<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Decimal to Binary Converter</title>

<style>

body {

font-family: Arial, sans-serif;

margin: 20px;

padding: 20px;

}

form {

width: 300px;

margin: auto;

padding: 20px;

border: 1px solid #ccc;

border-radius: 5px;

}

label {

display: block;

margin-bottom: 10px;

}

input[type="number"],

input[type="submit"] {

width: 100%;

padding: 8px;

margin-bottom: 10px;

border: 1px solid #ccc;

border-radius: 4px;

box-sizing: border-box;

}

input[type="submit"] {

background-color: #4CAF50;

color: white;

border: none;

cursor: pointer;

}

input[type="submit"]:hover {

background-color: #45a049;

}

#result {

margin-top: 10px;

}

</style>

</head>

<body>

<form id="decimalForm">

<label for="decimalInput">Enter a positive decimal number:</label>

<input type="number" id="decimalInput" name="decimalInput" min="1" required>

<input type="submit" value="Convert">

</form>

<div id="result"></div>

<script>

// Function to convert a positive decimal number to binary

function decimalToBinary(decimalNumber) {

// Edge case: if the input is 0, its binary representation is "0"

if (decimalNumber === 0) {

return "0";

}

let binary = "";

let number = decimalNumber;

while (number > 0) {

// Step 1: Divide the number by 2

let remainder = number % 2;

// Step 2: Record the remainder (0 or 1)

binary = remainder.toString() + binary;

// Step 3: Update the number to be the quotient

number = Math.floor(number / 2);

}

return binary;

}

// Function to handle form submission

function handleSubmit(event) {

event.preventDefault();

// Get input value from the form

let decimalInput = document.getElementById('decimalInput').value.trim();

// Validate if the input is a positive decimal number

if (!/^\d+$/.test(decimalInput) || parseInt(decimalInput) <= 0) {

alert("Please enter a positive decimal number.");

return;

}

// Convert the input to a number

let decimalNumber = parseInt(decimalInput);

// Convert decimal number to binary

let binaryEquivalent = decimalToBinary(decimalNumber);

// Display the result

document.getElementById('result').innerText = `Binary equivalent of ${decimalNumber} is ${binaryEquivalent}`;

}

// Event listener for form submission

document.getElementById('decimalForm').addEventListener('submit', handleSubmit);

</script>

</body>

</html>