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Jurnal Modul 12

1. Source Code :

Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Modul 12 - Cari Nilai Pangkat</title>
  <link href="https://cdn.jsdelivr.net/npm/tailwindcss@2.2.19/dist/tailwind.min.css"
rel="stylesheet">
</head>
<body class="bg-gray-100 flex items-center justify-center h-screen">
  <div class="bg-white p-6 rounded-lg shadow-lg w-1/3">
    <h2 class="text-xl font-semibold mb-4">Cari Nilai Pangkat</h2>
    <input type="number" id="inputA" class="border p-2 w-full mb-2"
placeholder="Masukkan angka a">
    <input type="number" id="inputB" class="border p-2 w-full mb-4"
placeholder="Masukkan angka b">
    <button onclick="calculatePower()" class="bg-blue-500 text-white px-4 py-2
rounded">Hitung Pangkat</button>
    <p id="output" class="mt-4 text-lg font-medium"></p>
  </div>

  <script src="script.js"></script>
</body>
</html>
```

Script.js

```
function CariNilaiPangkat(a, b) {
  if (b === 0) return 1;
  if (b < 0) return -1;
  if (b > 10 || a > 100) return -2;

  let result = 1;
  try {
```

```

    for (let i = 0; i < b; i++) {
        result = result * a;
        if (result > Number.MAX_SAFE_INTEGER) return -3;
    }
} catch (error) {
    return -3;
}
return result;
}

function calculatePower() {
    const inputA = parseInt(document.getElementById("inputA").value);
    const inputB = parseInt(document.getElementById("inputB").value);
    const output = document.getElementById("output");

    const result = CariNilaiPangkat(inputA, inputB);
    output.textContent = `Hasil: ${result}`;
}

```

unitTest.js

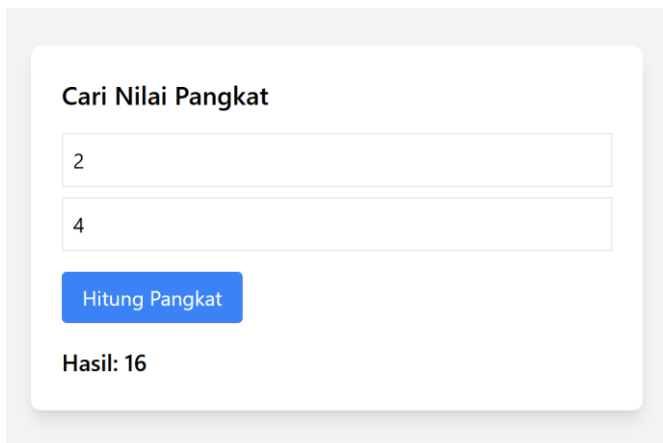
```

function testCariNilaiPangkat() {
    console.assert(CariNilaiPangkat(2, 0) === 1, "Test Case 1 Failed");
    console.assert(CariNilaiPangkat(2, -1) === -1, "Test Case 2 Failed");
    console.assert(CariNilaiPangkat(101, 2) === -2, "Test Case 3 Failed");
    console.assert(CariNilaiPangkat(2, 11) === -2, "Test Case 4 Failed");
    console.assert(CariNilaiPangkat(2, 5) === 32, "Test Case 5 Failed");
    console.assert(CariNilaiPangkat(2, 31) === -3, "Test Case 6 Failed");
    console.log("All test cases completed.");
}

testCariNilaiPangkat();

```

2. Output :



The screenshot shows a web interface for calculating powers. The title is "Cari Nilai Pangkat". There are two input fields: the first contains the number "2" and the second contains the number "4". Below these fields is a blue button labeled "Hitung Pangkat". At the bottom, the result is displayed as "Hasil: 16".

The image displays two screenshots of a web application interface for calculating powers. Each screenshot shows a form with the title "Cari Nilai Pangkat". The first form has input fields for base "2" and exponent "0", with a blue "Hitung Pangkat" button below them, and the output "Hasil: 1". The second form has input fields for base "2" and exponent "-6", with the same blue button, and the output "Hasil: -1".

3. Penjelasan :

index.html berfungsi sebagai tampilan utama GUI sederhana yang terdiri dari dua textbox, satu button, dan satu label output.

script.js berisi implementasi fungsi `CariNilaiPangkat()` dan event handler `calculatePower()`. Fungsi `CariNilaiPangkat(a, b)` menerima dua input dan mengembalikan hasil pangkat berdasarkan aturan khusus.

- Jika b adalah 0, return 1.
- Jika b negatif, return -1.
- Jika $b > 10$ atau $a > 100$, return -2.
- Jika hasil pangkat melebihi batas maksimal integer, return -3.

unitTest.js berfungsi untuk menguji fungsi `CariNilaiPangkat()`