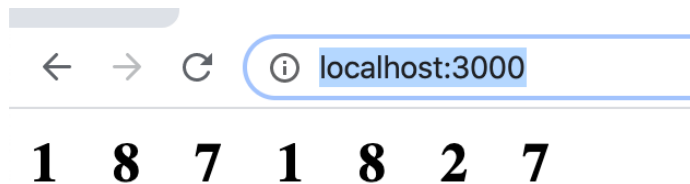


## Exercise. Jokeri using Create React App

During this exercise you will create a simple app that randomizes seven lottery (Jokeri) numbers. See example (real Veikkaus web site) on <https://www.veikkaus.fi/fi/jokeri>.

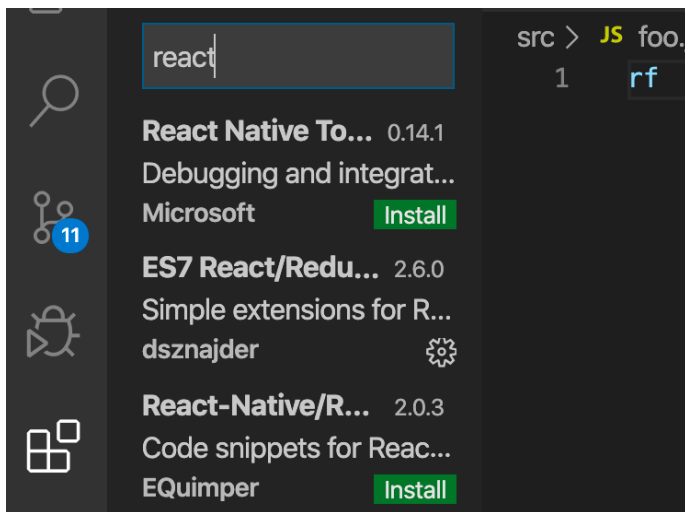
App developed randomizes seven number and animates randomizing numbers.



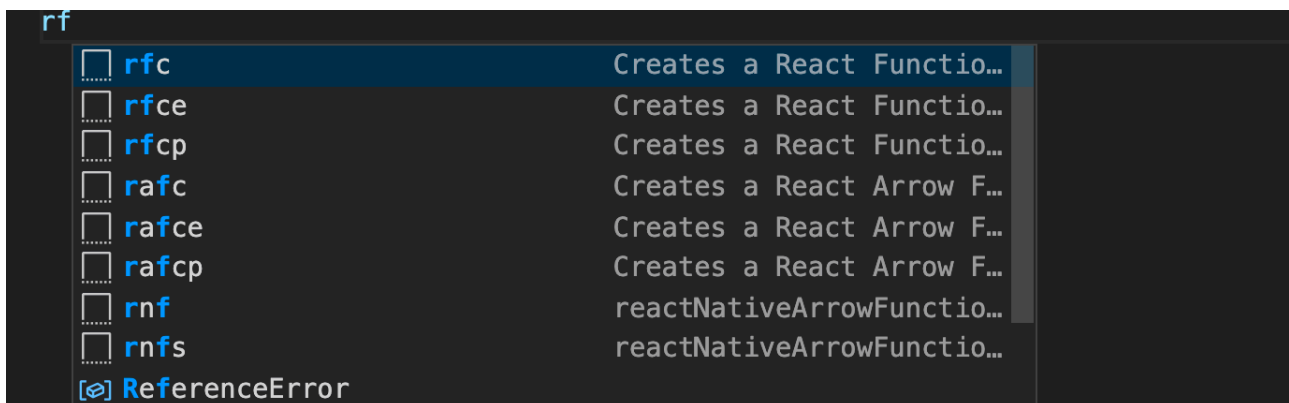
Create new react app under name jokeri. Delete all unnecessary files from your app (leave only index.js and App.js) and remove all unrequired imports etc. so that your app starts (blank) without any errors.

```
jjuntune@TYH-JJUNTUNE-K ~ % cd Dev*  
jjuntune@TYH-JJUNTUNE-K Development % cd Re*  
jjuntune@TYH-JJUNTUNE-K React % npx create-react-app jokeri  
  
Creating a new React app in /Users/jjuntune/Development/React/jokeri.  
  
Installing packages. This might take a couple of minutes.  
Installing react, react-dom, and react-scripts with cra-template...  
  
([...]) : loadDep:schema-utils: sill resolveWithNewModule confusing-browser-globals@1.0.9 c
```

OPTIONAL. In case you like to get some help from Visual Studio writing React code, you might want to install an extension. Choose icon with four "squares" on the bottom left of sidebar and search for react extensions. For example, ES7 React/Redux... is one of the extensions, that might be used to help out typing React.



By starting to type rf (something), you will receive suggestions. If you choose rfc and press enter, a function component (basic code) is created for you automatically.



App component randomizes 7 numbers and creates array of Number components, which will be rendered. Number component needs to be imported, so App component can use it.

Number that is displayed is passed to the component as property (props). Key is also assigned (to avoid error notice about keys), but if same number is randomized, you will receive a notice (which is fixed later on).

```
import React from 'react';
import Number from './Number';

function App() {
  const numbers = [];
  for (let i=1;i<=7;i++) {
    numbers.push(Math.floor(Math.random() * 10));
  }

  const items = numbers.map((number) =>
    <Number key={number.toString()} number={number}/>
  );

  console.log(items);
  return (
    <div>
      {items}
    </div>
  )
}

export default App;
```

Number component displays number inside div. Instead of using props.number, a named parameter {number} is used to display value. Css file is imported and className is used to assign styles.

```
JS Number.js > Number
import React from 'react'
import './Number.css';

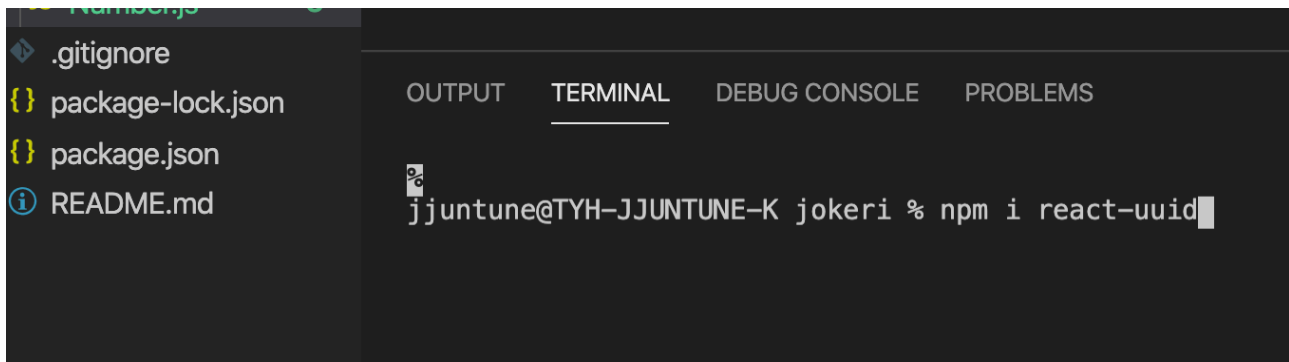
export default function Number({number}) {
  return (
    <div className="Number">{number}</div>
  )
}
```

Number.css is saved under src file and contains declaration for Number css class.

```
# Number.css > .Number
.Number {
  display: inline-block;
  margin-right: 20px;
};
```

Since occasionally you'll receive warning related to having not unique keys, install react-uuid third party component (uuid = universally unique identifier) to generate them.

Run following command. This will install a new library/component (under node\_modules) folder, which can be used by the app.



```
.gitignore
package-lock.json
package.json
README.md

OUTPUT  TERMINAL  DEBUG CONSOLE  PROBLEMS

jjuntune@TYH-JJUNTUNE-K jokeri % npm i react-uuid
```

Import uuid library and use it to generate keys. Try out and view console (inspect element), There should be no warnings anymore.

```
import uuid from 'react-uuid';

function App() {
  const numbers = [];
  for (let i=1;i<=7;i++) {
    numbers.push(Math.floor(Math.random() * 10));
  }

  const items = numbers.map((number) =>
    <Number key={uuid()} number={number}/>
  );

  console.log(items);
  return (
```

Install `animated-number` (some documentation available on <https://www.npmjs.com/package/animated-number-react>). This will install a new component, which is able to display animation for randomizing numbers.

```
jjuntune@TYH-JJUNTUNE-K jokeri % npm install animated-number-react
npm WARN eslint-config-react-app@5.2.0 requires a peer of eslint-plugin-fl
ourself.
npm WARN tsutils@3.17.1 requires a peer of typescript@>=2.8.0 || >= 3.2.0-
>= 3.6.0-beta || >= 3.7.0-dev || >= 3.7.0-beta but none is installed. You
```

Change `Number` component by replacing `div` with `AnimatedNumber`. This is also one of the advantages dividing UI to multiple components. If something changes, it does not affect to other components (in this case only `Number` component needs to be changed).

```
import './Number.css';
import AnimatedNumber from 'animated-number-react';

export default function Number({number}) {

  function formatValue(value) {
    return value.toFixed(0);
  }

  return (
    //<div className="Number">{number}</div>
    <AnimatedNumber className="Number" value={number} formatValue={formatValue}/>
  )
}
```

Edit also style by adding definition for `span` (`AnimatedNumber` component will print out `span` element).

```
# Number.css > span
span {
  margin-right: 20px;
  font-size: 20px;
  font-weight: bold;
}
```

Try out your app. Now it should randomize and animated seven numbers.