(`#${URL}/${todo._id}`, { ...todo, done: false })
            .then(resp => dispatch(search()))
    }
}

export const remove = (todo) => {
    return dispatch => {
        axios.delete(`#${URL}/${todo._id}`)
            .then(resp => dispatch(search()))
    }
}
```

Listagem 208 - Alterar arquivo todoList.jsx

```
import React from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import IconButton from '../template/iconButton'
import { markAsDone, markAsPending, remove } from './todoActions'

const TodoList = props => {

  const renderRows = () => {
    const list = props.list || []
    return list.map(todo => (
      <tr key={todo._id}>
        <td className={todo.done ? 'markAsDone' : ''}>
          {todo.description}</td>
        <td>
          <IconButton style='success' icon='check' hide={todo.done}>
            onClick={() => props.markAsDone(todo)}</IconButton>
          <IconButton style='warning' icon='undo' hide={!todo.done}>
            onClick={() => props.markAsPending(todo)}</IconButton>
          <IconButton style='danger' icon='trash-o' hide={!todo.done}>
            onClick={() => props.remove(todo)}</IconButton>
        </td>
      </tr>
    ))
  }

  return (
    <table className='table'>
      <thead>
        <tr>
          <th>Descrição</th>
          <th className='tableActions'>Ações</th>
        </tr>
      </thead>
      <tbody>
        {renderRows()}
      </tbody>
    </table>
  )
}

const mapStateToProps = state => ({list: state.todo.list})
const mapDispatchToProps = dispatch =>
  bindActionCreators({ markAsDone, markAsPending, remove }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoList)
```

7.15. Limpar Formulário

Listagem 209 - Alterar arquivo todoActions.js

```
import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
    type: 'DESCRIPTION_CHANGED',
    payload: event.target.value
})

export const search = () => {
    request = axios.get(` ${URL}?sort=-createdAt`)
    return {
        type: 'TODO_SEARCHED',
        payload: request
    }
}

export const add = (description) => {
    return dispatch => {
        axios.post(URL, { description })
            .then(resp => dispatch(clear()))
            .then(resp => dispatch(search()))
    }
}

export const markAsDone = (todo) => {
    return dispatch => {
        axios.put(` ${URL}/${todo._id}`, { ...todo, done: true })
            .then(resp => dispatch(search()))
    }
}

export const markAsPending = (todo) => {
    return dispatch => {
        axios.put(` ${URL}/${todo._id}`, { ...todo, done: false })
            .then(resp => dispatch(search()))
    }
}

export const remove = (todo) => {
    return dispatch => {
        axios.delete(` ${URL}/${todo._id}`)
            .then(resp => dispatch(search()))
    }
}

export const clear = () => {
    return [{ type: 'TODO_CLEAR' }]
}
```

Listagem 210 - Alterar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js (aprox. linha 9)

```
const INITIAL_STATE = { description: '', list: [] }

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    case 'TODO_SEARCHED':
      return { ...state, list: action.payload.data }
    case 'TODO_CLEAR':
      return { ...state, description: '' }
    default:
      return state
  }
}
```

Listagem 211 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 7, 20, 24, 45 e 54)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import Grid from '../template/grid'
import IconButton from '../template/iconButton'
import { add, changeDescription, search, clear } from './todoActions'

class TodoForm extends Component {
  constructor(props) {
    super(props)
    this.keyHandler = this.keyHandler.bind(this)
  }

  componentWillMount() {
    this.props.search()
  }

  keyHandler(e) {
    const { add, search, description, clear } = this.props
    if(e.key === 'Enter'){
      e.shiftKey ? search() : add(description)
    } else if(e.key === 'Escape') {
      clear()
    }
  }
}
```

```

    }

    render() {
        const { add, search, description } = this.props
        return (
            <div role='form' className='todoForm'>
                <Grid cols='12 9 10'>
                    <input id='description' className='form-control'
                        placeholder='Adicione uma tarefa'
                        onChange={this.props.changeDescription}
                        onKeyUp={this.keyHandler}
                        value={this.props.description}></input>
                </Grid>
                <Grid cols='12 3 2'>
                    <IconButton style='primary' icon='plus'
                        onClick={() => add(description)}></IconButton>
                    <IconButton style='info' icon='search'
                        onClick={() => search()}></IconButton>
                    <IconButton style='default' icon='close'
                        onClick={this.props.clear}></IconButton>
                </Grid>
            </div>
        )
    }
}

const mapStateToProps = state => ({description: state.todo.description})
const mapDispatchToProps = dispatch =>
    bindActionCreators({ add, changeDescription, search, clear }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoForm)

```

7.16. Melhorando a Action de Pesquisa

Listagem 212 - Alterar arquivo todoActions.js

todo-app/frontend/src/todo/todoActions.js (aprox. linha 10 e 49)

```

import axios from 'axios'

const URL = 'http://localhost:3003/api/todos'

export const changeDescription = event => ({
    type: 'DESCRIPTION_CHANGED',
    payload: event.target.value
})

export const search = () => {
    return (dispatch, getState) => {

```

```

    const description = getState().todo.description
    const search = description ? `&description__regex=/${description}/` : ''
    const request = axios.get(`${URL}?sort=-createdAt${search}`)
        .then(resp => dispatch({type: 'TODO_SEARCHED', payload: resp.data}))
    }
}

export const add = (description) => {
    return dispatch =>
        axios.post(URL, { description })
            .then(resp => dispatch(clear()))
            .then(resp => dispatch(search()))
    }
}

export const markAsDone = (todo) => {
    return dispatch =>
        axios.put(`${URL}/${todo._id}`, { ...todo, done: true })
            .then(resp => dispatch(search()))
    }
}

export const markAsPending = (todo) => {
    return dispatch =>
        axios.put(`${URL}/${todo._id}`, { ...todo, done: false })
            .then(resp => dispatch(search()))
    }
}

export const remove = (todo) => {
    return dispatch =>
        axios.delete(`${URL}/${todo._id}`)
            .then(resp => dispatch(search()))
    }
}

export const clear = () => {
    return [{ type: 'TODO_CLEAR' }, search()]
}

```

Listagem 213 - Alterar arquivo todoForm.jsx

todo-app/frontend/src/todo/todoForm.jsx (aprox. linha 43)

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import Grid from '../template/grid'

```

```

import IconButton from './template/iconButton'
import { add, changeDescription, search, clear } from './todoActions'

class TodoForm extends Component {
  constructor(props) {
    super(props)
    this.keyHandler = this.keyHandler.bind(this)
  }

  componentWillMount() {
    this.props.search()
  }

  keyHandler(e) {
    const { add, search, description, clear } = this.props
    if(e.key === 'Enter'){
      e.shiftKey ? search() : add(description)
    } else if(e.key === 'Escape') {
      clear()
    }
  }

  render() {
    const { add, search, description } = this.props
    return (
      <div role='form' className='todoForm'>
        <Grid cols='12 9 10'>
          <input id='description' className='form-control'
            placeholder='Adicione uma tarefa'
            onChange={this.props.changeDescription}
            onKeyUp={this.keyHandler}
            value={this.props.description}></input>
        </Grid>
        <Grid cols='12 3 2'>
          <IconButton style='primary' icon='plus'
            onClick={() => add(description)}></IconButton>
          <IconButton style='info' icon='search'
            onClick={search}></IconButton>
          <IconButton style='default' icon='close'
            onClick={this.props.clear}></IconButton>
        </Grid>
      </div>
    )
  }
}

const mapStateToProps = state => ({description: state.todo.description})
const mapDispatchToProps = dispatch =>
  bindActionCreators({ add, changeDescription, search, clear }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TodoForm)

```

Listagem 214 - Alterar arquivo todoReducer.js

todo-app/frontend/src/todo/todoReducer.js (aprox. linha 8)

```
const INITIAL_STATE = { description: '', list: [] }

export default (state = INITIAL_STATE, action) => {
  switch(action.type) {
    case 'DESCRIPTION_CHANGED':
      return { ...state, description: action.payload }
    case 'TODO_SEARCHED':
      return { ...state, list: action.payload }
    case 'TODO_CLEAR':
      return { ...state, description: '' }
    default:
      return state
  }
}
```

Listagem 215 - Sobrescrever arquivo todo.jsx

todo-app/frontend/src/todo/todo.jsx

```
import React from 'react'

import PageHeader from '../template/pageHeader'
import TodoForm from './todoForm'
import TodoList from './todoList'

export default props => (
  <div>
    <PageHeader name='Tarefas' small='Cadastro'></PageHeader>
    <TodoForm />
    <TodoList />
  </div>
)
```

8. Aplicação Final - Ciclos de Pagamentos (Backend)

8.1. Visão Geral

8.2. Configuração e Instalação

Abra o terminal e dentro da pasta **Desktop** execute o seguinte comando:

Listagem 216 - Criar pasta my-money-app

```
my-money-app/
```

```
mkdir my-money-app && cd my-money-app
```

Listagem 217 - Criar pasta backend

```
my-money-app/backend
```

```
mkdir backend && cd backend
```

Listagem 218 - Criar arquivo package.json

```
my-money-app/backend/package.json
```

```
npm init -y
```

Listagem 219 - Instalando as dependências

```
npm i --save express@4.14.0 mongoose@4.7.0 body-parse@1.15.2 lodash@4.17.4  
mongoose-paginate@5.0.3 express-query-int@1.0.1 node-restful@0.2.5 pm2@2.1.5
```

Listagem 220 - Instalando a dependência

```
npm i --save-dev nodemon@1.11.0
```

Listagem 221 - Alterar arquivo package.json

my-money-app/backend/package.json (aprox. linha 2, 5 e 7)

```
{  
  "name": "my-money-backend",  
  "version": "1.0.0",  
  "description": "",  
  "main": "src/loader.js",  
  "scripts": {  
    "dev": "nodemon",  
    "production": "pm2 start src/loader.js --name my-money-backend"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC",  
  "dependencies": {  
    "body-parser": "^1.15.2",  
    "express": "^4.14.0",  
    "express-query-int": "^1.0.1",  
    "lodash": "^4.17.4",  
    "mongoose": "^4.7.0",  
    "mongoose-paginate": "^5.0.3",  
    "node-restful": "^0.2.5",  
    "pm2": "^2.1.5"  
  },  
  "devDependencies": {  
    "nodemon": "^1.11.0"  
  }  
}
```

Listagem 222 - Criar arquivo .gitignore

my-money-app/backend/.gitignore

```
node_modules  
*.log
```

8.3. Configurando o Servidor com o Express



Criar uma pasta chamada `src` em `backend/src`

Listagem 223 - Criar arquivo loader.js

my-money-app/backend/src/loader.js

```
require('./config/server')
```



Criar uma pasta chamada config em src/config

Listagem 224 - Criar arquivo server.js

my-money-app/backend/src/config/server.js

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())

server.listen(port, function() {
  console.log(`BACKEND is running on port ${port}.`)
})
```

Listagem 225 - Executar o backend da aplicação

Abra o terminal e dentro da pasta my-money-app/backend

```
npm run dev
```

8.4. Conexão com o Banco de Dados

Listagem 226 - Criar arquivo database.js

my-money-app/backend/src/config/database.js

```
const mongoose = require('mongoose')
mongoose.Promise = global.Promise
module.exports = mongoose.connect('mongodb://localhost/mymoney')
```

Listagem 227 - Alterar arquivo loader.js

`my-money-app/backend/src/loader.js` (aprox. linha 2)

```
require('./config/server')
require('./config/database')
```

Listagem 228 - Iniciar MongoDB

Abra um novo terminal

```
mongod
```

8.5. Mapeamento Objeto-Documento (ODM)



Criar uma pasta chamada `api` e dentro dela criar uma pasta chamada `billingCycle` em `src/api/billingCycle`

Listagem 229 - Criar arquivo billingCycle.js

my-money-app/backend/src/api/billingCycle/billingCycle.js

```
const restful = require('node-restful')
const mongoose = restful.mongoose

const creditSchema = new mongoose.Schema({
  name: { type: String, required: true },
  value: { type: Number, min: 0, required: true }
})

const debtSchema = new mongoose.Schema({
  name: { type: String, required: true },
  value: { type: Number, min: 0, required: true },
  status: { type: String, required: false, uppercase: true,
    enum: ['PAGO', 'PENDENTE', 'AGENDADO'] }
})

const billingCycleSchema = new mongoose.Schema({
  name: { type: String, required: true },
  month: { type: Number, min: 1, max: 12, required: true },
  year: { type: Number, min: 1970, max: 2100, required: true },
  credits: [creditSchema],
  debts: [debtSchema]
})

module.exports = restful.model('BillingCycle', billingCycleSchema)
```

8.6. Criação da API REST

Listagem 230 - Criar arquivo billingCycleService.js

my-money-app/backend/src/api/billingCycle/billingCycleService.js

```
const BillingCycle = require('./billingCycle')

BillingCycle.methods(['get', 'post', 'put', 'delete'])
BillingCycle.updateOptions({new: true, runValidators: true})

module.exports = BillingCycle
```

8.7. Mapeamento das Rotas

Listagem 231 - Criar arquivo routes.js

my-money-app/backend/src/config/routes.js

```
const express = require('express')

module.exports = function(server) {

    // Definir URL base para todas as rotas
    const router = express.Router()
    server.use('/api', router)

    // Rotas de Ciclo de Pagamento
    const BillingCycle = require('../api/billingCycle/billingCycleService')
    BillingCycle.register(router, '/billingCycles')
}

}
```

Listagem 232 - Alterar arquivo loader.js

my-money-app/backend/src/loader.js (aprox. linha 1 e 3)

```
const server = require('./config/server')
require('./config/database')
require('./config/routes')(server)
```

Listagem 233 - Alterar arquivo server.js

my-money-app/backend/src/config/server.js (aprox. linha 14)

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())

server.listen(port, function() {
    console.log(`BACKEND is running on port ${port}.`)
})

module.exports = server
```

8.8. Testando a API (Postman)

Listagem 234 - Alterar arquivo database.js

my-money-app/backend/src/config/database.js

```
const mongoose = require('mongoose')
mongoose.Promise = global.Promise
module.exports = mongoose.connect('mongodb://localhost/mymoney')

mongoose.Error.messages.general.required = "O atributo '{PATH}' é obrigatório."
mongoose.Error.messages.Number.min =
    "O '{VALUE}' informado é menor que o limite mínimo de '{MIN}'."
mongoose.Error.messages.Number.max =
    "O '{VALUE}' informado é maior que o limite máximo de '{MAX}'."
mongoose.Error.messages.String.enum =
    "'{VALUE}' não é válido para o atributo '{PATH}'."
```

Listagem 235 - Alterar arquivo *billingCycle.js*

my-money-app/backend/src/api/billingCycle/billingCycle.js (aprox. linha 11)

```
const restful = require('node-restful')
const mongoose = restful.mongoose

const creditSchema = new mongoose.Schema({
  name: { type: String, required: true },
  value: { type: Number, min: 0, required: true }
})

const debtSchema = new mongoose.Schema({
  name: { type: String, required: true },
  value: { type: Number, min: 0, required: [true, 'Informe o valor do débito!'] },
  status: { type: String, required: false, uppercase: true,
    enum: ['PAGO', 'PENDENTE', 'AGENDADO'] }
})

const billingCycleSchema = new mongoose.Schema({
  name: { type: String, required: true },
  month: { type: Number, min: 1, max: 12, required: true },
  year: { type: Number, min: 1970, max: 2100, required: true },
  credits: [creditSchema],
  debts: [debtSchema]
})

module.exports = restful.model('BillingCycle', billingCycleSchema)
```

8.9. Obtendo a Qtde de Registros (Count)

Listagem 236 - Alterar arquivo *billingCycleService.js*

my-money-app/backend/src/api/billingCycle/billingCycleService.js (aprox. linha 6)

```
const BillingCycle = require('./billingCycle')

BillingCycle.methods(['get', 'post', 'put', 'delete'])
BillingCycle.updateOptions({new: true, runValidators: true})

BillingCycle.route('count', (req, res, next) => {
  BillingCycle.count((error, value) => {
    if(error) {
      res.status(500).json({errors: [error]})
    } else {
      res.json({value})
    }
  })
})

module.exports = BillingCycle
```

8.10. Obtendo o Sumário de Pagamentos

Listagem 237 - Alterar arquivo `billingCycleService.js`

`my-money-app/backend/src/api/billingCycle/billingCycleService.js` (aprox. linha 16)

```
const BillingCycle = require('./billingCycle')

BillingCycle.methods(['get', 'post', 'put', 'delete'])
BillingCycle.updateOptions({new: true, runValidators: true})

BillingCycle.route('count', (req, res, next) => {
  BillingCycle.count((error, value) => {
    if(error) {
      res.status(500).json({errors: [error]})
    } else {
      res.json({value})
    }
  })
})

BillingCycle.route('summary', (req, res, next) => {
  BillingCycle.aggregate([
    {$project: {credit: {$sum: "$credits.value"}, debt: {$sum: "$debts.value"}}, $group: {_id: null, credit: {$sum: "$credit"}, debt: {$sum: "$debt"}}, $project: {_id: 0, credit: 1, debt: 1}}, (error, result) => {
    if(error) {
      res.status(500).json({errors: [error]})
    } else {
      res.json(result[0] || {credit: 0, debt: 0})
    }
  })
})

module.exports = BillingCycle
```

8.11. Tratando as Mensagens de Erro



Criar uma pasta chamada `common` em `src/api/common`

Listagem 238 - Criar arquivo errorHandler.js

my-money-app/backend/src/api/common/errorHandler.js

```
const _ = require('lodash')

module.exports = (req, res, next) => {
  const bundle = res.locals.bundle

  if(bundle.errors) {
    const errors = parseErrors(bundle.errors)
    res.status(500).json({errors})
  } else {
    next()
  }
}

const parseErrors = (nodeRestfulErrors) => {
  const errors = []
  _.forIn(nodeRestfulErrors, error => errors.push(error.message))
  return errors
}
```

Listagem 239 - Alterar arquivo *billingCycleService.js*

my-money-app/backend/src/api/billingCycle/billingCycleService.js (aprox. linha 2 e 6)

```
const BillingCycle = require('./billingCycle')
const errorHandler = require('../common/errorHandler')

BillingCycle.methods(['get', 'post', 'put', 'delete'])
BillingCycle.updateOptions({new: true, runValidators: true})
BillingCycle.after('post', errorHandler).after('put', errorHandler)

BillingCycle.route('count', (req, res, next) => {
  BillingCycle.count((error, value) => {
    if(error) {
      res.status(500).json({errors: [error]})
    } else {
      res.json({value})
    }
  })
})

BillingCycle.route('summary', (req, res, next) => {
  BillingCycle.aggregate({
    $project: {credit: {$sum: "$credits.value"}, debt: {$sum: "$debts.value"}}
  }, {
    $group: {_id: null, credit: {$sum: "$credit"}, debt: {$sum: "$debt"}}
  }, {
    $project: {_id: 0, credit: 1, debt: 1}
  }, (error, result) => {
    if(error) {
      res.status(500).json({errors: [error]})
    } else {
      res.json(result[0] || {credit: 0, debt: 0})
    }
  })
})

module.exports = BillingCycle
```

8.12. Habilitando o CORS

Listagem 240 - Criar arquivo cors.js

my-money-app/backend/src/config/cors.js

```
module.exports = (req, res, next) => {
  res.header('Access-Control-Allow-Origin', '*')
  res.header('Access-Control-Allow-Methods', 'GET, POST, OPTIONS, PUT, PATCH,
DELETE')
  res.header('Access-Control-Allow-Headers', 'Origin, X-Requested-With,
Content-Type, Accept')
  next()
}
```

Listagem 241 - Alterar arquivo server.js

my-money-app/backend/src/config/server.js (aprox. linha 6 e 10)

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()
const allowCors = require('./cors')

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())
server.use(allowCors)

server.listen(port, function() {
  console.log(`BACKEND is running on port ${port}.`)
})

module.exports = server
```

8.13. Middleware Query Parser Int

Listagem 242 - Alterar arquivo server.js

my-money-app/backend/src/config/server.js (aprox. linha 7 e 12)

```
const port = 3003

const bodyParser = require('body-parser')
const express = require('express')
const server = express()
const allowCors = require('./cors')
const queryParser = require('express-query-int')

server.use(bodyParser.urlencoded({ extended: true }))
server.use(bodyParser.json())
server.use(allowCors)
server.use(queryParser())

server.listen(port, function() {
  console.log(`BACKEND is running on port ${port}.`)
})

module.exports = server
```

9. Aplicação Final - Ciclos de Pagamentos (Frontend)

9.1. Visão Geral

9.2. Configuração e Instalação

Abra o terminal e dentro da pasta `my-money-app/backend` execute o seguinte comando:

Listagem 243 - Executar o backend da aplicação

```
my-money-app/backend
```

```
npm run production
```

Listagem 244 - Executar o monit do PM2

```
my-money-app/backend
```

```
./node_modules/.bin/pm2 monit
```



Abra um novo terminal e dentro da pasta `my-money-app` execute o seguinte comando:

Listagem 245 - Criar pasta my-money-app

```
my-money-app/frontend
```

```
mkdir frontend && cd frontend
```

Listagem 246 - Criar arquivo package.json

```
my-money-app/frontend/package.json
```

```
npm init -y
```

Listagem 247 - Instalando as dependências do Webpack

```
npm i --save-dev webpack@1.14.0 webpack-dev-server@1.16.2
```

Listagem 248 - Instalando as dependências do Babel

```
npm i --save-dev babel-core@6.22.1 babel-loader@6.2.10 babel-plugin-react-html-  
attrs@2.0.0 babel-plugin-transform-object-rest-spread@6.22.0 babel-preset-  
es2015@6.22.0 babel-preset-react@6.22.0
```

Listagem 249 - Instalando as dependências do CSS e arquivos estáticos

```
npm i --save-dev extract-text-webpack-plugin@1.0.1 css-loader@0.26.1 style-  
loader@0.13.1 file-loader@0.9.0
```

Listagem 250 - Instalando as dependências do template Admin-LTE e ícones

```
npm i --save-dev admin-lte@2.3.6 font-awesome@4.7.0 ionicons@3.0.0
```

Listagem 251 - Instalando as dependências do React, Redux, Axios e Lodash

```
npm i --save-dev react@15.4.2 react-dom@15.4.2 react-router@3.0.2 redux@3.6.0  
react-redux@4.4.6 redux-form@6.4.1 redux-multi@0.1.12 redux-promise@0.5.3 redux-  
thunk@2.1.0 react-redux-toastr@4.4.2 axios@0.15.3 lodash@4.17.4
```

Listagem 252 - Abrir o Visual Studio Code

```
code .
```

Listagem 253 - Criar arquivo .gitignore

my-money-app/frontend/.gitignore

```
node_modules  
*.log
```

9.3. Configurando o Build com Webpack

Listagem 254 - Criar arquivo webpack.config.js

```

const webpack = require('webpack')
const ExtractTextPlugin = require('extract-text-webpack-plugin')

module.exports = {
  entry: './src/index.jsx',
  output: {
    path: __dirname + '/public',
    filename: './app.js'
  },
  devServer: {
    port: 8080,
    contentBase: './public',
  },
  resolve: {
    extensions: ['', '.js', '.jsx'],
    alias: {
      modules: __dirname + '/node_modules',
      jquery: 'modules/admin-lte/plugins/jquery/jquery-2.2.3.min.js',
      bootstrap: 'modules/admin-lte/bootstrap/js/bootstrap.js'
    }
  },
  plugins: [
    new webpack.ProvidePlugin({
      $: 'jquery',
      jQuery: 'jquery',
      'window.jQuery': 'jquery'
    }),
    new ExtractTextPlugin('app.css')
  ],
  module: {
    loaders: [
      {
        test: /\.js[x]?$/,
        loader: 'babel-loader',
        exclude: /node_modules/,
        query: {
          presets: ['es2015', 'react'],
          plugins: ['transform-object-rest-spread']
        }
      },
      {
        test: /\.css$/,
        loader: ExtractTextPlugin.extract('style-loader', 'css-loader')
      },
      {
        test: /\.(woff|woff2|ttf|eot|svg|png|jpg*)$/,
        loader: 'file'
      }
    ]
  }
}

```

Listagem 255 - Alterar arquivo package.json

my-money-app/frontend/package.json (aprox. linha 2 e 7)

```
{  
  "name": "my-money-frontend",  
  "version": "1.0.0",  
  "description": "",  
  "main": "index.js",  
  "scripts": {  
    "dev": "webpack-dev-server --progress --colors --inline --hot",  
    "production": "webpack --progress -p"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC",  
  "devDependencies": {  
    "admin-lte": "^2.3.6",  
    "axios": "^0.15.3",  
    "babel-core": "^6.22.1",  
    "babel-loader": "^6.2.10",  
    "babel-plugin-react-html-attrs": "^2.0.0",  
    "babel-plugin-transform-object-rest-spread": "^6.22.0",  
    "babel-preset-es2015": "^6.22.0",  
    "babel-preset-react": "^6.22.0",  
    "css-loader": "^0.26.1",  
    "extract-text-webpack-plugin": "^1.0.1",  
    "file-loader": "^0.9.0",  
    "font-awesome": "^4.7.0",  
    "ionicons": "^3.0.0",  
    "lodash": "^4.17.4",  
    "react": "^15.4.2",  
    "react-dom": "^15.4.2",  
    "react-redux": "^4.4.6",  
    "react-redux-toastr": "^4.4.2",  
    "react-router": "^3.0.2",  
    "redux": "^3.6.0",  
    "redux-form": "^6.4.1",  
    "redux-multi": "^0.1.12",  
    "redux-promise": "^0.5.3",  
    "redux-thunk": "^2.1.0",  
    "style-loader": "^0.13.1",  
    "webpack": "^1.14.0",  
    "webpack-dev-server": "^1.16.2"  
  }  
}
```

9.4. Criação do index.html



Criar uma pasta chamada `public` em `frontend/public`

Listagem 256 - Criar arquivo index.html

`my-money-app/frontend/public/index.html`

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset='utf-8'>
    <meta name='viewport' content='width=device-width, initial-scale=1'>
    <title>My Money</title>
    <link rel='stylesheet' href='app.css'>
  </head>
  <body class='skin-blue fixed sidebar-mini'>
    <div id="app"></div>
    <script src='app.js'></script>
  </body>
</html>
```

9.5. Componentes Index e App



Criar uma pasta chamada `src` e dentro dela criar uma pasta chamada `main` em `frontend/src/main`

Listagem 257 - Criar arquivo app.jsx

`my-money-app/frontend/src/main/app.jsx`

```
import React from 'react'

export default props => (
  <div className='wrapper'>
    <h1>App</h1>
  </div>
)
```

Listagem 258 - Criar arquivo index.jsx

my-money-app/frontend/src/index.jsx

```
import React from 'react'  
import ReactDOM from 'react-dom'  
import App from './main/app'  
  
ReactDOM.render(<App />, document.getElementById('app'))
```

Listagem 259 - Executar a aplicação

Abra o terminal e dentro da pasta my-money-app/frontend

```
npm run dev
```



Verificar o funcionamento: abra o navegador e digite <http://localhost:8080> e na página vai mostrar o título App.

9.6. Dependências do Template (AdminLTE)



Criar uma pasta chamada `common` e dentro dela criar uma pasta chamada `template` em `src/common/template`

Listagem 260 - Criar arquivo dependencies.js

my-money-app/frontend/src/common/template/dependencies.js

```
import 'modules/admin-lte/plugins/jQueryUI/jquery-ui.min'  
import 'modules/admin-lte/plugins/fastclick/fastclick'  
import 'modules/admin-lte/plugins/slimScroll/jquery.slimscroll.min'  
import 'modules/admin-lte/dist/js/app.min'  
  
import 'modules/font-awesome/css/font-awesome.min.css'  
import 'modules/ionicons/dist/css/ionicons.min.css'  
import 'modules/admin-lte/bootstrap/css/bootstrap.min.css'  
import 'modules/admin-lte/dist/css/AdminLTE.min.css'  
import 'modules/admin-lte/dist/css/skins/_all-skins.min.css'  
import 'modules/admin-lte/plugins/iCheck/flat/blue.css'  
  
import './custom.css'
```

Listagem 261 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (na linha 1)

```
import '../common/template/dependencies'
import React from 'react'

export default props => (
  <div className='wrapper'>
    <h1>App</h1>
  </div>
)
```

9.7. Componente Cabeçalho

Listagem 262 - Criar arquivo header.jsx

my-money-app/frontend/src/common/template/header.jsx

```
import React from 'react'

export default props => (
  <header className='main-header'>
    <a href='/#/' className='logo'>
      <span className='logo-mini'><b>My</b>M</span>
      <span className='logo-lg'>
        <i className='fa fa-money'></i>
        <b> My</b> Money
      </span>
    </a>
    <nav className='navbar navbar-static-top'>
      <a href className='sidebar-toggle' data-toggle='offcanvas'></a>
    </nav>
  </header>
)
```

Listagem 263 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 4 e 8)

```
import '../common/template/dependencies'
import React from 'react'

import Header from '../common/template/header'

export default props => (
  <div className='wrapper'>
    <Header />
  </div>
)
```

9.8. Componente Menu (Parte 1)

Listagem 264 - Criar arquivo menu.jsx

my-money-app/frontend/src/common/template/menu.jsx

```
import React from 'react'

export default props => (
  <ul className='sidebar-menu'>
    </ul>
)
```

Listagem 265 - Criar arquivo sidebar.jsx

my-money-app/frontend/src/common/template/sidebar.jsx

```
import React from 'react'
import Menu from './menu'

export default props => (
  <aside className='main-sidebar'>
    <section className='sidebar'>
      <Menu />
    </section>
  </aside>
)
```

Listagem 266 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 5 e 10)

```
import '../common/template/dependencies'  
import React from 'react'  
  
import Header from '../common/template/header'  
import SideBar from '../common/template/sideBar'  
  
export default props => (  
  <div className='wrapper'>  
    <Header />  
    <SideBar />  
  </div>  
)
```

9.9. Componente Menu (Parte 2)

Listagem 267 - Criar arquivo menuItem.jsx

my-money-app/frontend/src/common/template/menuItem.jsx

```
import React from 'react'  
  
export default props => (  
  <li>  
    <a href={props.path}>  
      <i className={'fa fa-' + props.icon}></i> {props.label}  
    </a>  
  </li>  
)
```

Listagem 268 - Alterar arquivo menu.jsx

my-money-app/frontend/src/common/template/menu.jsx (aprox. linha 2 e 6)

```
import React from 'react'
import MenuItem from './menuItem'

export default props => (
  <ul className='sidebar-menu'>
    <MenuItem path='#/Dashboard' label='Dashboard' icon='dashboard' />
  </ul>
)
```

Listagem 269 - Criar arquivo menuTree.jsx

my-money-app/frontend/src/common/template/menuTree.jsx

```
import React from 'react'

export default props => (
  <li className='treeview'>
    <a href>
      <i className={`fa fa-${props.icon}`}></i> {props.label}
      <i className='fa fa-angle-left pull-right'></i>
    </a>
    <ul className='treeview-menu'>
      {props.children}
    </ul>
  </li>
)
```

Listagem 270 - Alterar arquivo menu.jsx

my-money-app/frontend/src/common/template/menu.jsx (aprox. linha 3, 7 e 8)

```
import React from 'react'
import MenuItem from './menuItem'
import MenuTree from './menuTree'

export default props => (
  <ul className='sidebar-menu'>
    <MenuItem path='#' label='Dashboard' icon='dashboard' />
    <MenuTree label='Cadastro' icon='edit'>
      <MenuItem path='#billingCycles'
        label='Ciclos de Pagamentos' icon='usd' />
    </MenuTree>
  </ul>
)
```

9.10. Componente Rodapé

Listagem 271 - Criar arquivo footer.jsx

my-money-app/frontend/src/common/template/footer.jsx

```
import React from 'react'

export default props => (
  <footer className='main-footer'>
    <strong>
      Copyright &copy; 2017
      <a href='http://cod3r.com.br' target='_blank'> Cod3r</a>.
    </strong>
  </footer>
)
```

Listagem 272 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 6 e 12)

```
import '../common/template/dependencies'
import React from 'react'

import Header from '../common/template/header'
import SideBar from '../common/template/sideBar'
import Footer from '../common/template/footer'

export default props => (
  <div className='wrapper'>
    <Header />
    <SideBar />
    <div className='content-wrapper'>
      <h1>Conteúdo</h1>
    </div>
    <Footer />
  </div>
)
```

Listagem 273 - Alterar arquivo custom.css

my-money-app/frontend/src/common/template/custom.css (na linha 1)

```
.main-footer {
  position: fixed;
  bottom: 0px;
  width: 100%;
}
```

9.11. Navegação com React-router



Criar uma pasta chamada `dashboard` em `src/dashboard`

Listagem 274 - Criar arquivo dashboard.jsx

my-money-app/frontend/src/dashboard/dashboard.jsx

```
import React from 'react'

export default props => (
  <div>
    <h1>Dashboard</h1>
  </div>
)
```



Criar uma pasta chamada `billingCycle` em `src/billingCycle`

Listagem 275 - Criar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx

```
import React from 'react'

export default props => (
  <div>
    <h1>Ciclo de Pagamento</h1>
  </div>
)
```

Listagem 276 - Criar arquivo routes.jsx

my-money-app/frontend/src/main/routes.jsx

```
import React from 'react'
import { Router, Route, Redirect, hashHistory } from 'react-router'

import Dashboard from '../dashboard/dashboard'
import BillingCycle from '../billingCycle/billingCycle'

export default props => (
  <Router history={hashHistory}>
    <Route path='/' component={Dashboard} />
    <Route path='/billingCycles' component={BillingCycle} />
    <Redirect from='*' to='/' />
  </Router>
)
```

Listagem 277 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 7 e 14)

```
import '../common/template/dependencies'
import React from 'react'

import Header from '../common/template/header'
import SideBar from '../common/template/sideBar'
import Footer from '../common/template/footer'
import Routes from './routes'

export default props => (
  <div className='wrapper'>
    <Header />
    <SideBar />
    <div className='content-wrapper'>
      <Routes />
    </div>
    <Footer />
  </div>
)
```

9.12. Componente de Título do Conteúdo

Listagem 278 - Criar arquivo contentHeader.jsx

my-money-app/frontend/src/common/template/contentHeader.jsx

```
import React from 'react'

export default props => (
  <section className='content-header'>
    <h1>{props.title} <small>{props.small}</small></h1>
  </section>
)
```

Listagem 279 - Criar arquivo content.jsx

my-money-app/frontend/src/common/template/content.jsx

```
import React from 'react'

export default props => (
  <section className='content'>{props.children}</section>
)
```

Listagem 280 - Alterar arquivo dashboard.jsx

my-money-app/frontend/src/dashboard/dashboard.jsx (aprox. linha 1, 3 e 6)

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'

class Dashboard extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Dashboard' small='Versão 1.0' />
        <Content>
          Dashboard
        </Content>
      </div>
    )
  }
}

export default Dashboard
```

9.13. Componente Dashboard: Visão Geral

9.14. Componente Grid



Criar uma pasta chamada `layout` em `src/common/layout`

Listagem 281 - Criar arquivo grid.jsx

my-money-app/frontend/src/common/layout/grid.jsx

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

export default class Grid extends Component {

    toCssClasses(numbers) {
        const cols = numbers ? numbers.split(' ') : []
        let classes = ''

        if(cols[0]) classes += `col-xs-${cols[0]}`
        if(cols[1]) classes += ` col-sm-${cols[1]}`
        if(cols[2]) classes += ` col-md-${cols[2]}`
        if(cols[3]) classes += ` col-lg-${cols[3]}`

        return classes
    }

    render() {
        const gridClasses = this.toCssClasses(this.props.cols || '12')
        return (
            <div className={gridClasses}>
                {this.props.children}
            </div>
        )
    }
}
```

9.15. Componente ValueBox



Criar uma pasta chamada `widget` em `src/common/widget`

Listagem 282 - Criar arquivo valueBox.jsx

my-money-app/frontend/src/common/widget/valueBox.jsx

```
import React from 'react'
import Grid from '../layout/grid'

export default props => (
  <Grid cols={props.cols}>
    <div className={`small-box bg-${props.color}`}>
      <div className='inner'>
        <h3>{props.value}</h3>
        <p>{props.text}</p>
      </div>
      <div className='icon'>
        <i className={`fa fa-${props.icon}`}></i>
      </div>
    </div>
  </Grid>
)
```

9.16. Usando ValueBox

Listagem 283 - Alterar arquivo dashboard.jsx

my-money-app/frontend/src/dashboard/dashboard.jsx (aprox. linha 5 e 13)

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import ValueBox from '../common/widget/valueBox'
import Row from '../common/layout/row'

class Dashboard extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Dashboard' small='Versão 1.0' />
        <Content>
          <Row>
            <ValueBox cols='12 4' color='green' icon='bank'
              value='R$ 10' text='Total de Créditos' />
            <ValueBox cols='12 4' color='red' icon='credit-card'
              value='R$ 10' text='Total de Débitos' />
            <ValueBox cols='12 4' color='blue' icon='money'
              value='R$ 0' text='Valor Consolidado' />
          </Row>
        </Content>
      </div>
    )
  }
}

export default Dashboard
```

Listagem 284 - Criar arquivo row.jsx

my-money-app/frontend/src/common/layout/row.jsx

```
import React from 'react'

export default props =>
  <div className='row'>{props.children}</div>
```

9.17. Configurando Redux

Listagem 285 - Criar arquivo reducers.js

my-money-app/frontend/src/main/reducers.js

```
import { combineReducers } from 'redux'

const rootReducer = combineReducers({
  dashboard: () => ({summary: {credit: 100, debt: 50}})
})

export default rootReducer
```

Listagem 286 - Alterar arquivo index.jsx

my-money-app/frontend/src/index.jsx (aprox. linha 3, 4, 7, 9 e 11)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { createStore } from 'redux'
import { Provider } from 'react-redux'

import App from './main/app'
import reducers from './main/reducers'

const store = createStore(reducers)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

9.18. Integrando Dashboard com Redux (Parte 1)

Listagem 287 - Alterar arquivo dashboard.jsx

my-money-app/frontend/src/dashboard/dashboard.jsx (aprox. linha 2, 11, 18, 20, 22, 29 e 30)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import ValueBox from '../common/widget/valueBox'
import Row from '../common/layout/row'

class Dashboard extends Component {
  render() {
    const { credit, debt } = this.props.summary
    return (
      <div>
        <ContentHeader title='Dashboard' small='Versão 1.0' />
        <Content>
          <Row>
            <ValueBox cols='12 4' color='green' icon='bank'
              value={`R$ ${credit}`} text='Total de Créditos' />
            <ValueBox cols='12 4' color='red' icon='credit-card'
              value={`R$ ${debt}`} text='Total de Débitos' />
            <ValueBox cols='12 4' color='blue' icon='money'
              value={`R$ ${credit - debt}`} text='Valor
Consolidado' />
          </Row>
        </Content>
      </div>
    )
  }
}

const mapStateToProps = state => ({summary: state.dashboard.summary})
export default connect(mapStateToProps)(Dashboard)
```

Listagem 288 - Criar arquivo dashboardReducer.js

my-money-app/frontend/src/dashboard/dashboardReducer.js

```
const INITIAL_STATE = {summary: {credit: 0, debt: 0}}

export default function(state = INITIAL_STATE, action) {
  return state
}
```

Listagem 289 - Alterar arquivo reducers.js

my-money-app/frontend/src/main/reducers.js (aprox. linha 3 e 6)

```
import { combineReducers } from 'redux'

import DashboardReducer from '../dashboard/dashboardReducer'

const rootReducer = combineReducers({
  dashboard: DashboardReducer
})

export default rootReducer
```

9.19. Integrando Dashboard com Redux (Parte 2)

Listagem 290 - Criar arquivo dashboardActions.js

my-money-app/frontend/src/dashboard/dashboardActions.js

```
import axios from 'axios'
const BASE_URL = 'http://localhost:3003/api'

export function getSummary() {
  const request = axios.get(`${BASE_URL}/billingCycles/summary`)
  return {
    type: 'BILLING_SUMMARY_FETCHED',
    payload: request
  }
}
```

Listagem 291 - Alterar arquivo *dashboardReducer.js*

[my-money-app/frontend/src/dashboard/dashboardReducer.js](#) (aprox. linha 4)

```
const INITIAL_STATE = {summary: {credit: 0, debt: 0}}
```

```
export default function(state = INITIAL_STATE, action) {
  switch (action.type) {
    case 'BILLING_SUMMARY_FETCHED':
      return { ...state, summary: action.payload.data }
    default:
      return state
  }
}
```

Listagem 292 - Alterar arquivo dashboard.jsx

my-money-app/frontend/src/dashboard/dashboard.jsx (aprox. linha 3, 5, 13, 33 e 34)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import { getSummary } from './dashboardActions'
import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import ValueBox from '../common/widget/valueBox'
import Row from '../common/layout/row'

class Dashboard extends Component {

    componentWillMount() {
        this.props.getSummary()
    }

    render() {
        const { credit, debt } = this.props.summary
        return (
            <div>
                <ContentHeader title='Dashboard' small='Versão 1.0' />
                <Content>
                    <Row>
                        <ValueBox cols='12 4' color='green' icon='bank'
                            value={`R$ ${credit}`} text='Total de Créditos' />
                        <ValueBox cols='12 4' color='red' icon='credit-card'
                            value={`R$ ${debt}`} text='Total de Débitos' />
                        <ValueBox cols='12 4' color='blue' icon='money'
                            value={`R$ ${credit - debt}`} text='Valor
Consolidado' />
                    </Row>
                </Content>
            </div>
        )
    }
}

const mapStateToProps = state => ({summary: state.dashboard.summary})
const mapDispatchToProps = dispatch => bindActionCreators({getSummary}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(Dashboard)
```

Listagem 293 - Alterar arquivo index.jsx

my-money-app/frontend/src/index.jsx (aprox. linha 3, 6 e 11)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'

import App from './main/app'
import reducers from './main/reducers'

const store = applyMiddleware(promise)(createStore)(reducers)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

9.20. Ciclo React-Redux com Middlewares

9.21. Configurando Redux DevTools

Listagem 294 - Alterar arquivo index.jsx

my-money-app/frontend/src/index.jsx (aprox. linha 11 e 13)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION___.  
  && window.__REDUX_DEVTOOLS_EXTENSION___.()
const store = applyMiddleware(promise)(createStore)(reducers, devTools)
ReactDOM.render(  
  <Provider store={store}>  
    <App />  
  </Provider>  
, document.getElementById('app'))
```

9.22. Dashboard SEM Redux



Criar uma pasta chamada `dashboard2` em `src/dashboard2`

Listagem 295 - Criar arquivo dashboard2.jsx

my-money-app/frontend/src/dashboard2/dashboard2.jsx

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import ValueBox from '../common/widget/valueBox'
import Row from '../common/layout/row'

const BASE_URL = 'http://localhost:3003/api'

export default class Dashboard2 extends Component {

    constructor(props) {
        super(props)
        this.state = { credit: 0, debt: 0 }
    }

    componentWillMount() {
        axios.get(`${BASE_URL}/billingCycles/summary`)
            .then(resp => this.setState(resp.data))
    }

    render() {
        const { credit, debt } = this.state
        return (
            <div>
                <ContentHeader title='Dashboard' small='Versão 2.0' />
                <Content>
                    <Row>
                        <ValueBox cols='12 4' color='green' icon='bank'
                            value={`R$ ${credit}`} text='Total de Créditos' />
                        <ValueBox cols='12 4' color='red' icon='credit-card'
                            value={`R$ ${debt}`} text='Total de Débitos' />
                        <ValueBox cols='12 4' color='blue' icon='money'
                            value={`R$ ${credit - debt}`} text='Valor
Consolidado' />
                    </Row>
                </Content>
            </div>
        )
    }
}
```

9.23. Visão Geral dos Componentes de Abas

9.24. Componente BillingCycle: Refatorando para Classe

Listagem 296 - Sobrescrever arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'

class BillingCycle extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          Ciclos de Pagamentos
        </Content>
      </div>
    )
  }
}

export default BillingCycle
```

9.25. Componentes Estruturais das Abas



Criar uma pasta chamada `tab` em `src/common/tab`

Listagem 297 - Criar arquivo tab.jsx

my-money-app/frontend/src/common/tab/tab.jsx

```
import React from 'react'

export default props => (
  <div className='nav-tabs-custom'>
    {props.children}
  </div>
)
```

Listagem 298 - Criar arquivo tabsHeader.jsx

my-money-app/frontend/src/common/tab/tabsHeader.jsx

```
import React from 'react'

export default props => (
  <ul className='nav nav-tabs'>
    {props.children}
  </ul>
)
```

Listagem 299 - Criar arquivo tabsContent.jsx

my-money-app/frontend/src/common/tab/tabsContent.jsx

```
import React from 'react'

export default props => (
  <div className='tab-content'>
    {props.children}
  </div>
)
```

Listagem 300 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 5, 6, 7 e 15)

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'

class BillingCycle extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>

              </TabsHeader>
              <TabsContent>

                </TabsContent>
              </Tabs>
            </Content>
          </div>
        )
      }
}

export default BillingCycle
```

9.26. Componente TabHeader

Listagem 301 - Criar arquivo tabHeader.jsx

my-money-app/frontend/src/common/tab/tabHeader.jsx

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

class TabHeader extends Component {
  render() {
    return (
      <li>
        <a href
          data-toggle='tab'
          data-target={this.props.target}>
          <i className={'fa fa-${this.props.icon}'></i>
        {this.props.label}
        </a>
      </li>
    )
  }
}

export default TabHeader
```

Listagem 302 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 8)

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

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'

class BillingCycle extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars' target='tabList' />
              <TabHeader label='Incluir' icon='plus' target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil' target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o' target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              </TabsContent>
            </Tabs>
          </Content>
        </div>
      )
    }
}

export default BillingCycle
```

Listagem 303 - Alterar arquivo tabHeader.jsx

my-money-app/frontend/src/common/tab/tabHeader.jsx (aprox. linha 7)

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

class TabHeader extends Component {
  render() {
    return (
      <li>
        <a href='javascript:'>
          data-toggle='tab'
          data-target={this.props.target}>
          <i className={'fa fa-${this.props.icon}'}></i>
        {this.props.label}
        </a>
      </li>
    )
  }
}

export default TabHeader
```

9.27. Criando a Primeira Action e o Reducer

Listagem 304 - Criar arquivo tabActions.js

my-money-app/frontend/src/common/tab/tabActions.js

```
export function selectTab(tabId) {
  console.log(tabId)
  return {
    type: 'TAB_SELECTED',
    payload: tabId
  }
}
```

Listagem 305 - Criar arquivo tabReducer.js

my-money-app/frontend/src/common/tab/tabReducer.js

```
const INITIAL_STATE = { selected: '' }

export default (state = INITIAL_STATE, action) => {
  switch (action.type) {
    case 'TAB_SELECTED':
      return { ...state, selected: action.payload }
    default:
      return state
  }
}
```

Listagem 306 - Alterar arquivo reducers.js

my-money-app/frontend/src/main/reducers.js (aprox. linha 2, 3 e 8)

```
import { combineReducers } from 'redux'

import DashboardReducer from '../dashboard/dashboardReducer'
import TabReducer from '../common/tab/tabReducer'

const rootReducer = combineReducers({
  dashboard: DashboardReducer,
  tab: TabReducer
})

export default rootReducer
```

9.28. Componente TabHeader: Conectando com Redux

Listagem 307 - Alterar arquivo tabHeader.jsx

my-money-app/frontend/src/common/tab/tabHeader.jsx (aprox. linha 2, 3, 5, 9, 11, 13, 21, 22 e 23)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import { selectTab } from './tabActions'

class TabHeader extends Component {
  render() {
    const selected = this.props.tab.selected === this.props.target
    return (
      <li className={selected ? 'active' : ''}>
        <a href='javascript:' data-toggle='tab' onClick={() => this.props.selectTab(this.props.target)} data-target={this.props.target}>
          <i className={'fa fa-${this.props.icon}'}></i>
          {this.props.label}
        </a>
      </li>
    )
  }
}

const mapStateToProps = state => ({tab : state.tab})
const mapDispatchToProps = dispatch => bindActionCreators({selectTab}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TabHeader)
```

Listagem 308 - Remover linha do arquivo tabActions.js

my-money-app/frontend/src/common/tab/tabActions.js (aprox. linha 2)

```
export function selectTab(tabId) {
  return {
    type: 'TAB_SELECTED',
    payload: tabId
  }
}
```

9.29. Componente Tab Content

Listagem 309 - Criar arquivo tabContent.jsx

my-money-app/frontend/src/common/tab/tabContent.jsx

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

class TabContent extends Component {
  render() {
    const selected = this.props.tab.selected === this.props.id
    return (
      <div id={this.props.id}
        className={'tab-pane ${selected ? 'active' : ''}'>
        {this.props.children}
      </div>
    )
  }
}

const mapStateToProps = state => ({tab: state.tab})
export default connect(mapStateToProps)(TabContent)
```

Listagem 310 - Alterar arquivo billingCycle.jsx

```

import React, { Component } from 'react'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'

class BillingCycle extends Component {
  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars' target='tabList' />
              <TabHeader label='Incluir' icon='plus' target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil' target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o' target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              <TabContent id='tabList'>
                <h1>Lista</h1>
              </TabContent>
              <TabContent id='tabCreate'>
                <h1>Incluir</h1>
              </TabContent>
              <TabContent id='tabUpdate'>
                <h1>Alterar</h1>
              </TabContent>
              <TabContent id='tabDelete'>
                <h1>Excluir</h1>
              </TabContent>
            </TabsContent>
          </Tabs>
        </Content>
      )
    }
}

export default BillingCycle

```

9.30. Componente BillingCycle: Conectando com Redux

Listagem 311 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 2, 3, 12, 16, 40 e 41)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab } from '../common/tab/tabActions'

class BillingCycle extends Component {

    componentWillMount() {
        this.props.selectTab('tabList')
    }

    render() {
        return (
            <div>
                <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
                <Content>
                    <Tabs>
                        <TabsHeader>
                            <TabHeader label='Listar' icon='bars' target='tabList' />
                            <TabHeader label='Incluir' icon='plus' target='tabCreate' />
                            <TabHeader label='Alterar' icon='pencil' target='tabUpdate' />
                            <TabHeader label='Excluir' icon='trash-o' target='tabDelete' />
                        </TabsHeader>
                        <TabsContent>
                            <TabContent id='tabList'>
                                <h1>Lista</h1>
                            </TabContent>
                            <TabContent id='tabCreate'>
                                <h1>Incluir</h1>
                            </TabContent>
                            <TabContent id='tabUpdate'>
                                <h1>Alterar</h1>
                            </TabContent>
                        </TabsContent>
                    </Tabs>
                </Content>
            </div>
        )
    }
}
```

```

        </TabContent>
        <TabContent id='tabDelete'>
            <h1>Excluir</h1>
        </TabContent>
    </TabsContent>
</Tabs>
</Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({selectTab}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.31. Visibilidade das Abas (Parte 1)

Listagem 312 - Alterar arquivo tabActions.js

[my-money-app/frontend/src/common/tab/tabActions.js](#) (aprox. linha 8)

```

export function selectTab(tabId) {
    return {
        type: 'TAB_SELECTED',
        payload: tabId
    }
}

export function showTabs(...tabIds) {
    const tabsToShow = {}
    tabIds.forEach(e => tabsToShow[e] = true)
    return {
        type: 'TAB_SHOWED',
        payload: tabsToShow
    }
}

```

Listagem 313 - Alterar arquivo tabReducer.js

my-money-app/frontend/src/common/tab/tabReducer.js (aprox. linha 1 e 7)

```
const INITIAL_STATE = { selected: '', visible: {} }

export default (state = INITIAL_STATE, action) => {
  switch (action.type) {
    case 'TAB_SELECTED':
      return { ...state, selected: action.payload }
    case 'TAB_SHOWED':
      return { ...state, visible: action.payload }
    default:
      return state
  }
}
```

Listagem 314 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 12, 18 e 45)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
```

```

        <TabHeader label='Listar' icon='bars'
target='tabList' />
        <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
        <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
        <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
    </TabsHeader>
    <TabsContent>
        <TabContent id='tabList'>
            <h1>Lista</h1>
        </TabContent>
        <TabContent id='tabCreate'>
            <h1>Incluir</h1>
        </TabContent>
        <TabContent id='tabUpdate'>
            <h1>Alterar</h1>
        </TabContent>
        <TabContent id='tabDelete'>
            <h1>Excluir</h1>
        </TabContent>
    </TabsContent>
</Tabs>
</Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({selectTab, showTabs}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.32. Visibilidade das Abas (Parte 2)



Criar uma pasta chamada `operator` em `src/common/operator`

Listagem 315 - Criar arquivo if.jsx

my-money-app/frontend/src/common/operator/if.jsx

```
import React from 'react'

export default props => {
  if(props.test) {
    return props.children
  } else {
    return false
  }
}
```

Listagem 316 - Alterar arquivo tabHeader.jsx

my-money-app/frontend/src/common/tab/tabHeader.jsx (aprox. linha 5, 11, 13 e 22)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import If from '../operator/if'
import { selectTab } from './tabActions'

class TabHeader extends Component {
  render() {
    const selected = this.props.tab.selected === this.props.target
    const visible = this.props.tab.visible[this.props.target]
    return (
      <If test={visible}>
        <li className={selected ? 'active' : ''}>
          <a href='javascript:' data-toggle='tab' onClick={() => this.props.selectTab(this.props.target)} data-target={this.props.target}>
            <i className={'fa fa-' + this.props.icon}></i>
          {this.props.label}
          </a>
        </li>
      </If>
    )
  }
}

const mapStateToProps = state => ({tab : state.tab})
const mapDispatchToProps = dispatch => bindActionCreators({selectTab}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(TabHeader)
```

Listagem 317 - Alterar arquivo tabContent.jsx

my-money-app/frontend/src/common/tab/tabContent.jsx (aprox. linha 4, 9, 11 e 16)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import If from '../operator/if'

class TabContent extends Component {
  render() {
    const selected = this.props.tab.selected === this.props.id
    const visible = this.props.tab.visible[this.props.id]
    return (
      <If test={visible}>
        <div id={this.props.id}>
          className={`tab-pane ${selected ? 'active' : ''}`}
          {this.props.children}
        </div>
      </If>
    )
  }
}

const mapStateToProps = state => ({tab: state.tab})
export default connect(mapStateToProps)(TabContent)
```

9.33. Componente de Lista: Visão Geral

9.34. Criando a Action "getList" e o Reducer

Listagem 318 - Criar arquivo billingCycleActions.js

my-money-app/frontend/src/billingCycle/billingCycleActions.js

```
import axios from 'axios'
const BASE_URL = 'http://localhost:3003/api'

export function getList() {
  const request = axios.get(`${BASE_URL}/billingCycles`)
  return {
    type: 'BILLING_CYCLES_FETCHED',
    payload: request
  }
}
```

Listagem 319 - Criar arquivo billingCycleReducer.js

my-money-app/frontend/src/billingCycle/billingCycleReducer.js

```
const INITIAL_STATE = {list: []}

export default (state = INITIAL_STATE, action) => {
  switch (action.type) {
    case 'BILLING_CYCLES_FETCHED':
      return { ...state, list: action.payload.data }
    default:
      return state
  }
}
```

Listagem 320 - Alterar arquivo reducers.js

my-money-app/frontend/src/main/reducers.js (aprox. linha 5 e 10)

```
import { combineReducers } from 'redux'

import DashboardReducer from '../dashboard/dashboardReducer'
import TabReducer from '../common/tab/tabReducer'
import BillingCycleReducer from '../billingCycle/billingCycleReducer'

const rootReducer = combineReducers({
  dashboard: DashboardReducer,
  tab: TabReducer,
  billingCycle: BillingCycleReducer
})

export default rootReducer
```

9.35. Componente BillingCycleList

Listagem 321 - Criar arquivo billingCycleList.jsx

my-money-app/frontend/src/billingCycle/billingCycleList.jsx

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

class BillingCycleList extends Component {

  render() {
    return (
      <div>
        <table className='table'>
          <thead>
            <tr>
              <th>Nome</th>
              <th>Mês</th>
              <th>Ano</th>
            </tr>
          </thead>
          <tbody>

            </tbody>
          </table>
        </div>
    )
  }
}

export default BillingCycleList
```

Listagem 322 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 13 e 36)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import List from './billingCycleList'
```

```

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars'
target='tabList' />
              <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              <TabContent id='tabList'>
                <List />
              </TabContent>
              <TabContent id='tabCreate'>
                <h1>Incluir</h1>
              </TabContent>
              <TabContent id='tabUpdate'>
                <h1>Alterar</h1>
              </TabContent>
              <TabContent id='tabDelete'>
                <h1>Excluir</h1>
              </TabContent>
            </TabsContent>
          </Tabs>
        </Content>
      </div>
    )
  }
}

const mapDispatchToProps = dispatch => bindActionCreators({selectTab, showTabs}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.36. Integrando BillingCycleList com Redux

Listagem 323 - Alterar arquivo billingCycleList.jsx

my-money-app/frontend/src/billingCycle/billingCycleList.jsx (aprox. linha 2, 3, 4, 8, 28, 29 e 30)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import { getList } from './billingCycleActions'

class BillingCycleList extends Component {

    componentWillMount() {
        this.props.getList()
    }

    render() {
        return (
            <div>
                <table className='table'>
                    <thead>
                        <tr>
                            <th>Nome</th>
                            <th>Mês</th>
                            <th>Ano</th>
                        </tr>
                    </thead>
                    <tbody>

                    </tbody>
                </table>
            </div>
        )
    }

    const mapStateToProps = state => ({list: state.billingCycle.list})
    const mapDispatchToProps = dispatch => bindActionCreators({getList}, dispatch)
    export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleList)
```

9.37. Exibindo os dados em BillingCycleList

Listagem 324 - Alterar arquivo billingCycleList.jsx

my-money-app/frontend/src/billingCycle/billingCycleList.jsx (aprox. linha 12 e 34)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import { getList } from './billingCycleActions'

class BillingCycleList extends Component {

    componentWillMount() {
        this.props.getList()
    }

    renderRows() {
        const list = this.props.list || []
        return list.map(bc => (
            <tr key={bc._id}>
                <td>{bc.name}</td>
                <td>{bc.month}</td>
                <td>{bc.year}</td>
            </tr>
        ))
    }

    render() {
        return (
            <div>
                <table className='table'>
                    <thead>
                        <tr>
                            <th>Nome</th>
                            <th>Mês</th>
                            <th>Ano</th>
                        </tr>
                    </thead>
                    <tbody>
                        {this.renderRows()}
                    </tbody>
                </table>
            </div>
        )
    }
}

const mapStateToProps = state => ({list: state.billingCycle.list})
const mapDispatchToProps = dispatch => bindActionCreators({getList}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleList)
```

9.38. BillingCycleForm com Redux-Form (Parte 01)

Listagem 325 - Alterar arquivo *reducers.js*

my-money-app/frontend/src/main/reducers.js (aprox. linha 2 e 12)

```
import { combineReducers } from 'redux'
import { reducer as formReducer } from 'redux-form'

import DashboardReducer from '../dashboard/dashboardReducer'
import TabReducer from '../common/tab/tabReducer'
import BillingCycleReducer from '../billingCycle/billingCycleReducer'

const rootReducer = combineReducers({
  dashboard: DashboardReducer,
  tab: TabReducer,
  billingCycle: BillingCycleReducer,
  form: formReducer
})

export default rootReducer
```

Listagem 326 - Criar arquivo *billingCycleForm.jsx*

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx

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

class BillingCycleForm extends Component {

  render() {
    return (
      <form role='form'>
        <div className='box-body'>

          </div>
          <div className='box-footer'>
            <button type='submit' className='btn btn-primary'>
              Submit
            </button>
          </div>
        </form>
    )
  }

  export default BillingCycleForm
```

Listagem 327 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 15 e 41)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars'
target='tabList' />
              <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              <TabContent id='tabList'>
                <List />
              </TabContent>
              <TabContent id='tabCreate'>
                <Form />
              </TabContent>
            </TabsContent>
          </Tabs>
        </Content>
      </div>
    )
  }
}
```

```

        <TabContent id='tabUpdate'>
            <h1>Alterar</h1>
        </TabContent>
        <TabContent id='tabDelete'>
            <h1>Excluir</h1>
        </TabContent>
    </TabsContent>
</Tabs>
</Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({selectTab, showTabs}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.39. BillingCycleForm com Redux-Form (Parte 02)

Listagem 328 - Alterar arquivo `billingCycleForm.jsx`

`my-money-app/frontend/src/billingCycle/billingCycleForm.jsx` (aprox. linha 2, 7, 10)

```
import React, { Component } from 'react'
import { reduxForm, Field } from 'redux-form'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component='input' />
          <Field name='month' component='input' />
          <Field name='year' component='input' />
        </div>
        <div className='box-footer'>
          <button type='submit' className='btn btn-primary'>
            Submit
          </button>
        </div>
      </form>
    )
  }
}

export default reduxForm({form: 'billingCycleForm'})(BillingCycleForm)
```

Listagem 329 - Alterar arquivo billingCycleActions.js

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 12)

```
import axios from 'axios'
const BASE_URL = 'http://localhost:3003/api'

export function getList() {
  const request = axios.get(`${BASE_URL}/billingCycles`)
  return {
    type: 'BILLING_CYCLES_FETCHED',
    payload: request
  }
}

export function create(values) {
  axios.post(`${BASE_URL}/billingCycles`, values)
  return {
    type: 'TEMP'
  }
}
```

Listagem 330 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 13, 42 e 54)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { create } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
```

```

    }

    render() {
        return (
            <div>
                <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
                <Content>
                    <Tabs>
                        <TabsHeader>
                            <TabHeader label='Listar' icon='bars'
target='tabList' />
                            <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
                            <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
                            <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
                        </TabsHeader>
                        <TabsContent>
                            <TabContent id='tabList'>
                                <List />
                            </TabContent>
                            <TabContent id='tabCreate'>
                                <Form onSubmit={this.props.create} />
                            </TabContent>
                            <TabContent id='tabUpdate'>
                                <h1>Alterar</h1>
                            </TabContent>
                            <TabContent id='tabDelete'>
                                <h1>Excluir</h1>
                            </TabContent>
                        </TabsContent>
                    </Tabs>
                </Content>
            </div>
        )
    }
}

const mapDispatchToProps = dispatch => bindActionCreators({
    selectTab, showTabs, create
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.40. Exibindo as Mensagens de Sucesso e Erro



Criar uma pasta chamada `msg` em `src/common/msg`

Listagem 331 - Criar arquivo messages.jsx

my-money-app/frontend/src/common/msg/messages.jsx

```
import React from 'react'
import ReduxToastr from 'react-redux-toastr'
import 'modules/react-redux-toastr/lib/css/react-redux-toastr.css'

export default props => (
  <ReduxToastr
    timeOut={4000}
    newestOnTop={false}
    preventDuplicates={true}
    position='top-right'
    transitionIn='fadeIn'
    transitionOut='fadeOut'
    progressBar />
)
```

Listagem 332 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 8 e 18)

```
import '../common/template/dependencies'
import React from 'react'

import Header from '../common/template/header'
import SideBar from '../common/template/sideBar'
import Footer from '../common/template/footer'
import Routes from './routes'
import Messages from '../common/msg/messages'

export default props => (
  <div className='wrapper'>
    <Header />
    <SideBar />
    <div className='content-wrapper'>
      <Routes />
    </div>
    <Footer />
    <Messages />
  </div>
)
```

Listagem 333 - Alterar arquivo reducers.js

my-money-app/frontend/src/main/reducers.js (aprox. linha 3 e 14)

```
import { combineReducers } from 'redux'
import { reducer as formReducer } from 'redux-form'
import { reducer as toastrReducer } from 'react-redux-toastr'

import DashboardReducer from '../dashboard/dashboardReducer'
import TabReducer from '../common/tab/tabReducer'
import BillingCycleReducer from '../billingCycle/billingCycleReducer'

const rootReducer = combineReducers({
  dashboard: DashboardReducer,
  tab: TabReducer,
  billingCycle: BillingCycleReducer,
  form: formReducer,
  toastr: toastrReducer
})

export default rootReducer
```

Listagem 334 - Alterar arquivo *billingCycleActions.js*

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 2 e 15)

```
import axios from 'axios'
import { toastr } from 'react-redux-toastr'
const BASE_URL = 'http://localhost:3003/api'

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    axios.post(`${BASE_URL}/billingCycles`, values)
        .then(resp => {
            toastr.success('Sucesso', 'Operação Realizada com sucesso.')
        })
        .catch(e => {
            e.response.data.errors.forEach(error => toastr.error('Erro', error))
        })
    return {
        type: 'TEMP'
    }
}
```

9.41. Melhorias na Inclusão do Ciclo de Pagamento

Listagem 335 - Alterar arquivo index.jsx

my-money-app/frontend/src/index.jsx (aprox. linha 7, 8 e 15)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'
import multi from 'redux-multi'
import thunk from 'redux-thunk'

import App from './main/app'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = applyMiddleware(multi, thunk, promise)(createStore)(reducers,
devTools)
ReactDOM.render(
  <Provider store={store}>
    <App />
  </Provider>
, document.getElementById('app'))
```

Listagem 336 - Alterar arquivo `billingCycleActions.js`

`my-money-app/frontend/src/billingCycle/billingCycleActions.js` (aprox. linha 3, 4, 14 e 21)

```
import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    return dispatch => {
        axios.post(`${BASE_URL}/billingCycles`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch([
                    resetForm('billingCycleForm'),
                    getList(),
                    selectTab('tabList'),
                    showTabs('tabList', 'tabCreate')
                ])
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}
```

9.42. Field com Componente Personalizado



Criar uma pasta chamada `form` em `src/common/form`

Listagem 337 - Criar arquivo labelAndInput.jsx

my-money-app/frontend/src/common/form/labelAndInput.jsx

```
import React from 'react'
import Grid from '../layout/grid'

export default props => (
  <Grid cols={props.cols}>
    <div className='form-group'>
      <label htmlFor={props.name}>{props.label}</label>
      <input {...props.input} className='form-control'
        placeholder={props.placeholder}
        readOnly={props.readOnly} type={props.type} />
    </div>
  </Grid>
)
```

Listagem 338 - Alterar arquivo `billingCycleForm.jsx`

`my-money-app/frontend/src/billingCycle/billingCycleForm.jsx` (aprox. linha 3, 12, 14 e 16)

```
import React, { Component } from 'react'
import { reduxForm, Field } from 'redux-form'
import LabelAndInput from '../common/form/labelAndInput'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
            label='Ano' cols='12 4' placeholder='Informe o ano' />
        </div>
        <div className='box-footer'>
          <button type='submit' className='btn btn-primary'>
            Submit</button>
          </div>
        </form>
    )
  }
}

export default reduxForm({form: 'billingCycleForm'})(BillingCycleForm)
```

9.43. Exibir Aba de Alterar Ciclo de Pagamento

Listagem 339 - Alterar arquivo billingCycleActions.js

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 34)

```
import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    return dispatch => {
        axios.post(`${BASE_URL}/billingCycles`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch([
                    resetForm('billingCycleForm'),
                    getList(),
                    selectTab('tabList'),
                    showTabs('tabList', 'tabCreate')
                ])
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate')
    ]
}
```

Listagem 340 - Alterar arquivo billingCycleList.jsx

my-money-app/frontend/src/billingCycle/billingCycleList.jsx (aprox. linha 4, 19 e 37)

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import { getList, showUpdate } from './billingCycleActions'

class BillingCycleList extends Component {

  componentWillMount() {
    this.props.getList()
  }

  renderRows() {
    const list = this.props.list || []
    return list.map(bc => (
      <tr key={bc._id}>
        <td>{bc.name}</td>
        <td>{bc.month}</td>
        <td>{bc.year}</td>
        <td>
          <button className='btn btn-warning' onClick={() =>
            this.props.showUpdate(bc)}>
            <i className='fa fa-pencil'></i>
          </button>
        </td>
      </tr>
    ))
  }

  render() {
    return (
      <div>
        <table className='table'>
          <thead>
            <tr>
              <th>Nome</th>
              <th>Mês</th>
              <th>Ano</th>
              <th>Ações</th>
            </tr>
          </thead>
          <tbody>
            {this.renderRows()}
          </tbody>
        </table>
      </div>
    )
  }
}

const mapStateToProps = state => ({list: state.billingCycle.list})
const mapDispatchToProps = dispatch => bindActionCreators({getList, showUpdate},

```

```
dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleList)
```

Listagem 341 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 45)

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { create } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars' target='tabList' />
              <TabHeader label='Incluir' icon='plus' target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil' target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o' target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              <TabContent id='tabList'>
```

```
<List />
</TabContent>
<TabContent id='tabCreate'>
    <Form onSubmit={this.props.create} />
</TabContent>
<TabContent id='tabUpdate'>
    <Form />
</TabContent>
<TabContent id='tabDelete'>
    <h1>Excluir</h1>
</TabContent>
</TabsContent>
</Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({
    selectTab, showTabs, create
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)
```

9.44. Inicializar Formulário com Dados

Listagem 342 - Alterar arquivo *billingCycleActions.js*

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 3 e 38)

```
import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    return dispatch => {
        axios.post(`${BASE_URL}/billingCycles`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch([
                    resetForm('billingCycleForm'),
                    getList(),
                    selectTab('tabList'),
                    showTabs('tabList', 'tabCreate')
                ])
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}
```

Listagem 343 - Alterar arquivo `billingCycleForm.jsx`

`my-money-app/frontend/src/billingCycle/billingCycleForm.jsx` (aprox. linha 27)

```
import React, { Component } from 'react'
import { reduxForm, Field } from 'redux-form'
import LabelAndInput from '../common/form/LabelAndInput'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
            label='Ano' cols='12 4' placeholder='Informe o ano' />
        </div>
        <div className='box-footer'>
          <button type='submit' className='btn btn-primary'>
            Submit</button>
          </div>
        </form>
    )
  }
}

export default reduxForm({form: 'billingCycleForm', destroyOnUnmount:
  false})(BillingCycleForm)
```

9.45. Função do Botão Cancelar

Listagem 344 - Alterar arquivo `billingCycleActions.js`

```

import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {}

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    return dispatch => {
        axios.post(`${BASE_URL}/billingCycles`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch(init())
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function init() {
    return [
        showTabs('tabList', 'tabCreate'),
        selectTab('tabList'),
        getList(),
        initialize('billingCycleForm', INITIAL_VALUES)
    ]
}

```

Listagem 345 - Alterar arquivo billingCycleForm.jsx

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx (aprox. linha 2, 3, 6, 22 e 33)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput} label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number' label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number' label='Ano' cols='12 4' placeholder='Informe o ano' />
        </div>
        <div className='box-footer'>
          <button type='submit' className='btn btn-primary'>Submit</button>
          <button type='button' className='btn btn-default' onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount: false})(BillingCycleForm)
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycleForm)
```

9.46. Alterar Ciclo de Pagamento

Listagem 346 - Alterar arquivo billingCycleActions.js

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 18, 25 e 30)

```

import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {}

export function getList() {
  const request = axios.get(`${BASE_URL}/billingCycles`)
  return {
    type: 'BILLING_CYCLES_FETCHED',
    payload: request
  }
}

export function create(values) {
  return submit(values, 'post')
}

export function update(values) {
  return submit(values, 'put')
}

function submit(values, method) {
  return dispatch => {
    const id = values._id ? values._id : ''
    axios[method](`${BASE_URL}/billingCycles/${id}`, values)
      .then(resp => {
        toastr.success('Sucesso', 'Operação Realizada com sucesso.')
        dispatch(init())
      })
      .catch(e => {
        e.response.data.errors.forEach(error => toastr.error('Erro', error))
      })
  }
}

export function showUpdate(billingCycle) {
  return [
    showTabs('tabUpdate'),
    selectTab('tabUpdate'),
    initialize('billingCycleForm', billingCycle)
  ]
}

export function init() {
  return [
    showTabs('tabList', 'tabCreate'),
    selectTab('tabList'),
  ]
}

```

```

        getList(),
        initialize('billingCycleForm', INITIAL_VALUES)
    ]
}

```

Listagem 347 - Alterar arquivo billingCycle.jsx

my-money-app/frontend/src/billingCycle/billingCycle.jsx (aprox. linha 13, 45 e 57)

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { create, update } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

    componentWillMount() {
        this.props.selectTab('tabList')
        this.props.showTabs('tabList', 'tabCreate')
    }

    render() {
        return (
            <div>
                <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
                <Content>
                    <Tabs>
                        <TabsHeader>
                            <TabHeader label='Listar' icon='bars'
target='tabList' />
                            <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
                            <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
                            <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
                        </TabsHeader>

```

```

        <TabsContent>
            <TabContent id='tabList'>
                <List />
            </TabContent>
            <TabContent id='tabCreate'>
                <Form onSubmit={this.props.create} />
            </TabContent>
            <TabContent id='tabUpdate'>
                <Form onSubmit={this.props.update} />
            </TabContent>
            <TabContent id='tabDelete'>
                <h1>Excluir</h1>
            </TabContent>
        </TabsContent>
    </Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({
    selectTab, showTabs, create, update
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.47. Excluir Ciclo de Pagamento

Listagem 348 - Alterar arquivo *billingCycleActions.js*

`my-money-app/frontend/src/billingCycle/billingCycleActions.js` (aprox. linha 47)

```

import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {}

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

```

```

export function create(values) {
    return submit(values, 'post')
}

export function update(values) {
    return submit(values, 'put')
}

function submit(values, method) {
    return dispatch => {
        const id = values._id ? values._id : ''
        axios[method](`${BASE_URL}/billingCycles/${id}`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch(init())
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function showDelete(billingCycle) {
    return [
        showTabs('tabDelete'),
        selectTab('tabDelete'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function init() {
    return [
        showTabs('tabList', 'tabCreate'),
        selectTab('tabList'),
        getList(),
        initialize('billingCycleForm', INITIAL_VALUES)
    ]
}

```

Listagem 349 - Alterar arquivo billingCycleList.jsx

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'
import { getList, showUpdate, showDelete } from './billingCycleActions'

class BillingCycleList extends Component {

componentWillMount() {
  this.props.getList()
}

renderRows() {
  const list = this.props.list || []
  return list.map(bc => (
    <tr key={bc._id}>
      <td>{bc.name}</td>
      <td>{bc.month}</td>
      <td>{bc.year}</td>
      <td>
        <button className='btn btn-warning' onClick={() =>
this.props.showUpdate(bc)}>
          <i className='fa fa-pencil'></i>
        </button>
        <button className='btn btn-danger' onClick={() =>
this.props.showDelete(bc)}>
          <i className='fa fa-trash-o'></i>
        </button>
      </td>
    </tr>
  ))
}

render() {
  return (
    <div>
      <table className='table'>
        <thead>
          <tr>
            <th>Nome</th>
            <th>Mês</th>
            <th>Ano</th>
            <th>Ações</th>
          </tr>
        </thead>
        <tbody>
          {this.renderRows()}
        </tbody>
      </table>
    </div>
  )
}
}

```

```

        )
    }

const mapStateToProps = state => ({list: state.billingCycle.list})
const mapDispatchToProps = dispatch => bindActionCreators({getList, showUpdate,
showDelete}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleList)

```

Listagem 350 - Alterar arquivo billingCycle.jsx

[my-money-app/frontend/src/billingCycle/billingCycle.jsx](#) (aprox. linha 13, 48 e 59)

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { create, update, remove } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars' target='tabList' />
              <TabHeader label='Incluir' icon='plus' target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil' />
            </TabsHeader>
            <TabsContent>
              <List />
            </TabsContent>
          </Tabs>
        </Content>
      </div>
    )
  }
}

const mapStateToProps = state => ({list: state.billingCycle.list})
const mapDispatchToProps = dispatch => bindActionCreators({getList, showUpdate,
showDelete}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycle)

```

```

target='tabUpdate' />
          <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
        </TabsHeader>
        <TabsContent>
          <TabContent id='tabList'>
            <List />
          </TabContent>
          <TabContent id='tabCreate'>
            <Form onSubmit={this.props.create} />
          </TabContent>
          <TabContent id='tabUpdate'>
            <Form onSubmit={this.props.update} />
          </TabContent>
          <TabContent id='tabDelete'>
            <Form onSubmit={this.props.remove} readOnly={true} />
          </TabContent>
        </TabsContent>
      </Tabs>
    </Content>
  </div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({
  selectTab, showTabs, create, update, remove
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

Listagem 351 - Alterar arquivo billingCycleActions.js

[my-money-app/frontend/src/billingCycle/billingCycleActions.js](#) (aprox. linha 25)

```

import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {}

export function getList() {
  const request = axios.get(`${BASE_URL}/billingCycles`)
  return {
    type: 'BILLING_CYCLES_FETCHED',
    payload: request
  }
}

```

```

}

export function create(values) {
    return submit(values, 'post')
}

export function update(values) {
    return submit(values, 'put')
}

export function remove(values) {
    return submit(values, 'delete')
}

function submit(values, method) {
    return dispatch => {
        const id = values._id ? values._id : ''
        axios[method](`${BASE_URL}/billingCycles/${id}`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch(init())
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function init() {
    return [
        showTabs('tabList', 'tabCreate'),
        selectTab('tabList'),
        getList(),
        initialize('billingCycleForm', INITIAL_VALUES)
    ]
}

```

Listagem 352 - Alterar arquivo billingCycleForm.jsx

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx (aprox. linha 12, 16, 18 e 20)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
readOnly={readOnly}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Ano' cols='12 4' placeholder='Informe o ano' />
        </div>
        <div className='box-footer'>
          <button type='submit' className='btn btn-primary'
>Submit</button>
          <button type='button' className='btn btn-default'
onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
false})(BillingCycleForm)
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycleForm)
```

9.48. Finalizando o Cadastro Básico (Melhorias)

Listagem 353 - Alterar arquivo billingCycleForm.jsx

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx (aprox. linha 24 e 25)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
readOnly={readOnly}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Ano' cols='12 4' placeholder='Informe o ano' />
        </div>
        <div className='box-footer'>
          <button type='submit' className={`btn btn-${{
this.props.submitClass}}`}>
            {this.props.submitLabel}
          </button>
          <button type='button' className='btn btn-default'
onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
false})(BillingCycleForm)
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycleForm)
```

Listagem 354 - Alterar arquivo billingCycle.jsx

```
import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { create, update, remove } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.selectTab('tabList')
    this.props.showTabs('tabList', 'tabCreate')
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>
          <Tabs>
            <TabsHeader>
              <TabHeader label='Listar' icon='bars' target='tabList' />
              <TabHeader label='Incluir' icon='plus' target='tabCreate' />
              <TabHeader label='Alterar' icon='pencil' target='tabUpdate' />
              <TabHeader label='Excluir' icon='trash-o' target='tabDelete' />
            </TabsHeader>
            <TabsContent>
              <TabContent id='tabList'>
                <List />
              </TabContent>
              <TabContent id='tabCreate'>
                <Form onSubmit={this.props.create} submitLabel='Incluir' submitClass='primary' />
              </TabContent>
            </TabsContent>
          </Tabs>
        </Content>
      </div>
    )
  }
}
```

```

        <TabContent id='tabUpdate'>
            <Form onSubmit={this.props.update}
                   submitLabel='Alterar' submitClass='info' />
        </TabContent>
        <TabContent id='tabDelete'>
            <Form onSubmit={this.props.remove} readOnly={true}
                   submitLabel='Excluir' submitClass='danger' />
        </TabContent>
    </TabsContent>
</Tabs>
</Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({
    selectTab, showTabs, create, update, remove
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

Listagem 355 - Alterar arquivo custom.css

my-money-app/frontend/src/common/template/custom.css (aprox. linha 7 e 11)

```

.main-footer {
    position: fixed;
    bottom: 0px;
    width: 100%;
}

button {
    margin-left: 5px;
}

.table-actions {
    width: 150px;
}

```

Listagem 356 - Alterar arquivo billingCycleList.jsx

my-money-app/frontend/src/billingCycle/billingCycleList.jsx (aprox. linha 40)

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

```

```

import { getList, showUpdate, showDelete } from './billingCycleActions'

class BillingCycleList extends Component {

  componentWillMount() {
    this.props.getList()
  }

  renderRows() {
    const list = this.props.list || []
    return list.map(bc => (
      <tr key={bc._id}>
        <td>{bc.name}</td>
        <td>{bc.month}</td>
        <td>{bc.year}</td>
        <td>
          <button className='btn btn-warning' onClick={() =>
            this.props.showUpdate(bc)}>
            <i className='fa fa-pencil'></i>
          </button>
          <button className='btn btn-danger' onClick={() =>
            this.props.showDelete(bc)}>
            <i className='fa fa-trash-o'></i>
          </button>
        </td>
      </tr>
    ))
  }

  render() {
    return (
      <div>
        <table className='table'>
          <thead>
            <tr>
              <th>Nome</th>
              <th>Mês</th>
              <th>Ano</th>
              <th className='table-actions'>Ações</th>
            </tr>
          </thead>
          <tbody>
            {this.renderRows()}
          </tbody>
        </table>
      </div>
    )
  }
}

const mapStateToProps = state => ({list: state.billingCycle.list})

```

```
const mapDispatchToProps = dispatch => bindActionCreators({getList, showUpdate, showDelete}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleList)
```

9.49. Componente CreditList Básico

Listagem 357 - Criar arquivo creditList.jsx

my-money-app/frontend/src/billingCycle/creditList.jsx

```
import React, { Component } from 'react'
import { Field } from 'redux-form'
import Grid from '../common/layout/grid'

class CreditList extends Component {

  renderRows() {
    return (
      <tr>
        <td><Field name='credits[0].name' component='input' /></td>
        <td><Field name='credits[0].value' component='input' /></td>
        <td></td>
      </tr>
    )
  }

  render() {
    return (
      <Grid cols={this.props.cols}>
        <fieldset>
          <legend>Créditos</legend>
          <table>
            <thead>
              <tr>
                <th>Nome</th>
                <th>Valor</th>
                <th>Ações</th>
              </tr>
            </thead>
            <tbody>
              {this.renderRows()}
            </tbody>
          </table>
        </fieldset>
      </Grid>
    )
  }
}

export default CreditList
```

Listagem 358 - Alterar arquivo billingCycleForm.jsx

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx (aprox. linha 8 e 23)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import CreditList from './creditList'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
readOnly={readOnly}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Ano' cols='12 4' placeholder='Informe o ano' />
          <CreditList cols='12 6' />
        </div>
        <div className='box-footer'>
          <button type='submit' className={`btn btn-${
this.props.submitClass}`}>
            {this.props.submitLabel}
          </button>
          <button type='button' className='btn btn-default'
onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
false})(BillingCycleForm)
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycleForm)
```

9.50. Componente Input para CreditList

Listagem 359 - Criar arquivo input.jsx

my-money-app/frontend/src/common/form/input.jsx

```
import React from 'react'

export default props => (
  <input {...props.input}
    className='form-control'
    placeholder={props.placeholder}
    readOnly={props.readOnly}
    type={props.type} />
)
```

Listagem 360 - Alterar arquivo creditList.jsx

my-money-app/frontend/src/billingCycle/creditList.jsx (aprox. linha 4, 12 e 14)

```
import React, { Component } from 'react'
import { Field } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'

class CreditList extends Component {

  renderRows() {
    return (
      <tr>
        <td><Field name='credits[0].name' component={Input}
          placeholder='Informe o nome' readOnly={this.props.readOnly}>/></td>
        <td><Field name='credits[0].value' component={Input}
          placeholder='Informe o valor' readOnly={this.props.readOnly}>/></td>
        <td></td>
      </tr>
    )
  }

  render() {
    return (
      <Grid cols={this.props.cols}>
        <fieldset>
          <legend>Créditos</legend>
          <table>
            <thead>
              <tr>
                <th>Nome</th>
                <th>Valor</th>
                <th>Ações</th>
              </tr>
            </thead>
            <tbody>
              {this.renderRows()}
            </tbody>
          </table>
        </fieldset>
      </Grid>
    )
  }
}

export default CreditList
```

Listagem 361 - Alterar arquivo billingCycleForm.jsx

my-money-app/frontend/src/billingCycle/billingCycleForm.jsx (aprox. linha 23)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import CreditList from './creditList'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
readOnly={readOnly}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
readOnly={readOnly}
            label='Ano' cols='12 4' placeholder='Informe o ano' />
          <CreditList cols='12 6' readOnly={readOnly} />
        </div>
        <div className='box-footer'>
          <button type='submit' className={`btn btn-${
this.props.submitClass}`}>
            {this.props.submitLabel}
          </button>
          <button type='button' className='btn btn-default'
            onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
false})(BillingCycleForm)
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycleForm)
```

9.51. Evoluindo o Componente CreditList

Listagem 362 - Alterar arquivo *billingCycleForm.jsx*

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field, formValueSelector } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import CreditList from './creditList'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly, credits } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput} readOnly={readOnly} label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number' readOnly={readOnly} label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number' readOnly={readOnly} label='Ano' cols='12 4' placeholder='Informe o ano' />
          <CreditList cols='12 6' list={credits} readOnly={readOnly} />
        </div>
        <div className='box-footer'>
          <button type='submit' className={`btn btn-${
            this.props.submitClass}`}>
            {this.props.submitLabel}
          </button>
          <button type='button' className='btn btn-default' onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount: false})(BillingCycleForm)
const selector = formValueSelector('billingCycleForm')
const mapStateToProps = state => ({credits: selector(state, 'credits')})
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleForm)

```

Listagem 363 - Alterar arquivo creditList.jsx

my-money-app/frontend/src/billingCycle/creditList.jsx (aprox. linha 9, 10, 12 e 14)

```
import React, { Component } from 'react'
import { Field } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'

class CreditList extends Component {

    renderRows() {
        const list = this.props.list || []
        return list.map((item, index) => (
            <tr key={index}>
                <td><Field name={'credits[$index].name'} component={Input}
                    placeholder='Informe o nome' readOnly={this.props.readOnly}>/</td>
                <td><Field name={'credits[$index].value'} component={Input}
                    placeholder='Informe o valor' readOnly={this.props.readOnly}>/</td>
            </tr>
        ))
    }

    render() {
        return (
            <Grid cols={this.props.cols}>
                <fieldset>
                    <legend>Créditos</legend>
                    <table>
                        <thead>
                            <tr>
                                <th>Nome</th>
                                <th>Valor</th>
                                <th>Ações</th>
                            </tr>
                        </thead>
                        <tbody>
                            {this.renderRows()}
                        </tbody>
                    </table>
                </fieldset>
            </Grid>
        )
    }
}

export default CreditList
```

Listagem 364 - Alterar arquivo billingCycleActions.js

my-money-app/frontend/src/billingCycle/billingCycleActions.js (aprox. linha 7)

```
import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {credits: [{}]}

export function getList() {
    const request = axios.get(`${BASE_URL}/billingCycles`)
    return {
        type: 'BILLING_CYCLES_FETCHED',
        payload: request
    }
}

export function create(values) {
    return submit(values, 'post')
}

export function update(values) {
    return submit(values, 'put')
}

export function remove(values) {
    return submit(values, 'delete')
}

function submit(values, method) {
    return dispatch => {
        const id = values._id ? values._id : ''
        axios[method](`${BASE_URL}/billingCycles/${id}`, values)
            .then(resp => {
                toastr.success('Sucesso', 'Operação Realizada com sucesso.')
                dispatch(init())
            })
            .catch(e => {
                e.response.data.errors.forEach(error => toastr.error('Erro', error))
            })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
```

```

        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function init() {
  return [
    showTabs('tabList', 'tabCreate'),
    selectTab('tabList'),
    getList(),
    initialize('billingCycleForm', INITIAL_VALUES)
  ]
}

```



Remover a linha referente ao `import { selectTab, showTabs } from '../common/tab/tabActions'`

Listagem 365 - Alterar arquivo `billingCycle.jsx`

`my-money-app/frontend/src/billingCycle/billingCycle.jsx` (aprox. linha 13, 20 e 62)

```

import React, { Component } from 'react'
import { bindActionCreators } from 'redux'
import { connect } from 'react-redux'

import ContentHeader from '../common/template/contentHeader'
import Content from '../common/template/content'
import Tabs from '../common/tab/tabs'
import TabsHeader from '../common/tab/tabsHeader'
import TabsContent from '../common/tab/tabsContent'
import TabHeader from '../common/tab/tabHeader'
import TabContent from '../common/tab/tabContent'
import { selectTab, showTabs } from '../common/tab/tabActions'
import { init, create, update, remove } from './billingCycleActions'

import List from './billingCycleList'
import Form from './billingCycleForm'

class BillingCycle extends Component {

  componentWillMount() {
    this.props.init()
  }

  render() {
    return (
      <div>
        <ContentHeader title='Ciclos de Pagamentos' small='Cadastro' />
        <Content>

```

```

        <Tabs>
            <TabsHeader>
                <TabHeader label='Listar' icon='bars'
target='tabList' />
                <TabHeader label='Incluir' icon='plus'
target='tabCreate' />
                <TabHeader label='Alterar' icon='pencil'
target='tabUpdate' />
                <TabHeader label='Excluir' icon='trash-o'
target='tabDelete' />
            </TabsHeader>
            <TabsContent>
                <TabContent id='tabList'>
                    <List />
                </TabContent>
                <TabContent id='tabCreate'>
                    <Form onSubmit={this.props.create}
                        submitLabel='Incluir' submitClass='primary'
/>
                    </TabContent>
                <TabContent id='tabUpdate'>
                    <Form onSubmit={this.props.update}
                        submitLabel='Alterar' submitClass='info' />
                </TabContent>
                <TabContent id='tabDelete'>
                    <Form onSubmit={this.props.remove} readOnly={true}
                        submitLabel='Excluir' submitClass='danger' />
                </TabContent>
            </TabsContent>
        </Tabs>
    </Content>
</div>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({
    init, create, update, remove
}, dispatch)
export default connect(null, mapDispatchToProps)(BillingCycle)

```

9.52. Adicionar e Clonar Créditos

Listagem 366 - Alterar arquivo creditList.jsx_

[my-money-app/frontend/src/billingCycle/creditList.jsx](#) (aprox. linha 2, 3, 4, 9, 17, 47, 60 e 61)

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { Field, arrayInsert } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'

class CreditList extends Component {

  add(index, item = {}) {
    if(!this.props.readOnly) {
      this.props.arrayInsert('billingCycleForm', 'credits', index, item)
    }
  }

  renderRows() {
    const list = this.props.list || []
    return list.map((item, index) => (
      <tr key={index}>
        <td><Field name={'credits[$\{index\}].name'} component={Input}
          placeholder='Informe o nome' readOnly={this.props.readOnly}>/></td>
        <td><Field name={'credits[$\{index\}].value'} component={Input}
          placeholder='Informe o valor' readOnly={this.props.readOnly}>/></td>
        <td>
          <button type='button' className='btn btn-success'
            onClick={() => this.add(index + 1)}>
            <i className="fa fa-plus"></i>
          </button>
          <button type='button' className='btn btn-warning'
            onClick={() => this.add(index + 1, item)}>
            <i className="fa fa-clone"></i>
          </button>
        </td>
      </tr>
    ))
  }

  render() {
    return (
      <Grid cols={this.props.cols}>
        <fieldset>
          <legend>Créditos</legend>
          <table>
            <thead>
              <tr>
                <th>Nome</th>
                <th>Valor</th>
                <th className='table-actions'>Ações</th>
              </tr>
            <tbody>
              <tr>
                <td><Field name='name' component={Input}
                  placeholder='Informe o nome' readOnly={true}>/></td>
                <td><Field name='value' component={Input}
                  placeholder='Informe o valor' readOnly={true}>/></td>
                <td>
                  <button type='button' className='btn btn-success'
                    onClick={() => this.add(0)}>
                    <i className="fa fa-plus"></i>
                  </button>
                  <button type='button' className='btn btn-warning'
                    onClick={() => this.add(0, item)}>
                    <i className="fa fa-clone"></i>
                  </button>
                </td>
              </tr>
            </tbody>
          </table>
        </fieldset>
      </Grid>
    )
  }
}

```

```

        </thead>
        <tbody>
            {this.renderRows()}
        </tbody>
    </table>
</fieldset>
</Grid>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({ arrayInsert },
dispatch)
export default connect(null, mapDispatchToProps)(CreditList)

```

9.53. Remover Créditos

Listagem 367 - Alterar arquivo creditList.jsx

[my-money-app/frontend/src/billingCycle/creditList.jsx](#) (aprox. linha 4, 16, 39 e 70)

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { Field, arrayInsert, arrayRemove } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'

class CreditList extends Component {

    add(index, item = {}) {
        if(!this.props.readOnly) {
            this.props.arrayInsert('billingCycleForm', 'credits', index, item)
        }
    }

    remove(index) {
        if(!this.props.readOnly && this.props.list.length > 1) {
            this.props.arrayRemove('billingCycleForm', 'credits', index)
        }
    }

    renderRows() {
        const list = this.props.list || []
        return list.map((item, index) => (
            <tr key={index}>
                <td><Field name={'credits[$\{index\}].name'} component={Input}
placeholder='Informe o nome' readOnly={this.props.readOnly}>

```

```

/></td>
    <td><Field name={'credits[$index].value'} component={Input}
placeholder='Informe o valor' readOnly={this.props.readOnly}>
/></td>
    <td>
        <button type='button' className='btn btn-success'
onClick={() => this.add(index + 1)}>
            <i className="fa fa-plus"></i>
        </button>
        <button type='button' className='btn btn-warning'
onClick={() => this.add(index + 1, item)}>
            <i className="fa fa-clone"></i>
        </button>
        <button type='button' className='btn btn-danger'
onClick={() => this.remove(index)}>
            <i className="fa fa-trash-o"></i>
        </button>
    </td>
</tr>
)
}

render() {
    return (
        <Grid cols={this.props.cols}>
            <fieldset>
                <legend>Créditos</legend>
                <table>
                    <thead>
                        <tr>
                            <th>Nome</th>
                            <th>Valor</th>
                            <th className='table-actions'>Ações</th>
                        </tr>
                    </thead>
                    <tbody>
                        {this.renderRows()}
                    </tbody>
                </table>
            </fieldset>
        </Grid>
    )
}
}

const mapDispatchToProps = dispatch => bindActionCreators({ arrayInsert,
arrayRemove }, dispatch)
export default connect(null, mapDispatchToProps)(CreditList)

```

9.54. Generalizando o Componente CreditList



Renomear o arquivo `creditList.jsx` para `itemList.jsx`

Listagem 368 - Alterar arquivo `itemList.jsx`

`my-money-app/frontend/src/billingCycle/itemList.jsx` (aprox. linha 8, 12, 18, 26, 28, 52 e 72)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { Field, arrayInsert, arrayRemove } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'

class ItemList extends Component {

    add(index, item = {}) {
        if(!this.props.readOnly) {
            this.props.arrayInsert('billingCycleForm', this.props.field, index,
item)
        }
    }

    remove(index) {
        if(!this.props.readOnly && this.props.list.length > 1) {
            this.props.arrayRemove('billingCycleForm', this.props.field, index)
        }
    }

    renderRows() {
        const list = this.props.list || []
        return list.map((item, index) => (
            <tr key={index}>
                <td><Field name={`${this.props.field}[${index}].name`}
component={Input}
                    placeholder='Informe o nome' readOnly={this.props.readOnly}
/></td>
                <td><Field name={`${this.props.field}[${index}].value`}
component={Input}
                    placeholder='Informe o valor' readOnly={this.props.readOnly}
/></td>
                <td>
                    <button type='button' className='btn btn-success'
                        onClick={() => this.add(index + 1)}>
                        <i className="fa fa-plus"></i>
                    </button>
                    <button type='button' className='btn btn-warning'
                        onClick={() => this.add(index + 1, item)}>

```

```

        <i className="fa fa-clone"></i>
    </button>
    <button type='button' className='btn btn-danger'
        onClick={() => this.remove(index)}>
        <i className="fa fa-trash-o"></i>
    </button>
    </td>
</tr>
))
}
render() {
    return (
        <Grid cols={this.props.cols}>
            <fieldset>
                <legend>{this.props.legend}</legend>
                <table>
                    <thead>
                        <tr>
                            <th>Nome</th>
                            <th>Valor</th>
                            <th className='table-actions'>Ações</th>
                        </tr>
                    </thead>
                    <tbody>
                        {this.renderRows()}
                    </tbody>
                </table>
            </fieldset>
        </Grid>
    )
}
}

const mapDispatchToProps = dispatch => bindActionCreators({ arrayInsert,
arrayRemove }, dispatch)
export default connect(null, mapDispatchToProps)(ItemList)

```

Listagem 369 - Alterar arquivo *billingCycleForm.jsx*

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field, formValueSelector } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import ItemList from './itemList'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly, credits } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput} readOnly={readOnly}>
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number' readOnly={readOnly}>
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number' readOnly={readOnly}>
            label='Ano' cols='12 4' placeholder='Informe o ano' />
          <ItemList cols='12 6' list={credits} readOnly={readOnly}>
            field='credits' legend='Créditos' />
          </div>
          <div className='box-footer'>
            <button type='submit' className={`btn btn-${this.props.submitClass}`}>
              {this.props.submitLabel}
            </button>
            <button type='button' className='btn btn-default' onClick={this.props.init}>Cancelar</button>
          </div>
        </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount: false})(BillingCycleForm)
const selector = formValueSelector('billingCycleForm')
const mapStateToProps = state => ({credits: selector(state, 'credits')})
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleForm)

```

9.55. Adicionando o Campo Status no ItemList

Listagem 370 - Alterar arquivo `billingCycleForm.jsx`

`my-money-app/frontend/src/billingCycle/billingCycleForm.jsx` (aprox. linha 12, 24 e 40)

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field, formValueSelector } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import ItemList from './itemList'

class BillingCycleForm extends Component {

    render() {
        const { handleSubmit, readOnly, credits, debts } = this.props
        return (
            <form role='form' onSubmit={handleSubmit}>
                <div className='box-body'>
                    <Field name='name' component={LabelAndInput} readOnly={readOnly} label='Nome' cols='12 4' placeholder='Informe o nome' />
                    <Field name='month' component={LabelAndInput} type='number' readOnly={readOnly} label='Mês' cols='12 4' placeholder='Informe o mês' />
                    <Field name='year' component={LabelAndInput} type='number' readOnly={readOnly} label='Ano' cols='12 4' placeholder='Informe o ano' />
                    <ItemList cols='12 6' list={credits} readOnly={readOnly} field='credits' legend='Créditos' />
                    <ItemList cols='12 6' list={debts} readOnly={readOnly} field='debts' legend='Débitos' showStatus={true} />
                </div>
                <div className='box-footer'>
                    <button type='submit' className={`btn btn-${{
                        this.props.submitClass}}`}>
                        {this.props.submitLabel}
                    </button>
                    <button type='button' className='btn btn-default' onClick={this.props.init}>Cancelar</button>
                </div>
            </form>
        )
    }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
```

```

    false})(BillingCycleForm)
  const selector = formValueSelector('billingCycleForm')
  const mapStateToProps = state => ({
    credits: selector(state, 'credits'),
    debts: selector(state, 'debts')
  })
  const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
  export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleForm)

```

Listagem 371 - Alterar arquivo billingCycleActions.js

[my-money-app/frontend/src/billingCycle/billingCycleActions.js](#) (aprox. linha 7)

```

import axios from 'axios'
import { toastr } from 'react-redux-toastr'
import { reset as resetForm, initialize } from 'redux-form'
import { showTabs, selectTab } from '../common/tab/tabActions'

const BASE_URL = 'http://localhost:3003/api'
const INITIAL_VALUES = {credits: [], debts: []}

export function getList() {
  const request = axios.get(`${BASE_URL}/billingCycles`)
  return {
    type: 'BILLING_CYCLES_FETCHED',
    payload: request
  }
}

export function create(values) {
  return submit(values, 'post')
}

export function update(values) {
  return submit(values, 'put')
}

export function remove(values) {
  return submit(values, 'delete')
}

function submit(values, method) {
  return dispatch => {
    const id = values._id ? values._id : ''
    axios[method](`${BASE_URL}/billingCycles/${id}`, values)
      .then(resp => {
        toastr.success('Sucesso', 'Operação Realizada com sucesso.')
        dispatch(init())
      })
  }
}

```

```

        .catch(e => {
            e.response.data.errors.forEach(error => toastr.error('Error',
error))
        })
    }
}

export function showUpdate(billingCycle) {
    return [
        showTabs('tabUpdate'),
        selectTab('tabUpdate'),
        initialize('billingCycleForm', billingCycle)
    ]
}

export function init() {
    return [
        showTabs('tabList', 'tabCreate'),
        selectTab('tabList'),
        getList(),
        initialize('billingCycleForm', INITIAL_VALUES)
    ]
}

```

Listagem 372 - Alterar arquivo itemList.jsx_

[my-money-app/frontend/src/billingCycle/itemList.jsx](#) (aprox. linha 7, 31 e 62)

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { Field, arrayInsert, arrayRemove } from 'redux-form'
import Grid from '../common/layout/grid'
import Input from '../common/form/input'
import If from '../common/operator/if'

class ItemList extends Component {

    add(index, item = {}) {
        if(!this.props.readOnly) {
            this.props.arrayInsert('billingCycleForm', this.props.field, index,
item)
        }
    }

    remove(index) {
        if(!this.props.readOnly && this.props.list.length > 1) {
            this.props.arrayRemove('billingCycleForm', this.props.field, index)
        }
    }
}

```

```

}

renderRows() {
  const list = this.props.list || []
  return list.map((item, index) => (
    <tr key={index}>
      <td><Field name={'${this.props.field}[${index}].name'} component={Input}>
        placeholder='Informe o nome' readOnly={this.props.readOnly}
      /></td>
      <td><Field name={'${this.props.field}[${index}].value'} component={Input}>
        placeholder='Informe o valor' readOnly={this.props.readOnly}
      /></td>
      <If test={this.props.showStatus}>
        <td><Field name={'${this.props.field}[${index}].status'} component={Input}>
          placeholder='Informe o status' readOnly={
            this.props.readOnly} /></td>
        </If>
        <td>
          <button type='button' className='btn btn-success' onClick={() => this.add(index + 1)}>
            <i className="fa fa-plus"></i>
          </button>
          <button type='button' className='btn btn-warning' onClick={() => this.add(index + 1, item)}>
            <i className="fa fa-clone"></i>
          </button>
          <button type='button' className='btn btn-danger' onClick={() => this.remove(index)}>
            <i className="fa fa-trash-o"></i>
          </button>
        </td>
      </td>
    </tr>
  ))
}

render() {
  return (
    <Grid cols={this.props.cols}>
      <fieldset>
        <legend>{this.props.legend}</legend>
        <table>
          <thead>
            <tr>
              <th>Nome</th>
              <th>Valor</th>
              <If test={this.props.showStatus}>
                <th>Status</th>
              </If>
            </tr>
          <tbody>
            {list.map(item => (
              <tr key={item.id}>
                <td>{item.name}</td>
                <td>{item.value}</td>
                <td>
                  {item.status ? (
                    <button type='button' className='btn btn-success' onClick={() => this.add(item.id + 1)}>
                      <i className="fa fa-plus"></i>
                    </button>
                    <button type='button' className='btn btn-warning' onClick={() => this.add(item.id + 1, item)}>
                      <i className="fa fa-clone"></i>
                    </button>
                    <button type='button' className='btn btn-danger' onClick={() => this.remove(item.id)}>
                      <i className="fa fa-trash-o"></i>
                    </button>
                  ) : null}
                </td>
              </tr>
            ))}
          </tbody>
        </table>
      </fieldset>
    </Grid>
  )
}

```

```

        <th className='table-actions'>Ações</th>
    </tr>
</thead>
<tbody>
    {this.renderRows()}
</tbody>
</table>
</fieldset>
</Grid>
)
}
}

const mapDispatchToProps = dispatch => bindActionCreators({ arrayInsert,
arrayRemove }, dispatch)
export default connect(null, mapDispatchToProps)(ItemList)

```

9.56. Componente Summary

Listagem 373 - Criar arquivo summary.jsx

my-money-app/frontend/src/billingCycle/summary.jsx

```

import React, { Component } from 'react'

import Grid from '../common/layout/grid'
import Row from '../common/layout/row'
import ValueBox from '../common/widget/valueBox'

export default ({credit, debt}) => (
<Grid cols='12'>
    <fieldset>
        <legend>Resumo</legend>
        <Row>
            <ValueBox cols='12 4' color='green' icon='bank'
                value={`R$ ${credit}`} text='Total de Créditos' />
            <ValueBox cols='12 4' color='red' icon='credit-card'
                value={`R$ ${debt}`} text='Total de Débitos' />
            <ValueBox cols='12 4' color='blue' icon='money'
                value={`R$ ${credit - debt}`} text='Valor Consolidado' />
        </Row>
    </fieldset>
</Grid>
)

```

Listagem 374 - Alterar arquivo billingCycleForm.jsx

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field, formValueSelector } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import ItemList from './itemList'
import Summary from './summary'

class BillingCycleForm extends Component {

  render() {
    const { handleSubmit, readOnly, credits, debts } = this.props
    return (
      <form role='form' onSubmit={handleSubmit}>
        <div className='box-body'>
          <Field name='name' component={LabelAndInput}
            readOnly={readOnly}
            label='Nome' cols='12 4' placeholder='Informe o nome' />
          <Field name='month' component={LabelAndInput} type='number'
            readOnly={readOnly}
            label='Mês' cols='12 4' placeholder='Informe o mês' />
          <Field name='year' component={LabelAndInput} type='number'
            readOnly={readOnly}
            label='Ano' cols='12 4' placeholder='Informe o ano' />
          <Summary credit={1000} debt={100} />
          <ItemList cols='12 6' list={credits} readOnly={readOnly}
            field='credits' legend='Créditos' />
          <ItemList cols='12 6' list={debts} readOnly={readOnly}
            field='debts' legend='Débitos' showStatus={true} />
        </div>
        <div className='box-footer'>
          <button type='submit' className={`btn btn-${{
            this.props.submitClass
          }}`}>
            {this.props.submitLabel}
          </button>
          <button type='button' className='btn btn-default'
            onClick={this.props.init}>Cancelar</button>
        </div>
      </form>
    )
  }
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
  false})(BillingCycleForm)
const selector = formValueSelector('billingCycleForm')
const mapStateToProps = state => ({

```

```

        credits: selector(state, 'credits'),
        debts: selector(state, 'debts')
    })
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleForm)

```

9.57. Integrar Soma de Créditos e Débitos

Listagem 375 - Alterar arquivo *billingCycleForm.jsx*

`my-money-app/frontend/src/billingCycle/billingCycleForm.jsx` (aprox. linha 13, 23 e 33)

```

import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { reduxForm, Field, formValueSelector } from 'redux-form'

import { init } from './billingCycleActions'
import LabelAndInput from '../common/form/labelAndInput'
import ItemList from './itemList'
import Summary from './summary'

class BillingCycleForm extends Component {

    calculateSummary() {
        const sum = (t, v) => t + v
        return {
            sumOfCredits: this.props.credits.map(c => +c.value || 0).reduce(sum),
            sumOfDebts: this.props.debts.map(d => +d.value || 0).reduce(sum)
        }
    }

    render() {
        const { handleSubmit, readOnly, credits, debts } = this.props
        const { sumOfCredits, sumOfDebts } = this.calculateSummary()
        return (
            <form role='form' onSubmit={handleSubmit}>
                <div className='box-body'>
                    <Field name='name' component={LabelAndInput} readOnly={readOnly}>
                        label='Nome' cols='12 4' placeholder='Informe o nome' />
                    <Field name='month' component={LabelAndInput} type='number' readOnly={readOnly}>
                        label='Mês' cols='12 4' placeholder='Informe o mês' />
                    <Field name='year' component={LabelAndInput} type='number' readOnly={readOnly}>
                        label='Ano' cols='12 4' placeholder='Informe o ano' />
                <Summary credit={sumOfCredits} debt={sumOfDebts} />
            </div>
        )
    }
}

```

```

        <ItemList cols='12 6' list={credits} readOnly={readOnly}
                  field='credits' legend='Créditos' />
        <ItemList cols='12 6' list={debts} readOnly={readOnly}
                  field='debts' legend='Débitos' showStatus={true} />
    </div>
    <div className='box-footer'>
        <button type='submit' className={'btn btn-${
this.props.submitClass}`}>
            {this.props.submitLabel}
        </button>
        <button type='button' className='btn btn-default'
               onClick={this.props.init}>Cancelar</button>
    </div>
</form>
)
}
}

BillingCycleForm = reduxForm({form: 'billingCycleForm', destroyOnUnmount:
false})(BillingCycleForm)
const selector = formValueSelector('billingCycleForm')
const mapStateToProps = state => ({
    credits: selector(state, 'credits'),
    debts: selector(state, 'debts')
})
const mapDispatchToProps = dispatch => bindActionCreators({init}, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(BillingCycleForm)

```

10. Melhorias e Correções

10.1. Problema de Responsividade do Menu

Listagem 376 - Alterar arquivo index.html

my-money-app/frontend/public/index.html (aprox. linha 10)

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset='utf-8'>
    <meta name='viewport' content='width=device-width, initial-scale=1'>
    <title>My Money</title>
    <link rel='stylesheet' href='app.css'>
  </head>
  <body class='skin-blue fixed sidebar-mini'>
    <div id="app" class="wrapper"></div>
    <script src='app.js'></script>
  </body>
</html>
```

Listagem 377 - Alterar arquivo menuItem.jsx

my-money-app/frontend/src/common/template/menuItem.jsx (aprox. linha 6)

```
import React from 'react'

export default props =>
  <li>
    <a href={props.path}>
      <i className={'fa fa-$props.icon'}></i> <span>{props.label}</span>
    </a>
  </li>
)
```

Listagem 378 - Alterar arquivo menuTree.jsx

my-money-app/frontend/src/common/template/menuTree.jsx (aprox. linha 6)

```
import React from 'react'

export default props => (
  <li className='treeview'>
    <a href>
      <i className={'fa fa-${props.icon}'}></i> <span>{props.label}</span>
      <i className='fa fa-angle-left pull-right'></i>
    </a>
    <ul className='treeview-menu'>
      {props.children}
    </ul>
  </li>
)
```

10.2. Navegação com React-router (Versão 2)

Listagem 379 - Alterar arquivo menuItem.jsx

my-money-app/frontend/src/common/template/menuItem.jsx (aprox. linha 2 e 6)

```
import React from 'react'
import { Link } from 'react-router'

export default props => (
  <li>
    <Link to={props.path}>
      <i className={'fa fa-${props.icon}'}></i> <span>{props.label}</span>
    </Link>
  </li>
)
```

Listagem 380 - Alterar arquivo routes.jsx

my-money-app/frontend/src/main/routes.jsx (aprox. linha 2, 4, 10 e 13)

```
import React from 'react'
import { Router, Route, IndexRoute, Redirect, hashHistory } from 'react-router'

import App from './app'
import Dashboard from '../dashboard/dashboard'
import BillingCycle from '../billingCycle/billingCycle'

export default props => (
  <Router history={hashHistory}>
    <Route path='/' component={App}>
      <IndexRoute component={Dashboard} />
      <Route path='billingCycles' component={BillingCycle} />
    </Route>
    <Redirect from='*' to='/' />
  </Router>
)
```

Listagem 381 - Alterar arquivo app.jsx

my-money-app/frontend/src/main/app.jsx (aprox. linha 7 e 15)

```
import '../common/template/dependencies'
import React from 'react'

import Header from '../common/template/header'
import SideBar from '../common/template/sidebar'
import Footer from '../common/template/footer'
import Messages from '../common/msg/messages'

export default props => (
  <div className='wrapper'>
    <Header />
    <SideBar />
    <div className='content-wrapper'>
      {props.children}
    </div>
    <Footer />
    <Messages />
  </div>
)
```

Listagem 382 - Alterar arquivo index.jsx

my-money-app/frontend/src/index.jsx (aprox. linha 10 e 18)

```
import React from 'react'
import ReactDOM from 'react-dom'
import { applyMiddleware, createStore } from 'redux'
import { Provider } from 'react-redux'

import promise from 'redux-promise'
import multi from 'redux-multi'
import thunk from 'redux-thunk'

import Routes from './main/routes'
import reducers from './main/reducers'

const devTools = window.__REDUX_DEVTOOLS_EXTENSION__
  && window.__REDUX_DEVTOOLS_EXTENSION__()
const store = applyMiddleware(multi, thunk, promise)(createStore)(reducers,
devTools)
ReactDOM.render(
  <Provider store={store}>
    <Routes />
  </Provider>
, document.getElementById('app'))
```

Listagem 383 - Alterar arquivo menu.jsx

my-money-app/frontend/src/common/template/menu.jsx (aprox. linha 7 e 9)

```
import React from 'react'
import MenuItem from './menuItem'
import MenuTree from './menuTree'

export default props => (
  <ul className='sidebar-menu'>
    <MenuItem path='/' label='Dashboard' icon='dashboard' />
    <MenuTree label='Cadastro' icon='edit'>
      <MenuItem path='billingCycles'
        label='Ciclos de Pagamentos' icon='usd' />
    </MenuTree>
  </ul>
)
```

11. My Money APP: Autenticação

11.1. Configurar Ambiente

Criei uma nova pasta e no terminal dentro da pasta execute o seguinte comando:

Listagem 1 - Baixando Repositório

```
git clone -b before_auth https://github.com/cod3rcursos/curso-react-redux
```

11.2. Backend: Novas Dependências



Iremos adicionar novas dependências ao projeto usando **versões específicas** para garantir compatibilidade. As mudanças importantes nas versões dos módulos adicionados serão tratadas em vídeos adicionais no final do curso.

Novas dependências são:

- bcrypt@1.0.2
- jsonwebtoken@7.3.0

11.2.1. Instalação

Abra o terminal e dentro da pasta do projeto backend execute o seguinte comando:

Listagem 2 - Instalando as dependências

```
npm i --save bcrypt@1.0.2 jsonwebtoken@7.3.0
```

11.3. Backend: Implementar Autenticação

11.3.1. Criar arquivo .env



O objetivo principal do `.env` é armazenar variáveis de configuração da sua aplicação *backend*, por enquanto será armazendo apenas a chave usada para gerar o token **JWT**.

Listagem 3 - Criar arquivo .env

my-money-app/backend/src/.env

```
module.exports = {
  // Você pode alterar essa chave!
  authSecret: 'skjdhf6$$%dojkhf^(sdkjhf'
}
```



É muito importante que o arquivo `.env` não seja commitado no repositório, pois nele está a chave secreta para geração do token.

Listagem 4 - Adicionar .env ao .gitignore

my-money-app/backend/.gitignore

```
node_modules
*.log
.env
```

11.3.2. Criar arquivo user.js



Criar uma nova pasta no projeto `backend` chamada `user` dentro de `src/api`.



O objetivo principal do `user.js` é fazer o **ODM** (Mapeamento Objeto-Documento), ou seja, mapear o objeto javascript `user` para o documento que será armazenado no MongoDB.

Listagem 5 - Criar arquivo user.js

my-money-app/backend/src/api/user/user.js

```
const restful = require('node-restful')
const mongoose = restful.mongoose

const userSchema = new mongoose.Schema({
  name: { type: String, required: true },
  email: { type: String, required: true },
  password: { type: String, min: 6, max: 12, required: true }
})

module.exports = restful.model('User', userSchema)
```

11.3.3. Criar arquivo authService.js

Listagem 6 - Estrutura básica de authService.js

my-money-app/backend/src/api/user/authService.js

```
const _ = require('lodash')
const jwt = require('jsonwebtoken')
const bcrypt = require('bcrypt')
const User = require('../user')
const env = require('../../.env')

const emailRegex = /\S+@\S+\.\S+/
const passwordRegex = /((?=.*\d)(?=.*[a-z])(?=.*[A-Z])(?=.*[@#$%]).{6,20})/

const sendErrorsFromDB = (res, dbErrors) => {
  const errors = []
  _.forIn(dbErrors.errors, error => errors.push(error.message))
  return res.status(400).json({errors})
}
```

Listagem 7 - Criar método login de authService.js

my-money-app/backend/src/api/user/authService.js

```
const login = (req, res, next) => {
  const email = req.body.email || ''
  const password = req.body.password || ''

  User.findOne({email}, (err, user) => {
    if(err) {
      return sendErrorsFromDB(res, err)
    } else if (user && bcrypt.compareSync(password, user.password)) {
      const token = jwt.sign(user, env.authSecret, {
        expiresIn: "1 day"
      })
      const { name, email } = user
      res.json({ name, email, token })
    } else {
      return res.status(400).send({errors: ['Usuário/Senha inválidos']})
    }
  })
}
```

Listagem 8 - Criar método validateToken de authService.js

my-money-app/backend/src/api/user/authService.js

```
const validateToken = (req, res, next) => {
  const token = req.body.token || ''
  jwt.verify(token, env.authSecret, function(err, decoded) {
    return res.status(200).send({valid: !err})
  })
}
```

Listagem 9 - Criar método signup de authService.js

my-money-app/backend/src/api/user/authService.js

```
const signup = (req, res, next) => {
  const name = req.body.name || ''
  const email = req.body.email || ''
  const password = req.body.password || ''
  const confirmPassword = req.body.confirm_password || ''

  if(!email.match(emailRegex)) {
    return res.status(400).send({errors: ['O e-mail informa está inválido']})
  }

  if(!password.match(passwordRegex)) {
    return res.status(400).send({errors: [
      "Senha precisar ter: uma letra maiúscula, uma letra minúscula, um número, uma caractere especial(@#$%) e tamanho entre 6-20."]
    ]})
  }

  const salt = bcrypt.genSaltSync()
  const passwordHash = bcrypt.hashSync(password, salt)
  if(!bcrypt.compareSync(confirmPassword, passwordHash)) {
    return res.status(400).send({errors: ['Senhas não conferem.']})
  }

  User.findOne({email}, (err, user) => {
    if(err) {
      return sendErrorsFromDB(res, err)
    } else if (user) {
      return res.status(400).send({errors: ['Usuário já cadastrado.]}})
    } else {
      const newUser = new User({ name, email, password: passwordHash })
      newUser.save(err => {
        if(err) {
          return sendErrorsFromDB(res, err)
        } else {
          login(req, res, next)
        }
      })
    }
  })
}
```

Listagem 10 - Exportar os métodos de authService.js

my-money-app/backend/src/api/user/authService.js

```
module.exports = { login, signup, validateToken }
```

11.3.4. Criar middleware auth.js



Esse *middleware* será o responsável por validar o token *JWT* para as rotas protegidas e garantir que a API esteja protegida.

Listagem 11 - Criar middleware auth.js

my-money-app/backend/src/config/auth.js

```
const jwt = require('jsonwebtoken')
const env = require('../.env')

module.exports = (req, res, next) => {

    // CORS preflight request
    if(req.method === 'OPTIONS') {
        next()
    } else {
        const token = req.body.token || req.query.token ||
        req.headers['authorization']

        if(!token) {
            return res.status(403).send({errors: ['No token provided.]'})
        }

        jwt.verify(token, env.authSecret, function(err, decoded) {
            if(err) {
                return res.status(403).send({
                    errors: ['Failed to authenticate token.']
                })
            } else {
                req.decoded = decoded
                next()
            }
        })
    }
}
```

Listagem 12 - Adicionar header em cors.js

my-money-app/backend/src/config/cors.js

```
module.exports = (req, res, next) => {
  res.header('Access-Control-Allow-Origin', '*')
  res.header('Access-Control-Allow-Methods',
    'GET, POST, OPTIONS, PUT, PATCH, DELETE')
  res.header('Access-Control-Allow-Headers',
    'Origin, X-Requested-With, Content-Type, Accept, Authorization')
  next()
}
```

11.3.5. Alterar arquivo routes.js



Além de cadastrar as novas rotas `login`, `signup` e `validateToken`, essa alteração tem por objetivo separar as rotas públicas das rotas privadas (acesso com autenticação).

Listagem 13 - Alterar arquivo routes.js

my-money-app/backend/src/config/routes.js

```
const express = require('express')
const auth = require('./auth')

module.exports = function(server) {

    /*
     * Rotas protegidas por Token JWT
     */
    const protectedApi = express.Router()
    server.use('/api', protectedApi)

    protectedApi.use(auth)

    const BillingCycle = require('../api/billingCycle/billingCycleService')
    BillingCycle.register(protectedApi, '/billingCycles')

    /*
     * Rotas abertas
     */
    const openApi = express.Router()
    server.use('/oapi', openApi)

    const AuthService = require('../api/user/AuthService')
    openApi.post('/login', AuthService.login)
    openApi.post('/signup', AuthService.signup)
    openApi.post('/validateToken', AuthService.validateToken)
}

}
```

11.4. Frontend: Implementar Autenticação

11.4.1. Criar arquivo authReducer.js

Listagem 14 - Criar arquivo authReducer.js

my-money-app/frontend/src/auth/authReducer.js

```
const userKey = '_mymoney_user'
const INITIAL_STATE = {
    user: JSON.parse(localStorage.getItem(userKey)),
    validToken: false
}

export default (state = INITIAL_STATE, action) => {
    switch (action.type) {
        case 'TOKEN_VALIDATED':
            if(action.payload) {
                return { ...state, validToken: true }
            } else {
                localStorage.removeItem(userKey)
                return { ...state, validToken: false, user: null }
            }
        case 'USER_FETCHED':
            localStorage.setItem(userKey, JSON.stringify(action.payload))
            return { ...state, user: action.payload, validToken: true }
        default:
            return state
    }
}
```

11.4.2. Atualizar reducers.js

Listagem 15 - Adicionar authReducer ao rootReducer

my-money-app/frontend/src/main/reducers.js (aprox. linha 8)

```
import AuthReducer from '../auth/authReducer'
```

my-money-app/frontend/src/main/reducers.js (aprox. linha 16)

```
auth: AuthReducer
```

11.4.3. Criar arquivo consts.js

Listagem 16 - Criar arquivo consts.js

my-money-app/frontend/src/consts.js

```
export default {
  API_URL: 'http://localhost:3003/api',
  OAPI_URL: 'http://localhost:3003/oapi',
}
```

11.4.4. Criar arquivo authActions.js

Listagem 17 - Criar arquivo authActions.js

my-money-app/frontend/src/auth/authActions.js

```
import { toastr } from 'react-redux-toastr'
import axios from 'axios'
import consts from '../consts'

export function login(values) {
  return submit(values, `${consts.OAPI_URL}/login`)
}

export function signup(values) {
  return submit(values, `${consts.OAPI_URL}/signup`)
}

function submit(values, url) {
  return dispatch => {
    axios.post(url, values)
      .then(resp => {
        dispatch([
          {type: 'USER_FETCHED', payload: resp.data}
        ])
      })
      .catch(e => {
        e.response.data.errors.forEach(
          error => toastr.error('Erro', error))
      })
  }
}
```

Listagem 18 - Adicionar novas actions à authActions.js

my-money-app/frontend/src/auth/authActions.js

```
export function logout() {
    return {type: 'TOKEN_VALIDATED', payload: false}
}

export function validateToken(token) {
    return dispatch => {
        if(token) {
            axios.post(`${consts.OAPI_URL}/validateToken`, {token})
                .then(resp => {
                    dispatch({type: 'TOKEN_VALIDATED', payload: resp.data.valid})
                })
                .catch(e => dispatch({type: 'TOKEN_VALIDATED', payload: false}))
        } else {
            dispatch({type: 'TOKEN_VALIDATED', payload: false})
        }
    }
}
```

11.4.5. Criar componente navbar

Listagem 19 - Criar componente navbar.jsx

my-money-app/frontend/src/common/template/navbar.jsx

```
import React, { Component } from 'react'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'
import { logout } from '../auth/authActions'

class Navbar extends Component {
  constructor(props) {
    super(props)
    this.state = { open: false }
  }

  changeOpen() {
    this.setState({ open: !this.state.open })
  }

  render() {
    const { name, email } = this.props.user
    return (
      )
    }
}

const mapStateToProps = state => ({user: state.auth.user})
const mapDispatchToProps = dispatch => bindActionCreators({ logout }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(Navbar)
```

Listagem 20 - Implementar a estrutura do navbar (JSX)

my-money-app/frontend/src/common/template/navbar.jsx

```
<div className="navbar-custom-menu">
  <ul className="nav navbar-nav">
    <li onMouseLeave={() => this.changeOpen()}
        className={`dropdown user user-menu ${this.state.open ? 'open' :
      ''}}>
      <a href="javascript:;" onClick={() => this.changeOpen()}
          aria-expanded={this.state.open ? 'true' : 'false'}
          className="dropdown-toggle"
          data-toggle="dropdown">
        
        <span className="hidden-xs">{name}</span>
      </a>
      <ul className="dropdown-menu">
        <li className="user-header">
          
          <p>{name}<small>{email}</small></p>
        </li>
        <li className="user-footer">
          <div className="pull-right">
            <a href="#" onClick={this.props.logout}
                className="btn btn-default btn-flat">Sair</a>
          </div>
        </li>
      </ul>
    </li>
  </ul>
</div>
```

Listagem 21 - Adicionar componente navbar ao header

my-money-app/frontend/src/common/template/header.jsx (aprox. linha 2)

```
import Navbar from './navbar'
```

my-money-app/frontend/src/common/template/header.jsx (aprox. linha 15)

```
<Navbar />
```

11.4.6. Criar componente *inputAuth*

Listagem 22 - Criar componente *inputAuth.jsx*

my-money-app/frontend/src/common/form/inputAuth.jsx

```
import React from 'react'
import If from '../operator/if'

export default props => (
  <If test={!props.hide}>
    <div className="form-group has-feedback">
      <input {...props.input}>
      <span className={`glyphicon glyphicon-${props.icon} form-control-feedback`}></span>
    </div>
  </If>
)
```

11.4.7. Criar componente *auth.css*

Listagem 23 - Criar css do componente *auth*

my-money-app/frontend/src/auth/auth.css

```
.wrapper {
  background-color: #fff !important;
}

.login-box-body {
  background-color: #eee;
}

.login-box button {
  margin-left: 0px;
}

.login-box a:hover {
  cursor: pointer;
}
```

11.4.8. Criar componente auth.jsx

Listagem 24 - Criar componente auth.jsx

my-money-app/frontend/src/auth/auth.jsx

```
import './auth.css'
import React, { Component } from 'react'
import { reduxForm, Field } from 'redux-form'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import { login, signup } from './authActions'
import Row from '../common/layout/row'
import Grid from '../common/layout/grid'
import If from '../common/operator/if'
import Messages from '../common/msg/messages'
import Input from '../common/form/inputAuth'

class Auth extends Component {
  constructor(props) {
    super(props)
    this.state = {loginMode: true}
  }

  changeMode() {
    this.setState({ loginMode: !this.state.loginMode })
  }

  onSubmit(values) {
    const { login, signup } = this.props
    this.state.loginMode ? login(values) : signup(values)
  }

  render() {
    const { loginMode } = this.state
    const { handleSubmit } = this.props
    return (
      )
    }
}

Auth = reduxForm({form: 'authForm'})(Auth)
const mapDispatchToProps = dispatch => bindActionCreators({ login, signup }, dispatch)
export default connect(null, mapDispatchToProps)(Auth)
```

Listagem 25 - Implementar a estrutura do auth (JSX)

my-money-app/frontend/src/auth/auth.jsx

```
<div className="login-box">
  <div className="login-logo"><b> My</b> Money</div>
  <div className="login-box-body">
    <p className="login-box-msg">Bem vindo!</p>
    <form onSubmit={handleSubmit(v => this.onSubmit(v))}>
      <Field component={Input} type="input" name="name"
        placeholder="Nome" icon='user' hide={loginMode} />
      <Field component={Input} type="email" name="email"
        placeholder="E-mail" icon='envelope' />
      <Field component={Input} type="password" name="password"
        placeholder="Senha" icon='lock' />
      <Field component={Input} type="password" name="confirm_password"
        placeholder="Confirmar Senha" icon='lock' hide={loginMode} />
      <Row>
        <Grid cols="4">
          <button type="submit"
            className="btn btn-primary btn-block btn-flat">
            {loginMode ? 'Entrar' : 'Registrar'}
          </button>
        </Grid>
      </Row>
    </form>
    <br />
    <a onClick={() => this.changeMode()}>
      {loginMode ? 'Novo usuário? Registrar aqui!' :
        'Já é cadastrado? Entrar aqui!'}
    </a>
  </div>
  <Messages />
</div>
```

11.4.9. Criar componente authOrApp

Listagem 26 - Criar componente authOrApp.jsx

my-money-app/frontend/src/main/authOrApp.jsx

```
import '../common/template/dependencies'
import React, { Component } from 'react'
import axios from 'axios'
import { connect } from 'react-redux'
import { bindActionCreators } from 'redux'

import App from './app'
import Auth from '../auth/auth'
import { validateToken } from '../auth/authActions'

class AuthOrApp extends Component {

    componentWillMount() {
        if(this.props.auth.user) {
            this.props.validateToken(this.props.auth.user.token)
        }
    }

    render() {
        const { user, validToken } = this.props.auth

        if(user && validToken) {
            axios.defaults.headers.common['authorization'] = user.token
            return <App>{this.props.children}</App>
        } else if(!user && !validToken) {
            return <Auth />
        } else {
            return false
        }
    }
}

const mapStateToProps = state => ({ auth: state.auth })
const mapDispatchToProps = dispatch => bindActionCreators({ validateToken }, dispatch)
export default connect(mapStateToProps, mapDispatchToProps)(AuthOrApp)
```

11.4.10. Remover o import das dependências de app



Esse import foi **transferido** para o componente AuthOrApp.

Listagem 27 - Remover a seguinte linha do componente app.jsx

my-money-app/frontend/src/main/app.jsx

```
import '../common/template/dependencies'
```

11.4.11. Alterar componente routes

Listagem 28 - Alterar componente routes.jsx

my-money-app/frontend/src/main/routes.jsx (aprox. linha 4)

```
import AuthOrApp from './authOrApp'
```

my-money-app/frontend/src/main/routes.jsx (aprox. linha 10)

```
<Route path='/' component={AuthOrApp}>
```

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Glossário

JWT

...

Middleware

...