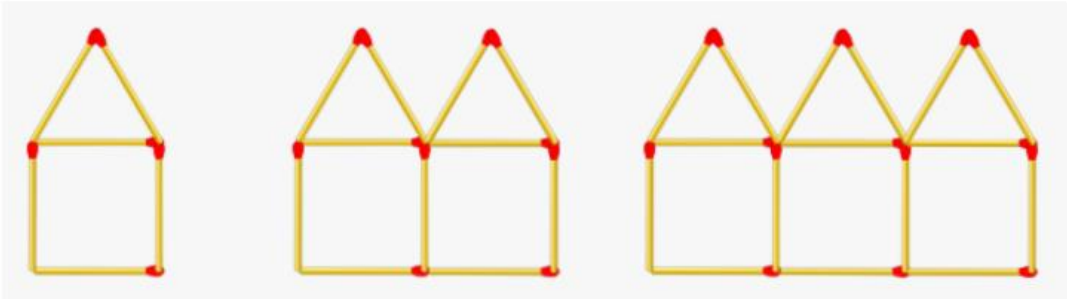
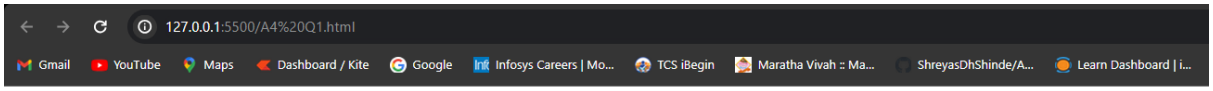
Q1 Create a function that takes a number (step) as an argument and returns the number of matchsticks in that step. See step 1, 2 and 3 in the image above. Take input from the user in the function parameter and return the output using the return statement.



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Matchstick Calculator</title>
</head>
<body>

    <h2>Matchstick Calculator</h2>

    <label for="stepInput">Enter the step number: </label>
    <input type="number" id="stepInput">
    <button onclick="calculateMatchsticks()">Calculate</button>

    <p id="result"></p>

    <script>
        function matchHouses(step) {
            // Base case: When step is 0, there are no matchsticks.
            if (step === 0) {
                return 0;
            }

            // Each additional step adds 5 matchsticks (4 for a new square and
1 for the vertical matchstick).
            return 5 * step + 1;
        }

        function calculateMatchsticks() {
            const stepInput = document.getElementById('stepInput').value;
            const step = parseInt(stepInput);

            // Check if the input is a positive integer
            if (isNaN(step) || step < 0 || step % 1 !== 0) {
```

```
                document.getElementById('result').innerHTML = 'Please enter a
valid positive integer.';
                return;
            }

            const result = matchHouses(step);
            document.getElementById('result').innerHTML = `Number of
matchsticks in step ${step}: ${result}`;
        }
    </script>

</body>
</html>
```

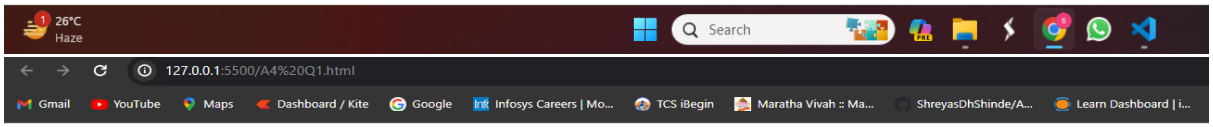
Output



Matchstick Calculator

Enter the step number: 2 Calculate

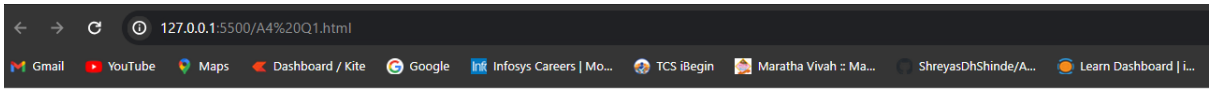
Number of matchsticks in step 2: 11



Matchstick Calculator

Enter the step number: 3 Calculate

Number of matchsticks in step 3: 16



Matchstick Calculator

Enter the step number: 1 Calculate

Number of matchsticks in step 1: 6