```
# Having the following application created with `create-react-app` add a `Company`
component and modify `CompanyList` so that:
- the app renders correctly (0.5 pts);
 `CompanyList` is rendered as a child of `App` (0.5 pts);
- `CompanyList` is rendered as a list of `Company` (0.5 pts);
- `Company` has a property called item containing the company it's supposed to
render (0.5 pts);
- `Company` can be deleted via a button with the label `delete` (0.5 pts);
-----APP-----
import React, { Component } from 'react'
import CompanyList from './CompanyList'
class App extends Component {
  render() {
   return (
      <div>
           A list of companies
            <CompanyList />
      </div>
    )
 }
}
export default App
-----COMPANY-----
import React, { Component } from 'react'
class Company extends Component{
    render(){
        let {item} = this.props
        return(
            <div>{item.name}
            <input type="button" value="delete" onClick={() =>
this.props.onDelete(item.id)} />
            </div>
        )
   }
}
export default Company
-----COMPANY LIST----
import React, { Component } from 'react'
import CompanyStore from '../stores/CompanyStore'
import Company from './Company'
class CompanyList extends Component {
     constructor(){
            super()
            this.state = {
```

```
companies : []
            this.deleteCompany = (id) => {
                  this.store.deleteOne(id)
            }
      }
      componentDidMount(){
            this.store = new CompanyStore()
            this.setState({
                  companies : this.store.getAll()
            })
            this.store.emitter.addListener('UPDATE', () => {
                  this.setState({
                        companies : this.store.getAll()
                  })
            })
  render() {
    return (
      <div>
                  this.state.companies.map((e, i) =>
                    <Company item={e} key={i} onDelete={this.deleteCompany}/>
      </div>
   )
 }
}
export default CompanyList
# Having the following application created with `create-react-app` modify `Company`
component and modify `CompanyList` so that:
- the app renders correctly (0.5 pts);
- `CompanyList` is rendered as a list of `Company` and each `Company` has a button
labeled `edit`(0.5 pts);
- If the edit button is clicked on a `Company` it goes into edit mode (0.5 pts);
- If a `Company` is in edit mode and the button labeled `cancel` is clicked, it
goes into view mode (0.5 pts);
- A company can be saved and the changes are reflected in the company list (0.5
pts);
         . - - - - - APP - - - - - - - - - -
import React, { Component } from 'react'
import CompanyList from './CompanyList'
class App extends Component {
  render() {
    return (
      <div>
            A list of companies
            <CompanyList />
      </div>
   )
 }
```

```
}
export default App
-----COMPANY-----
import React, { Component } from 'react'
class Company extends Component {
      constructor(props){
            super(props)
            let {item} = this.props
            this.state = {
                  name : item.name,
                  employees : item.employees,
      revenue : item.revenue,
      isEditing: false
            this.handleChange = (evt) => {
                  this.setState({
                        [evt.target.name] : evt.target.value
                  })
            }
  render() {
    let {item} = this.props
    if (this.state.isEditing){
      return (
        <div>
          <input type="text" id="name" name="name" onChange={this.handleChange}</pre>
value={this.state.name} />
           <input type="text" id="employees" name="employees"</pre>
onChange={this.handleChange} value={this.state.employees} />
            <input type="text" id="revenue" name="revenue"</pre>
onChange={this.handleChange} value={this.state.revenue} />
            <input type="button" value="save" onClick={() => {
                                          this.props.onSave(item.id, {
                                                name : this.state.name,
                                                employees: this.state.employees,
                                                revenue : this.state.revenue
                                          this.setState({isEditing : false})
                                    } />
          <input type="button" value="cancel" onClick={() =>
this.setState({isEditing : false})} />
        </div>
      )
    }
    else{
      return (
          Name {item.name} with {item.employees} employees {item.revenue} revenue
          <input type="button" value="edit" onClick={() => this.setState({isEditing})
: true})} />
        </div>
   }
 }
}
```

```
-----COMPANYLIST-----
import React, { Component } from 'react'
import CompanyStore from '../stores/CompanyStore'
import Company from './Company'
class CompanyList extends Component {
     constructor(){
           super()
           this.state = {
                 companies : []
           this.saveCompany = (id, company) => {
                 this.store.saveOne(id, company)
           }
     }
     componentDidMount(){
           this.store = new CompanyStore()
           this.setState({
                 companies : this.store.getAll()
           })
           this.store.emitter.addListener('UPDATE', () => {
                 this.setState({
                       companies : this.store.getAll()
                 })
           })
  render() {
    return (
      <div>
                 this.state.companies.map((e, i) =>
                       <Company item={e} key={i} onSave={this.saveCompany} />
                 )
     </div>
   )
 }
}
export default CompanyList
-----COMPANY STORES-----
import {EventEmitter} from 'fbemitter'
class CompanyStore{
     constructor(){
           this.companies = [{
                 id : 1,
name : 'acme inc',
                 employees: 100,
                 revenue : 1000
           },{
                 id: 2,
```

```
name: 'apex llc',
                   employees: 20,
                   revenue: 100
            }]
            this.emitter = new EventEmitter()
      addOne(company){
            this.companies.push(company)
            this.emitter.emit('UPDATE')
      getAll(){
            return this.companies
      deleteOne(id){
            let index = this.companies.findIndex((e) => e.id === id)
            if (index !== -1){
                   this.companies.splice(index, 1)
            this.emitter.emit('UPDATE')
      saveOne(id, company){
            let index = this.companies.findIndex((e) => e.id === id)
            if (index !== -1){
                   Object.assign(this.companies[index], company)
            this.emitter.emit('UPDATE')
      }
}
export default CompanyStore
# Given the server `app.js` and the file `index.html` in the `public` directory:
# Complete the following tasks:
- the file `index.html`, which contains the text `A simple app` should be delivered
from the server as static content (0.5 pts);
- a button with the id `load` exists in the page and can be clicked (0.5 pts); - when the button with the id `load` is clicked, a list of cars should be fetched
from the server; cars with the color `red` loaded in the table with the id `main`
with a `tr` for each car (0.5 pts);
- the table contains a `tr` for each car loaded from the server (0.5 pts);
- only `red` cars are shown (0.5 pts);
-----COMPANY-----
import React, { Component } from 'react'
class Company extends Component {
  render() {
      let {item} = this.props
    return (
      <div>
            Name {item.name} with {item.employees} employees {item.revenue} revenue
        <input type="button" value="select" onClick={() =>
this.props.onSelect(item.id)} />
```

```
</div>
   )
 }
}
export default Company
-----COMPANY DETAILS-----
import React, { Component } from 'react'
class CompanyDetails extends Component{
   render() {
        let {item} = this.props
      return (
        <div>
            Details for {item.name}: {item.employees} employees and {item.revenue}
revenue
            <input type="button" value="cancel" onClick={() =>
this.props.onCancel()} />
        </div>
    }
}
export default CompanyDetails
-----COMPANYLIST-----
import React, { Component } from 'react'
import CompanyStore from '../stores/CompanyStore'
import Company from './Company'
import CompanyDetails from './CompanyDetails'
class CompanyList extends Component {
     constructor(){
            super()
            this.state = {
                 companies : [],
                 selected : null
           }
           this.selectCompany = (id) => {
                 this.store.selectCompany(id)
           }
           this.cancelSelection = () => {
                 this.setState({
                       selected: null
                 })
           }
     componentDidMount(){
            this.store = new CompanyStore()
           this.setState({
                 companies : this.store.getAll()
           this.store.emitter.addListener('UPDATE', () => {
```

```
this.setState({
                        companies : this.store.getAll(),
                         selected: this.store.getSelected()
                  })
            })
      }
  render() {
      if (this.state.selected){
            return (
                  <CompanyDetails item={this.state.selected}</pre>
onCancel={this.cancelSelection} />
      }
      else{
            return (
              <div>
                  {
                         this.state.companies.map((e, i) =>
                               <Company item={e} key={i} onSelect =
{this.selectCompany}/>
                         )
              }
</div>
      }
 }
}
export default CompanyList
----company store-----
import {EventEmitter} from 'fbemitter'
class CompanyStore{
      constructor(){
            this.companies = [{
                  id : 1,
name : 'acme inc',
                  employees: 100,
                  revenue : 1000
            },{
                  id : 2,
name : 'apex llc',
                  employees: 20,
                  revenue : 100
            }]
            this.emitter = new EventEmitter()
            //ADAUGAT DE MN
            this.selected = null
      }
      //ADAUGAT DE MN
      getSelected(){
            return this.selected
      }
```

```
//ADAUGAT DE MN
      selectCompany(id){
             let index = this.companies.findIndex((e) => e.id === id)
             if (index !== -1){
                    this.selected = this.companies[index]
             this.emitter.emit('UPDATE')
      }
      addOne(company){
             this.companies.push(company)
             this.emitter.emit('UPDATE')
      }
      getAll(){
             return this.companies
      deleteOne(id){
             let index = this.companies.findIndex((e) => e.id === id)
             if (index !== -1){
                    this.companies.splice(index, 1)
             this.emitter.emit('UPDATE')
      }
}
export default CompanyStore
# Subject 4
# Topic: REACT
# Having the following application created with `create-react-app` complete the
following tasks:
- `AddDevice` component should be rendered inside `DeviceList` component;
- `AddDevice` component should contain 2 inputs with `id`: `name` and `price`;
- `AddDevice` component should contain a `button` with the value `Submit`, used to
trigger `addItem` method;
- `AddDevice` component inside `DeviceList` should contain a `props` called
`onAdd`;
- When pressing `Submit` button a new item should be displayed and added to the
state of `DeviceList` component;
### USEFUL INFORMATION: Objects that are added in the array of the `DeviceList`
component state have the following structure: { name: String, price: Number }.
----ADD DEVICE-----
import React from 'react';
class AddDevice extends React.Component {
    constructor(props) {
         super(props);
         this.state={
             name:"",
             price:""
```

```
}
        this.handleChange = this.handleChange.bind(this);
      }
      handleChange(event) {
        let obj = {};
        obj[event.target.name] = event.target.value;
        this.setState(obj);
        console.log(obj);
      }
    render() {
        return (
                 <div>
            <label>Name</label>
            <input type='text' id='name' defaultValue={this.state.name}</pre>
onChange={this.handleChange}/> <br/>
            <label>Price</label>
            <input type='text' id='price' defaultValue={this.state.price}</pre>
onChange={this.handleChange}/> <br/>
            <button type="button" value="Submit" onClick={() =>
                  this.props.onAdd({
                    name: this.state.name,
                    price: this.state.price
                  })
                 />
            </div>
        )
    }
}
export default AddDevice;
-----DEVICE LIST-----
import React from 'react';
import AddDevice from './AddDevice';
class DeviceList extends React.Component {
    constructor(){
        super();
        this.state = {
            devices: []
        this.addDevice = device => {
            console.log(device)
                  this.state.devices.push(device)
            };
    }
    render(){
        return (
            <div>
               <AddDevice onAdd={this.addDevice}/>
```

```
)
    }
}
export default DeviceList;
# Having the following automatic vending machine created with `create-react-app`
modify it so that:
- the app renders correctly (0.5 pts);
- the list of products is loaded from the ProducStore when `VendingMachine` is
rendered (0.5 pts)
- add the component `Product` to display the name, price and a button with the
label buy that calls the onBuy method recieved by props (0.5 pts)
- implement addTokens that increments the number of tokens by 1 at each press of
the add token button (0.5 pts)
- implement buyProduct thet substracts the tokens with the price of the product; if
there are not enough tokens nothing happens (0.5 pts)
---APP----
import React, { Component } from 'react'
import VendingMachine from './VendingMachine'
class App extends Component {
  render() {
    return (
      <div>
           Vending Machine
            <VendingMachine />
      </div>
    )
  }
export default App
-----PRODUCT-----
import React, { Component } from 'react'
class Product extends Component {
    render(){
        return(
            <div>
                <h1>{this.props.name}</h1>
                <h1>{this.props.price}</h1>
                <input type="button" value="buy" onClick={() =>
this.props.onBuy(this.props.price) } ></input>
            </div>
    }
```

</div>

```
}
export default Product
-----Vending MACHINE-----
import React, { Component } from 'react'
import Product from './Product'
import ProductStore from '../stores/ProductStore'
class VendingMachine extends Component {
   constructor() {
        super()
        this.state = {
            products: [],
            tokens: 0
        }
        this.addToken = () => {
            this.setState({tokens: this.state.tokens + 1})
        }
        this.buyProduct = (price) => {
            if(this.state.tokens >= price ){
                this.setState({tokens:this.state.tokens -price})
             }else{
                alert("Nu sunt suficienti tokens")
             }
        }
    }
    componentDidMount(){
        let productStore = new ProductStore()
        this.setState({products: productStore.getAll()})
}
    render() {
        return (
            <div>
                {this.state.products.map((el, index) => <Product key={index}</pre>
name={el.name} price={el.price} onBuy={this.buyProduct} />)}
                <div>Tokens: {this.state.tokens}</div>
                <input type="button" value="add token" onClick={this.addToken}/>
            </div>
        )
    }
}
export default VendingMachine
----PRODUCT STORE-----
import {EventEmitter} from 'fbemitter'
```

```
class ProductStore{
      constructor(){
            this.products = [{
                  id : 1,
name : 'coffe',
                  price: 3
           },{
                  id : 2,
name : 'cappuccino',
                  price: 3
            },{
                  id : 3,
name : 'latte',
                  price: 3
            }]
            this.emitter = new EventEmitter()
      }
      getAll(){
            return this.products
      }
export default ProductStore
-----V1_2020-----
# Having the following application created with `create-react-app` modify `Company`
component and modify `CompanyList` so that:
- the app renders correctly (0.5 pts);
- `CompanyList` is rendered as a list of `Company` and each `Company` has a button
labeled `edit`(0.5 pts);
- If the edit button is clicked on a `Company` it goes into edit mode (0.5 pts);
- If a `Company` is in edit mode and the button labeled `cancel` is clicked, it
goes into view mode (0.5 pts);
- A company can be saved and the changes are reflected in the company list (0.5
pts);
-----COMPANY:
import React, { Component } from 'react'
class Company extends Component {
      constructor(props){
            super(props)
            let {item} = this.props
            this.state = {
                  name : item.name,
                  employees: item.employees,
      revenue : item.revenue,
      isEditing:false
            this.handleChange = (evt) => {
                  this.setState({
                        [evt.target.name] : evt.target.value
                  })
           }
  }
```

```
startEdit=()=>{this.setState({isEditing:true})}
  succes=()=>{
    let company ={
      name:this.state.name,
      employees:this.state.employees,
      revenue:this.state.revenue
   this.props.onSave(this.props.item.id,company)
  }
  render() {
    let {item} = this.props
    if (this.state.isEditing){
      return (
        <div>
          <input id="name" type="text" name="name" onChange={this.handleChange}/>
          <input id="employees" type="text" name="employees"</pre>
onChange={this.handleChange}/>
          <input id="revenue" type="text" name="revenue"</pre>
onChange={this.handleChange}/>
          <input type="button" value="save" onClick={this.succes} />
          <input type="button" value="cancel"</pre>
onClick={()=>{this.setState({isEditing:false}))} />
        </div>
      )
    }
    else{
      return (
        <div>
          Name {item.name} with {item.employees} employees {item.revenue} revenue
          <input type="button" value="edit" onClick={this.startEdit}/>
        </div>
      )
    }
 }
}
export default Company
-----COMPANY LIST:
import React, { Component } from 'react'
class Company extends Component {
      constructor(props){
            super(props)
            let {item} = this.props
            this.state = {
                  name : item.name,
                  employees : item.employees,
      revenue : item.revenue,
      isEditing:false
            this.handleChange = (evt) => {
                  this.setState({
                        [evt.target.name] : evt.target.value
                  })
            }
```

```
}
  startEdit=()=>{this.setState({isEditing:true})}
  succes=()=>{
    let company ={
      name:this.state.name,
      employees:this.state.employees,
      revenue:this.state.revenue
   this.props.onSave(this.props.item.id,company)
  }
  render() {
    let {item} = this.props
    if (this.state.isEditing){
      return (
        <div>
          <input id="name" type="text" name="name" onChange={this.handleChange}/>
          <input id="employees" type="text" name="employees"</pre>
onChange={this.handleChange}/>
          <input id="revenue" type="text" name="revenue"</pre>
onChange={this.handleChange}/>
          <input type="button" value="save" onClick={this.succes} />
          <input type="button" value="cancel"</pre>
onClick={()=>{this.setState({isEditing:false})}} />
        </div>
      )
    }
   else{
      return (
        <div>
          Name {item.name} with {item.employees} employees {item.revenue} revenue
          <input type="button" value="edit" onClick={this.startEdit}/>
        </div>
      )
   }
 }
}
export default Company
-----V2_2020-----
# Having the following application created with `create-react-app` modify `Company`
component and add `CompanyDetails` so that:
- the app renders correctly (0.5 pts);
- `CompanyList` is rendered as a list of `Company` and each `Company` has a button
labeled `select`(0.5 pts);
- `CompanyDetails` has a property called item containing the company whose details
it's supposed to render (0.5 pts);
- If the select button is clicked on a `Company` the details component is shown
(0.5 pts);
- If the `CompanyDetails` component is shownand the button labeled `cancel` is
```

```
clicked, the company list is displayed (0.5 pts);
-----company:
import React, { Component } from 'react'
class Company extends Component {
  select=()=>{
    this.props.onSelect(this.props.item.id)
  render() {
      let {item} = this.props
    return (
      <div>
            Name {item.name} with {item.employees} employees {item.revenue} revenue
        <button value="select" id="select" onClick={this.select}>Select/button>
      </div>
    )
  }
export default Company
-----COMPANY DETAILS:
import React, { Component } from 'react'
class CompanyDetails extends Component {
    constructor(props) {
        super(props)
    cancel=()=>{
        this.props.onCancel();
    }
    render(){
        return (
            <div>
                Details for the company: {this.props.item}
                <button value="cancel" onClick={this.cancel}>Cancel </button>
            </div>
        )
    }
}
export default CompanyDetails
COMPANY LIST:
import React, { Component } from 'react'
import CompanyStore from '../stores/CompanyStore'
import Company from './Company'
import CompanyDetails from './CompanyDetails'
```

```
-------class CompanyList extends Component {
     constructor(){
            super()
            this.state = {
                 companies : [],
                  selected:0,
           }
     }
     select=(id)=>{
           this.setState({
                  selected:id
           })
     }
     componentDidMount(){
            this.store = new CompanyStore()
           this.setState({
                 companies : this.store.getAll()
           })
           this.store.emitter.addListener('UPDATE', () => {
                  this.setState({
                        companies : this.store.getAll()
                  })
           })
     }
     cancel=()=>{
           this.setState({selected:0})
     }
  render() {
     if (this.state.selected){
            return <CompanyDetails onCancel={this.cancel}</pre>
item={this.state.selected}/>
     else{
            return (
             <div>
                  {
                        this.state.companies.map((e, i) =>
                             <Company item={e} key={i} onSelect={this.select}/>
                        )
             }
</div>
     }
 }
export default CompanyList
-----COMPANY STORE:
import {EventEmitter} from 'fbemitter'
```

```
class CompanyStore{
      constructor(){
            this.companies = [{
                  id : 1,
                  name : 'acme inc',
                  employees: 100,
                  revenue : 1000
           },{
                  id : 2,
name : 'apex llc',
                  employees: 20,
                  revenue : 100
            }]
            this.emitter = new EventEmitter()
      addOne(company){
            this.companies.push(company)
            this.emitter.emit('UPDATE')
      getAll(){
            return this.companies
      deleteOne(id){
            let index = this.companies.findIndex((e) => e.id === id)
            if (index !== -1){}
                  this.companies.splice(index, 1)
            this.emitter.emit('UPDATE')
      }
}
export default CompanyStore
-----V3 2020-----
# Having the following application created with `create-react-app` complete the
following tasks:
- `AddDevice` component should be rendered inside `DeviceList` component;
- `AddDevice` component should contain 2 inputs with `id`: `name` and `price`;
- `AddDevice` component should contain a `button` with the value `Submit`, used to
trigger `addItem` method;
- `AddDevice` component inside `DeviceList` should contain a `props` called
`onAdd`;
- When pressing `Submit` button a new item should be displayed and added to the
state of `DeviceList` component;
----ADD DEVICE:
import React from "react";
class AddDevice extends React.Component {
  constructor(props) {
    super(props);
    this.state = {
      device: {
        name: "",
        price: 0,
```

```
};
 onHandleChange = (evt) => {
    let newdevice = this.state.device;
    newdevice[evt.target.name] = evt.target.value;
    newdevice.price = parseFloat(newdevice.price);
    this.setState({
      device: newdevice,
    });
   console.log(this.state.device);
 };
  render() {
    return (
      <div>
        <input
          name="name"
          type="text"
          id="name"
          onChange={this.onHandleChange}
        />
        <input
          name="price"
          type="number"
          id="price"
          onChange={this.onHandleChange}
        />
        <button
          onClick={() => {
            this.props.onAdd(this.state.device);
          }}
          Submit
        </button>
      </div>
    );
 }
export default AddDevice;
-----DEVICE LIST:
import React from 'react';
import AddDevice from './AddDevice'
class DeviceList extends React.Component {
    constructor(){
        super();
        this.state = {
            devices: []
        };
    }
    addItem =(newdevice)=>{
        let oldDevices=this.state.devices
```

```
oldDevices.push(newdevice);
        this.setState({devices: oldDevices});
        console.log(this.state.devices)
    }
    render(){
        return (
            <div>
                <AddDevice onAdd={this.addItem}></AddDevice>
            </div>
        )
    }
}
export default DeviceList;
-----V4 2020-----
# Having the following automatic vending machine created with `create-react-app`
modify it so that:
- the app renders correctly (0.5 pts);
- the list of products is loaded from the ProducStore when `VendingMachine` is
rendered (0.5 pts)
- add the component `Product` to display the name, price and a button with the
label buy that calls the onBuy method recieved by props (0.5 pts)
- implement addTokens that increments the number of tokens by 1 at each press of
the add token button (0.5 pts)
- implement buyProduct thet substracts the tokens with the price of the product; if
there are not enough tokens nothing happens (0.5 pts)
-----APP:
import React, { Component } from 'react'
import VendingMachine from './VendingMachine'
class App extends Component {
  render() {
    return (
      <div>
           Vending Machine
           <VendingMachine />
     </div>
    )
export default App
-----PRODUCT:
import React, { Component } from 'react'
class Product extends Component {
    render(){
```

```
let {item} = this.props
        return (
            <div>
                   {item.name}
                   <button value="buy" onClick={this.props.onBuy} />
            </div>
        )
    }
}
export default Product
-----VENDING MACHINE:
import React, { Component } from 'react'
import Product from './Product'
import ProductStore from '../stores/ProductStore'
class VendingMachine extends Component {
    constructor() {
        super()
        this.state = {
            products: [],
            tokens: 0
        this.addToken = () => {
            let oldTokens=this.state.tokens;
            oldTokens=oldTokens+1;
            this.setState({
                tokens: oldTokens
            })
        }
        this.buyProduct = (price) => {
           if(this.state.tokens>=price){
                let oldTokens=this.state.tokens;
               oldTokens=oldTokens-price;
                this.setState({
                    tokens: oldTokens
               })
           }
        }
    componentDidMount(){
            this.store = new ProductStore()
            this.setState({
                  products: this.store.getAll()
            })
      }
    render() {
        return (
            <div>
                 {this.state.products.map((el, index) =>
                 <Product key={index} item={el}
onBuy={()=>{this.buyProduct(el.price)}} />)}
                 <div>Tokens: {this.state.tokens}</div>
                 <input type="button" value="add token" onClick={this.addToken} />
            </div>
        )
```

```
}
export default VendingMachine
-----PRODUCT STORE:
import {EventEmitter} from 'fbemitter'
class ProductStore{
      constructor(){
            this.products = [{
                  id : 1,
                  name: 'coffe',
                  price : 3
           },{
                  id : 2,
name : 'cappuccino',
                  price: 3
           },{
                  id : 3,
name : 'latte',
                  price: 3
            }]
            this.emitter = new EventEmitter()
      }
      getAll(){
            return this.products
      }
}
export default ProductStore
# Having the following automatic vending machine created with `create-react-app`
modify it so that:
- the app renders correctly (0.5 pts);
- the list of products is loaded from the ProductStore when `VendingMachine` is
rendered (0.5 pts)
- add the component `Product` to display the name, price and a button with the
label buy that calls the onBuy method recieved by props (0.5 pts)
- implement addTokens that increments the number of tokens by 1 at each press of
the add token button (0.5 pts)
- implement buyProduct thet substracts the tokens with the price of the product; if
there are not enough tokens nothing happens (0.5 pts)
-----VENDING MACHINE:
import React, { Component } from 'react'
```

```
import Product from './Product'
import ProductStore from '../stores/ProductStore'
class VendingMachine extends Component {
    constructor() {
        super()
        this.state = {
            products: [],
            tokens: 0
        }
        this.addToken = () => {
        }
        this.buyProduct = (price) => {
        }
    }
    render() {
        return (
            <div>
                {this.state.products.map((el, index) => <Product key={index}</pre>
name={el.name} price={el.price} onBuy={this.buyProduct} />)}
                <div>Tokens: {this.state.tokens}</div>
                <input type="button" value="add token" />
            </div>
        )
    }
}
export default VendingMachine
```