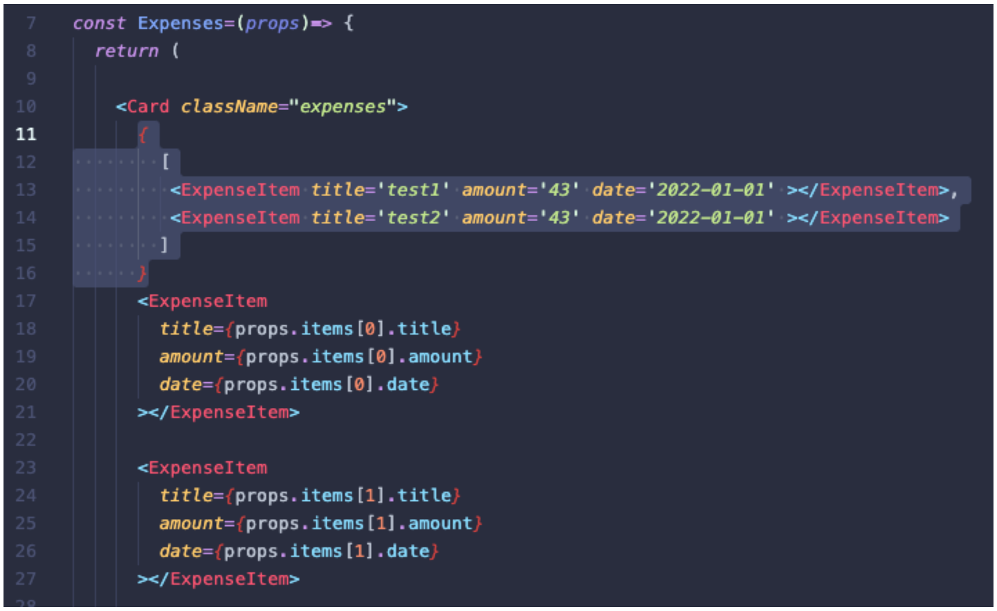
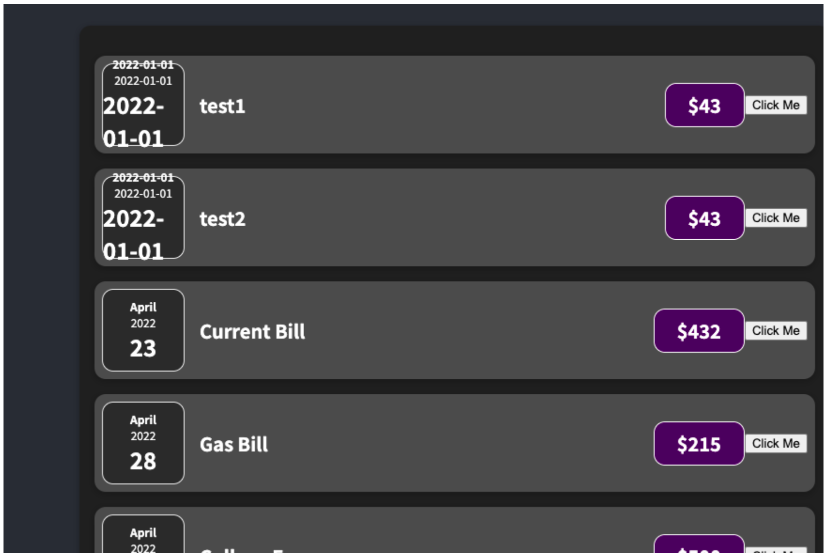
25.displaying array elements dynamically

- Note:
    - We use curly braces inside JSX code to write normal js code
    - If we write an array of components inside jsx code, then it will be rendered side-by-side
        - For e.g



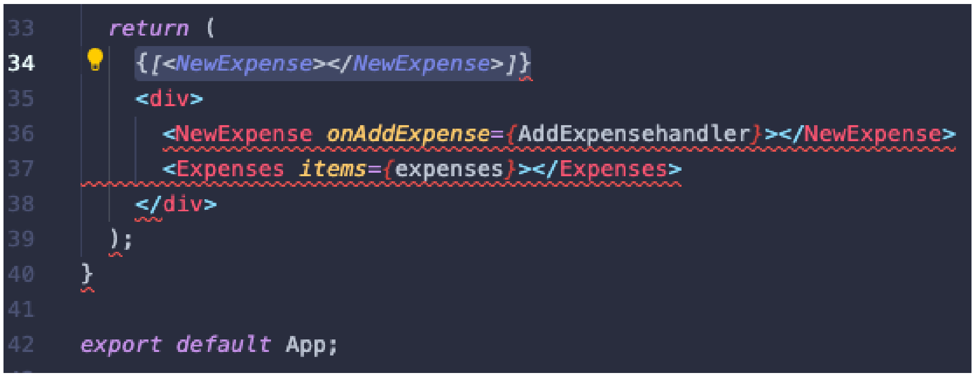
```
const Expenses=(props)=> {
  return (

    <Card className="expenses">
      {
        [
          <ExpenseItem title='test1' amount='43' date='2022-01-01' ></ExpenseItem>,
          <ExpenseItem title='test2' amount='43' date='2022-01-01' ></ExpenseItem>
        ]
      }
      <ExpenseItem
        title={props.items[0].title}
        amount={props.items[0].amount}
        date={props.items[0].date}
      ></ExpenseItem>

      <ExpenseItem
        title={props.items[1].title}
        amount={props.items[1].amount}
        date={props.items[1].date}
      ></ExpenseItem>
```

-
- Here we have used {[components separated by comma]}
- Which will be rendered side by side

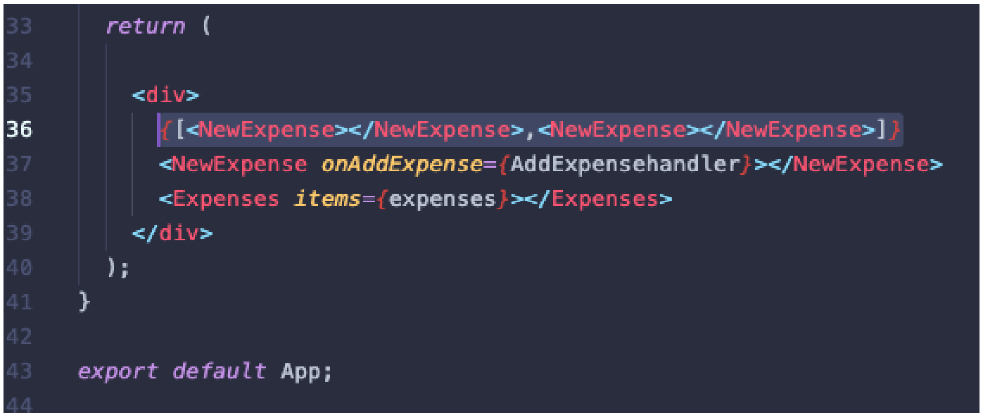


-
- Here test1 and test2 expense objects are rendered using that list

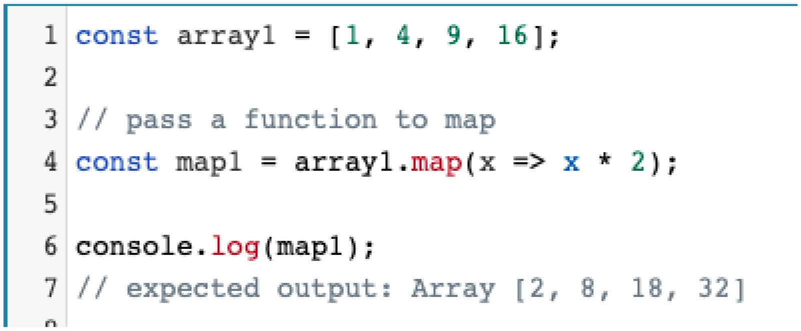
- Conclusion:
    - **Inside the jsx code, if have an array of components, it will be rendered side by side**

        - **But this array must be placed inside the outer element, becaus we know that the component function will just return only one outer component but it may have more components wrapped inside it but at the outer level it should be only one**
        - **Should not do like this:**
            - 

```
  return (
  {[<NewExpense></NewExpense>]}
  <div>
    <NewExpense onAddExpense={AddExpensehandler}></NewExpense>
    <Expenses items={expenses}></Expenses>
  </div>
  );
}

export default App;
```

        - **Do like this:**
            - 

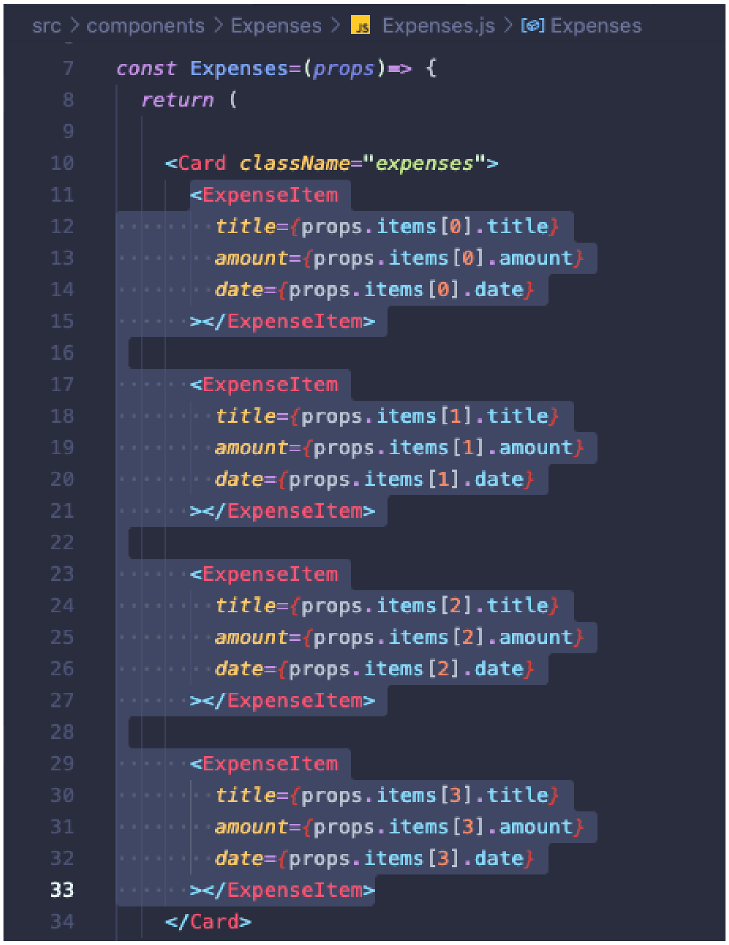
```
  return (

  <div>
    {[<NewExpense></NewExpense>,<NewExpense></NewExpense>]}
    <NewExpense onAddExpense={AddExpensehandler}></NewExpense>
    <Expenses items={expenses}></Expenses>
  </div>
  );
}

export default App;
```

        - **And the array must be enclosed within the curly braces because array is an syntax of normal js, so to use it inside JSX, we should use curly braces**
- Another important concept:
    - 

```
const array1 = [1, 4, 9, 16];

// pass a function to map
const map1 = array1.map(x => x * 2);

console.log(map1);
// expected output: Array [2, 8, 18, 32]
```

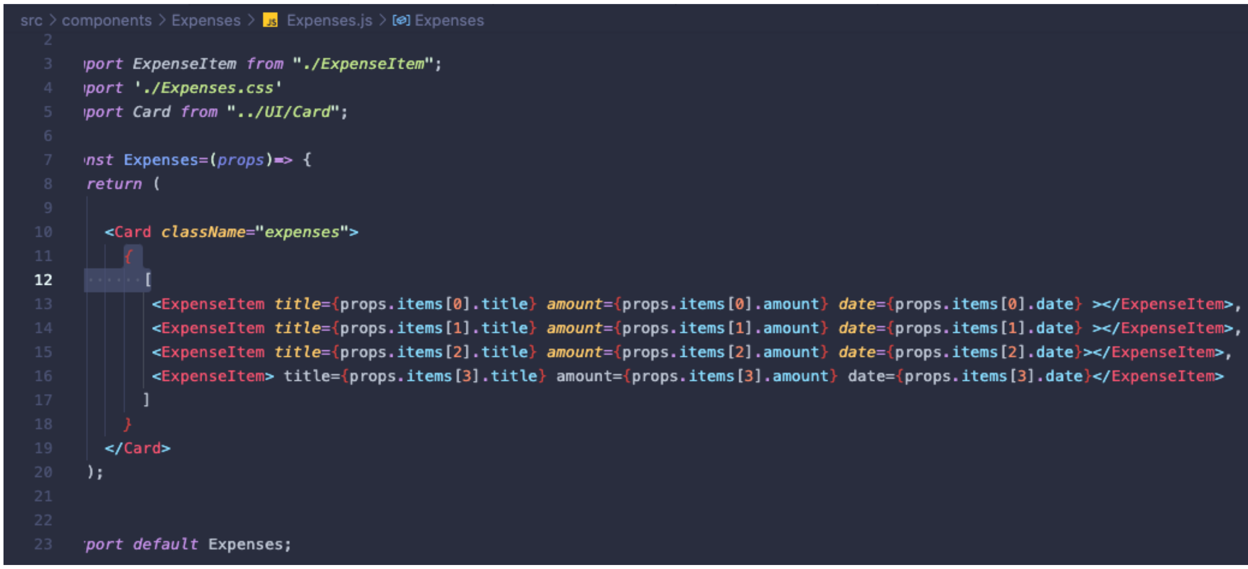
    - **map()** function is a method of array object, it accepts a function inside it
    - The map function gives each value to function passed inside map, so the inner function gets that value and return some new value into the new array based on the logic you specified, then after all the elements, that new array will be returned

- Now let us dive into how to render a list of elements dynamically
  - Here we are going to put a list of components with the properties:title,amount and date, instead of hardcoding each component form each elements from the expenses list



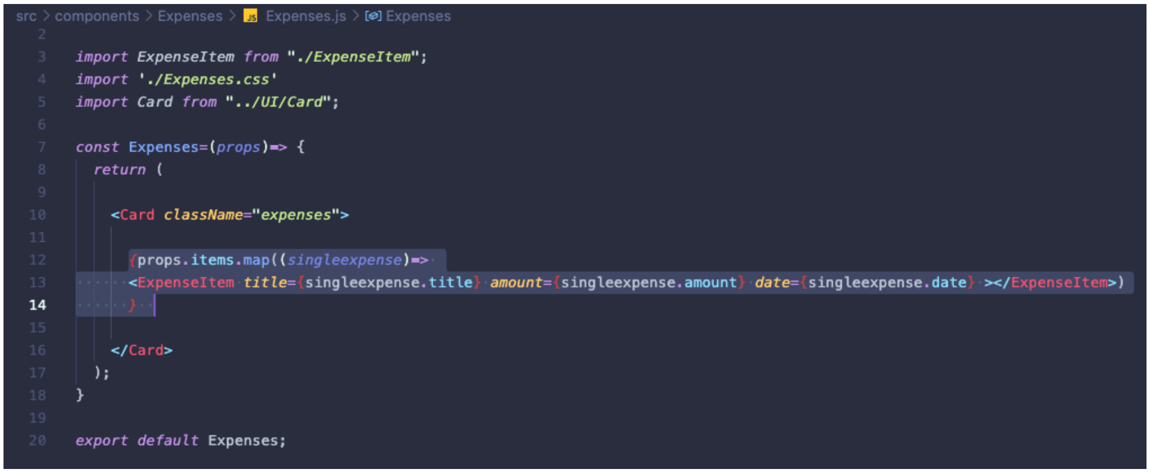
```
const Expenses=(props)=> {
  return (

    <Card className="expenses">
      <ExpenseItem
        title={props.items[0].title}
        amount={props.items[0].amount}
        date={props.items[0].date}
      ></ExpenseItem>

      <ExpenseItem
        title={props.items[1].title}
        amount={props.items[1].amount}
        date={props.items[1].date}
      ></ExpenseItem>

      <ExpenseItem
        title={props.items[2].title}
        amount={props.items[2].amount}
        date={props.items[2].date}
      ></ExpenseItem>

      <ExpenseItem
        title={props.items[3].title}
        amount={props.items[3].amount}
        date={props.items[3].date}
      ></ExpenseItem>
    </Card>
```

    - This can be replaced by this



```

port ExpenseItem from "./ExpenseItem";
port './Expenses.css'
port Card from "../UI/Card";

nst Expenses=(props)=> {
return (

  <Card className="expenses">
    {
    [
      <ExpenseItem title={props.items[0].title} amount={props.items[0].amount} date={props.items[0].date} ></ExpenseItem>,
      <ExpenseItem title={props.items[1].title} amount={props.items[1].amount} date={props.items[1].date} ></ExpenseItem>,
      <ExpenseItem title={props.items[2].title} amount={props.items[2].amount} date={props.items[2].date}></ExpenseItem>,
      <ExpenseItem> title={props.items[3].title} amount={props.items[3].amount} date={props.items[3].date}</ExpenseItem>
    ]
    }
  </Card>
);


port default Expenses;
```

        - But here also we are hardcoding it four times. It is not dynamic
    - Finally

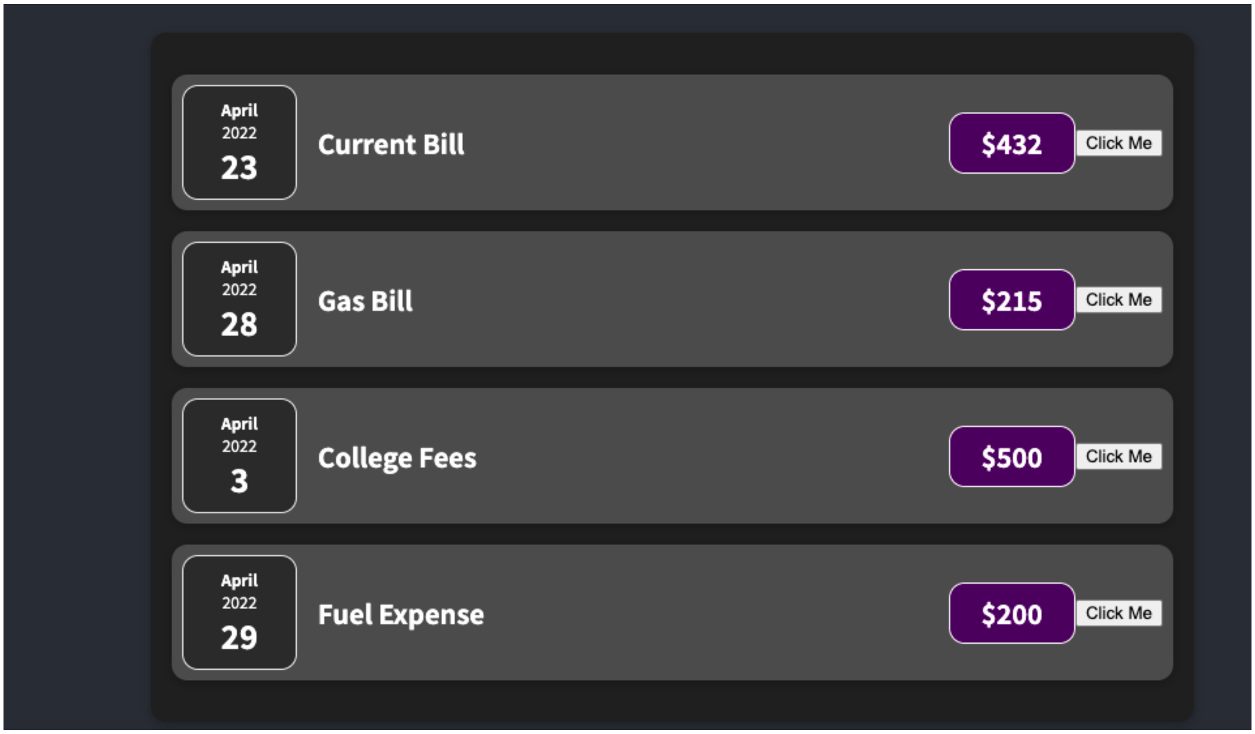


```
import ExpenseItem from "./ExpenseItem";
import './Expenses.css'
import Card from "../UI/Card";

const Expenses=(props)=> {
  return (

    <Card className="expenses">

      {props.items.map((singleexpense)=>
      <ExpenseItem title={singleexpense.title} amount={singleexpense.amount} date={singleexpense.date} ></ExpenseItem>)
      }

    </Card>
  );
}

export default Expenses;
```

        - Here

```
{props.items.map((singleexpense)=>
    <ExpenseItem title={singleexpense.title}
amount={singleexpense.amount} date={singleexpense.date}
></ExpenseItem>)
    }
```

            - This will return an array of <ExpenseItem></ExpenseItem> components



April 2022 23	Current Bill	$432
April 2022 28	Gas Bill	$215
April 2022 3	College Fees	$500
April 2022 29	Fuel Expense	$200