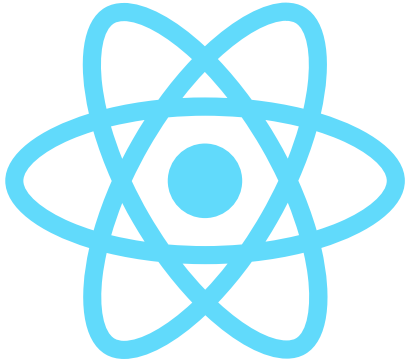
React로 만드는 Tic Tac Toe

대전 2반 엄재식



주제선정 이유

모두가 해본 필수과제 이외의 선택 과제를 소개하고자 하는 기회와

FE를 담당하여 React를 먼저 접해볼 좋은 기회라고 생각했습니다.

React

React란

React란

React는 사용자 인터페이스를 구축하기 위한 유연한 JavaScript 라이브러리입니다.

React & Vue

리액트는 jsx(JavaScript XML) 형태로 코드를 작성하며,
자바스크립트만을 사용해 UI 로직과 DOM을 구현합니다.

반면 뷰의 경우 HTML, JS, CSS 코드 영역을 분리해서 작성합니다.

스켈레톤 코드

```jsx
class Square extends React.Component {
  render() {
    return (
      <button className="square">
        {/* TODO */}
      </button>
    );
  }
}

class Board extends React.Component {
  renderSquare(i) {
    return <Square />;
  }

  render() {
    const status = 'Next player: X';

    return (
      <div>
        <div className="status">{status}</div>
        <div className="board-row">
          {this.renderSquare(0)}
          {this.renderSquare(1)}
          {this.renderSquare(2)}
        </div>
        <div className="board-row">
          {this.renderSquare(3)}
          {this.renderSquare(4)}
          {this.renderSquare(5)}
        </div>
        <div className="board-row">
          {this.renderSquare(6)}
          {this.renderSquare(7)}
          {this.renderSquare(8)}
        </div>
      </div>
    );
  }
}
```

```jsx
class Game extends React.Component {
  render() {
    return (
      <div className="game">
        <div className="game-board">
          <Board />
        </div>
        <div className="game-info">
          <div>{/* status */}</div>
          <ol>{/* TODO */}</ol>
        </div>
      </div>
    );
  }
}

// ========================================

ReactDOM.render(
  <Game />,
  document.getElementById('root')
);
```

Square Board

JS (Babel)

```
function Square(props) {
  return (
    <button className="square" onClick={props.onClick}>
      {props.value}
    </button>
  );
}

class Board extends React.Component {
  renderSquare(i) {
    return (
      <Square
        value={this.props.squares[i]}
        onClick={() => this.props.onClick(i)}
      />
    );
  }

  render() {
    return (
      <div>
        <div className="board-row">
          {this.renderSquare(0)}
          {this.renderSquare(1)}
          {this.renderSquare(2)}
        </div>
        <div className="board-row">
          {this.renderSquare(3)}
          {this.renderSquare(4)}
          {this.renderSquare(5)}
        </div>
        <div className="board-row">
          {this.renderSquare(6)}
          {this.renderSquare(7)}
          {this.renderSquare(8)}
        </div>
      </div>
    );
  }
}
```

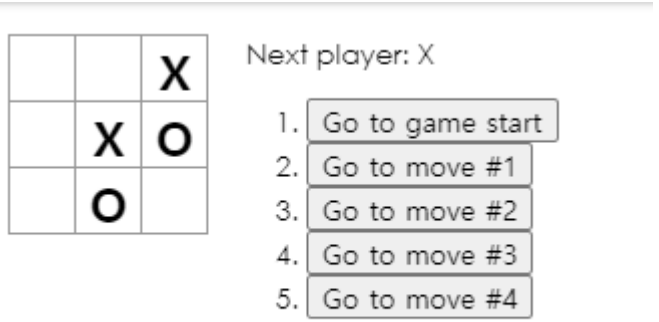
Game

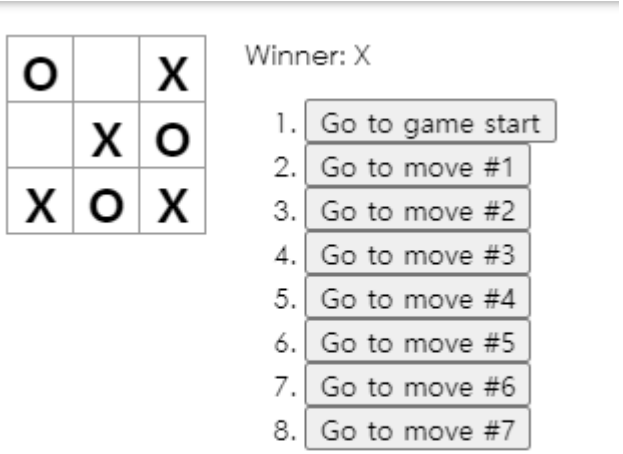
```
class Game extends React.Component {
  constructor(props) {
    super(props);
    this.state = {
      history: [
        {
          squares: Array(9).fill(null)
        }
      ],
      stepNumber: 0,
      xIsNext: true
    };
  }

  handleClick(i) {

    const history = this.state.history.slice(0, this.state.stepNumber + 1);
    const current = history[history.length - 1];
    const squares = current.squares.slice();
    if (calculateWinner(squares) || squares[i]) {
      return;
    }
    squares[i] = this.state.xIsNext ? "X" : "O";
    this.setState({
      history: history.concat([
        {
          squares: squares
        }
      ]),
      stepNumber: history.length,
      xIsNext: !this.state.xIsNext
    });
  }

  jumpTo(step) {
    this.setState({
      stepNumber: step,
      xIsNext: (step % 2) === 0
    });
  }
```

```
  render() {
    const history = this.state.history;
    const current = history[this.state.stepNumber];
    const winner = calculateWinner(current.squares);

    const moves = history.map((step, move) => {
      const desc = move ?
        'Go to move #' + move :
        'Go to game start';
      return (
        <li key={move}>
          <button onClick={() => this.jumpTo(move)}>{desc}</button>
        </li>
      );
    });

    let status;
    if (winner) {
      status = "Winner: " + winner;
    } else {
      status = "Next player: " + (this.state.xIsNext ? "X" : "O");
    }

    return (
      <div className="game">
        <div className="game-board">
          <Board
            squares={current.squares}
            onClick={i => this.handleClick(i)}
          />
        </div>
        <div className="game-info">
          <div>{status}</div>
          <ol>{moves}</ol>
        </div>
      </div>
    );
  }
}
```

Result

```
ReactDOM.render(<Game />, document.getElementById("root"));

function calculateWinner(squares) {
  const lines = [
    [0, 1, 2],
    [3, 4, 5],
    [6, 7, 8],
    [0, 3, 6],
    [1, 4, 7],
    [2, 5, 8],
    [0, 4, 8],
    [2, 4, 6]
  ];
  for (let i = 0; i < lines.length; i++) {
    const [a, b, c] = lines[i];
    if (squares[a] && squares[a] === squares[b] &&
squares[a] === squares[c]) {
      return squares[a];
    }
  }
  return null;
}
```





Thank You

감사합니다.