import React, { useState } from "react";

import Display from "./Display";

import Buttons from "./Buttons";

import "./styles/Calculator.css";

import { evaluate, round } from "mathjs";

function Calculator() {

const [input, setInput] = useState("");

const [answer, setAnswer] = useState("");

const inputHandler = (event) => {

if (answer === "Invalid Input!!") return;

let val = event.target.innerText;

if (val === "x2") val = "^2";

else if (val === "x3") val = "^3";

else if (val === "3√") val = "^(1÷3)";

else if (val === "log") val = "log(";

let str = input + val;

if (str.length > 14) return;

if (answer !== "") {

setInput(answer + val);

setAnswer("");

} else setInput(str);

};

const clearInput = () => {

setInput("");

setAnswer("");

};

const checkBracketBalanced = (expr) => {

let stack = [];

for (let i = 0; i < expr.length; i++) {

let x = expr[i];

if (x === "(") {

stack.push(x);

continue;

}

if (x === ")") {

if (stack.length === 0) return false;

else stack.pop();

}

}

return stack.length === 0;

};

const calculateAns = () => {

if (input === "") return;

let result = 0;

let finalexpression = input;

finalexpression = finalexpression.replaceAll("x", "\*");

finalexpression = finalexpression.replaceAll("÷", "/");

let noSqrt = input.match(/√[0-9]+/gi);

if (noSqrt !== null) {

let evalSqrt = input;

for (let i = 0; i < noSqrt.length; i++) {

evalSqrt = evalSqrt.replace(

noSqrt[i],

`sqrt(${noSqrt[i].substring(1)})`

);

}

finalexpression = evalSqrt;

}

try {

if (!checkBracketBalanced(finalexpression)) {

const errorMessage = { message: "Brackets are not balanced!" };

throw errorMessage;

}

result = evaluate(finalexpression); //mathjs

} catch (error) {

result =

error.message === "Brackets are not balanced!"

? "Brackets are not balanced!"

: "Invalid Input!!"; //error.message;

}

isNaN(result) ? setAnswer(result) : setAnswer(round(result, 3));

};

const backspace = () => {

if (answer !== "") {

setInput(answer.toString().slice(0, -1));

setAnswer("");

} else setInput((prev) => prev.slice(0, -1));

};

const changePlusMinus = () => {

if (answer === "Invalid Input!!") return;

else if (answer !== "") {

let ans = answer.toString();

if (ans.charAt(0) === "-") {

let plus = "+";

setInput(plus.concat(ans.slice(1, ans.length)));

} else if (ans.charAt(0) === "+") {

let minus = "-";

setInput(minus.concat(ans.slice(1, ans.length)));

} else {

let minus = "-";

setInput(minus.concat(ans));

}

setAnswer("");

} else {

if (input.charAt(0) === "-") {

let plus = "+";

setInput((prev) => plus.concat(prev.slice(1, prev.length)));

} else if (input.charAt(0) === "+") {

let minus = "-";

setInput((prev) => minus.concat(prev.slice(1, prev.length)));

} else {

let minus = "-";

setInput((prev) => minus.concat(prev));

}

}

};

return (

<>

<div className="container">

<div className="main">

<Display input={input} setInput={setInput} answer={answer} />

<Buttons

inputHandler={inputHandler}

clearInput={clearInput}

backspace={backspace}

changePlusMinus={changePlusMinus}

calculateAns={calculateAns}

/>

</div>

</div>

</>

);

}

export default Calculator;