<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

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

    <title>Car Simulation Project</title>

    <style>

        body {

            text-align: center;

            font-family: Arial, sans-serif;

            background-color: #eaf2f8;

            margin: 0;

            padding: 0;

            transition: background-color 0.3s ease;

        }

        h1 {

            background: linear-gradient(to right, #ff7e50, #ff6a00);

            color: white;

            padding: 20px;

            border-radius: 10px;

            box-shadow: 0 4px 8px rgba(0, 0, 0, 0.2);

            margin: 20px;

            text-shadow: 1px 1px 2px rgba(0, 0, 0, 0.5);

        }

        h2 {

            color: #007bff;

        }

        .car {

            display: flex;

            justify-content: center;

            align-items: center;

            flex-direction: column;

            margin-top: 30px;

            animation: fadeIn 1s ease-in-out;

        }

        .car-body {

            width: 270px;

            height: 130px;

            background: linear-gradient(to right, #d9534f, #c9302c);

            border-radius: 20px;

            position: relative;

            box-shadow: 0 4px 20px rgba(0, 0, 0, 0.3);

        }

        .engine {

            width: 60px;

            height: 40px;

            background: #6c757d;

            position: absolute;

            top: -25px;

            left: 50%;

            transform: translateX(-50%);

            opacity: 0.5;

            transition: opacity 0.5s ease-in-out;

            border-radius: 5px;

        }

        .wheel {

            width: 60px;

            height: 60px;

            background: black;

            border-radius: 50%;

            position: absolute;

            bottom: -30px;

            box-shadow: inset 0 0 10px rgba(255, 255, 255, 0.3);

            overflow: hidden;

            display: flex;

            justify-content: center;

            align-items: center;

        }

        .wheel-left {

            left: 20px;

        }

        .wheel-right {

            right: 20px;

        }

        .spoke {

            width: 4px;

            height: 22px;

            background: white;

            position: absolute;

        }

        button {

            margin-top: 20px;

            padding: 10px 30px;

            font-size: 16px;

            cursor: pointer;

            border: none;

            background: #007bff;

            color: white;

            border-radius: 5px;

            transition: background 0.3s;

            box-shadow: 0 3px 5px rgba(0, 0, 0, 0.2);

        }

        button:hover {

            background: #0056b3;

        }

        .info {

            margin-top: 40px;

            padding: 20px;

            background: white;

            border-radius: 10px;

            box-shadow: 0 4px 10px rgba(0, 0, 0, 0.2);

            display: none;

        }

        .info-container {

            display: flex;

            flex-direction: column;

            align-items: center;

            justify-content: center;

            margin-top: 300px;

        }

        .info-item {

            display: flex;

            align-items: center;

            margin: 10px 0;

            max-width: 800px;

            background-color: #f9f9f9;

            border-radius: 8px;

            padding: 10px;

            box-shadow: 0 2px 5px rgba(0, 0, 0, 0.1);

        }

        .info-item img {

            width: 100px;

            height: 100px;

            margin-right: 15px;

            border-radius: 8px;

            box-shadow: 0 1px 5px rgba(0, 0, 0, 0.2);

        }

        .sidebar {

            width: 200px;

            position: fixed;

            top: 0;

            left: 0;

            height: 100%;

            background-color: #333;

            color: white;

            padding: 20px;

            display: flex;

            flex-direction: column;

        }

        .sidebar a {

            color: white;

            text-decoration: none;

            margin: 10px 0;

            font-weight: bold;

        }

        .quiz-container,

        .gamification-container,

        .augmented-container,

        .ai-container {

            display: none;

            margin: 20px;

            background: #f1f1f1;

            padding: 20px;

            border-radius: 10px;

            box-shadow: 0 4px 10px rgba(0, 0, 0, 0.2);

            text-align: left;

        }

        .result {

            margin-top: 20px;

            padding: 15px;

            background: #ffffff;

            border-radius: 10px;

            box-shadow: 0 3px 6px rgba(0, 0, 0, 0.2);

            display: none;

        }

        .dark-mode {

            background-color: #121212;

            color: white;

        }

        @keyframes fadeIn {

            from {

                opacity: 0;

            }

            to {

                opacity: 1;

            }

        }

        /\* Styles for the 3D Parts Visualization \*/

        .part-3d-container {

            display: flex;

            justify-content: center;

            flex-wrap: wrap;

            margin-top: 300px;

            transform: translateX(40px);

        }

        .part-3d {

            margin: 10px;

            width: 300px;

            height: 200px;

            border: 1px solid #ccc;

            border-radius: 10px;

            box-shadow: 0 3px 6px rgba(0, 0, 0, 0.2);

            background: #fff;

        }

        .part-container {

            text-align: center;

            padding: 10px;

        }

        /\* Styles for Badge \*/

        .badge {

            margin: 5px;

            padding: 10px 20px;

            background-color: #92c9ff;

            border-radius: 5px;

            font-weight: bold;

        }

    </style>

</head>

<body>

    <div class="sidebar" id="sidebar">

        <h2>Car Parts</h2>

        <a href="#homepage" onclick="showSection('homepage')">Homepage</a>

        <a href="#simulation-page" onclick="showSection('simulation-page')">Car Simulation</a>

        <a href="#info-page" onclick="showSection('info-page')">Car Parts Information</a>

        <a href="#quiz-page" onclick="showSection('quiz-page')">MCQ Quiz</a>

        <a href="#gamification-page" onclick="showSection('gamification-page')">Gamification</a>

        <a href="#augmented-vr-page" onclick="showSection('augmented-vr-page')">AR/VR Features</a>

        <a href="#ai-page" onclick="showSection('ai-page')">AI-Powered Features</a>

        <button onclick="toggleDarkMode()">Toggle Dark Mode</button>

    </div>

    <div id="main-content" style="margin-left: 220px;">

        <h1 id="homepage">Car Simulation Project</h1>

        <div class="home-content" id="homepage-content" style="display: block;">

            <h2>Welcome to the Car Simulation Project!</h2>

            <p>This project aims to provide an interactive experience to explore and understand various car parts and their functionalities. Engage with 3D models, animations, and quizzes to test your knowledge!</p>

            <img src="https://example.com/car\_image.jpg" alt="Car Simulation Image">

            <p>Click on the navigation links on the left to start exploring the simulation, learn about car parts, or test your knowledge with our exciting quiz!</p>

        </div>

        <div class="car" id="simulation-page" style="display: none;">

            <div class="car-body">

                <div class="engine" id="engine"></div>

                <div class="wheel wheel-left" id="wheel-left" data-rotation="0">

                    <div class="spoke" style="transform: rotate(0deg);"></div>

                    <div class="spoke" style="transform: rotate(90deg);"></div>

                    <div class="spoke" style="transform: rotate(180deg);"></div>

                    <div class="spoke" style="transform: rotate(270deg);"></div>

                </div>

                <div class="wheel wheel-right" id="wheel-right" data-rotation="0">

                    <div class="spoke" style="transform: rotate(0deg);"></div>

                    <div class="spoke" style="transform: rotate(90deg);"></div>

                    <div class="spoke" style="transform: rotate(180deg);"></div>

                    <div class="spoke" style="transform: rotate(270deg);"></div>

                </div>

            </div>

            <button onclick="startSimulation()">Start Engine</button>

            <button onclick="stopSimulation()">Stop Engine</button>

        </div>

        <div class="info" id="info-page" style="display: none;">

            <h2>Understanding How a Car Operates</h2>

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Fuel System</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/2411498777/display\_1500/stock-vector-car-electric-vehicle-technology-digital-circuit-on-blue-background-ev-car-concept-automobile-2411498777.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            <div class="part-3d-container">

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Transmission</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/554905687/display\_1500/stock-photo-city-car-structure-overview-during-driving-k-554905687.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            </div>

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Wheels and Tires</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/1903492072/display\_1500/stock-photo-car-mechanic-working-in-garage-and-changing-wheel-alloy-tire-repair-or-maintenance-auto-service-1903492072.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            <div class="part-3d-container">

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Braking System</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/1063985435/display\_1500/stock-photo-car-brake-disc-without-wheels-closeup-in-a-car-workshop-1063985435.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            </div>

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Steering System</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/485025688/display\_1500/stock-photo-woman-holding-the-steering-wheel-driving-a-car-on-a-rural-road-through-the-mountains-485025688.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            <div class="part-3d-container">

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Exhaust System</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/2160550589/display\_1500/stock-photo-sportive-mufflers-oval-or-round-car-exhaust-tailpipe-chromed-made-of-stainless-steel-on-powerful-2160550589.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            </div>

                <div class="part-3d">

                    <div class="part-container">

                        <h3>Cooling System</h3>

                        <iframe src="https://www.shutterstock.com/shutterstock/photos/2029943831/display\_1500/stock-photo-close-up-of-car-radiator-pressure-cap-on-the-engine-2029943831.jpg" width="500" height="400"></iframe>

                    </div>

                </div>

            <div class="info-container">

                <div class="info-item">

                    <div>

                        <h3>Engine</h3>

                        <p>The engine acts as the fundamental driving force of the car. By transforming fuel or electrical energy into mechanical energy, it powers the vehicle. Various types employ different technologies, such as gasoline, diesel, or electric systems.</p>

                    </div>

                </div>

                <div class="info-item">

                    <div>

                        <h3>Wheels</h3>

                        <p>The wheels enable the car to move. As they rotate, they create the necessary friction and contact with the road to propel the vehicle forward or backward.</p>

                    </div>

                </div>

                <div class="info-item">

                    <div>

                        <h3>Transmission</h3>

                        <p>The transmission is responsible for distributing power from the engine to the wheels, allowing the vehicle to speed up and slow down efficiently. It can come in various forms, including automatic and manual options.</p>

                    </div>

                </div>

                <div class="info-item">

                    <div>

                        <h3>Brakes</h3>

                        <p>Brakes are essential for safety, providing the ability to decelerate or stop the vehicle as needed. Modern systems often feature innovations like anti-lock braking systems (ABS) for enhanced control.</p>

                    </div>

                    <div>

                        <iframe width="420" height="315" src="https://www.youtube.com/watch?v=fPjOWekzeGI"></iframe>

                    </div>

                </div>

            </div>

        </div>

        <div class="quiz-container" id="quiz-page" style="display: none;">

            <h2>MCQ Quiz - Test Your Knowledge!</h2>

            <form id="quiz-form">

                <div class="quiz-question">

                    <p>1. What is the primary function of a car engine?</p>

                    <label><input type="radio" name="q1" value="a"> Convert fuel into motion</label><br>

                    <label><input type="radio" name="q1" value="b"> Create sound</label><br>

                    <label><input type="radio" name="q1" value="c"> Store energy</label><br>

                    <label><input type="radio" name="q1" value="d"> Pump air</label>

                </div>

                <div class="quiz-question">

                    <p>2. What do you call the system that helps slow down or stop a car?</p>

                    <label><input type="radio" name="q2" value="a"> Steering</label><br>

                    <label><input type="radio" name="q2" value="b"> Transmission</label><br>

                    <label><input type="radio" name="q2" value="c"> Brake</label><br>

                    <label><input type="radio" name="q2" value="d"> Suspension</label>

                </div>

                <div class="quiz-question">

                    <p>3. What part of the car provides traction?</p>

                    <label><input type="radio" name="q3" value="a"> Tires</label><br>

                    <label><input type="radio" name="q3" value="b"> Brakes</label><br>

                    <label><input type="radio" name="q3" value="c"> Engine</label><br>

                    <label><input type="radio" name="q3" value="d"> Chassis</label>

                </div>

                <div class="quiz-question">

                    <p>4. What is the purpose of the transmission system?</p>

                    <label><input type="radio" name="q4" value="a"> Steering the car</label><br>

                    <label><input type="radio" name="q4" value="b"> Distributing power to the wheels</label><br>

                    <label><input type="radio" name="q4" value="c"> Stopping the car</label><br>

                    <label><input type="radio" name="q4" value="d"> Providing air-conditioning</label>

                </div>

                <div class="quiz-question">

                    <p>5. Which system controls the car’s direction?</p>

                    <label><input type="radio" name="q5" value="a"> Brake system</label><br>

                    <label><input type="radio" name="q5" value="b"> Steering system</label><br>

                    <label><input type="radio" name="q5" value="c"> Exhaust system</label><br>

                    <label><input type="radio" name="q5" value="d"> Ignition system</label>

                </div>

                <div class="quiz-question">

                    <p>6. What do shocks and struts do?</p>

                    <label><input type="radio" name="q6" value="a"> Provide traction</label><br>

                    <label><input type="radio" name="q6" value="b"> Absorb road bumps</label><br>

                    <label><input type="radio" name="q6" value="c"> Store energy</label><br>

                    <label><input type="radio" name="q6" value="d"> Create propulsion</label>

                </div>

                <div class="quiz-question">

                    <p>7. What does the fuel pump do?</p>

                    <label><input type="radio" name="q7" value="a"> Pumps brake fluid</label><br>

                    <label><input type="radio" name="q7" value="b"> Delivers fuel to the engine</label><br>

                    <label><input type="radio" name="q7" value="c"> Cool the engine</label><br>

                    <label><input type="radio" name="q7" value="d"> Increase speed</label>

                </div>

                <div class="quiz-question">

                    <p>8. Where are the vehicle’s controls normally located?</p>

                    <label><input type="radio" name="q8" value="a"> Dashboard</label><br>

                    <label><input type="radio" name="q8" value="b"> Trunk</label><br>

                    <label><input type="radio" name="q8" value="c"> Engine compartment</label><br>

                    <label><input type="radio" name="q8" value="d"> Spare tire</label>

                </div>

                <div class="quiz-question">

                    <p>9. What is a catalytic converter used for?</p>

                    <label><input type="radio" name="q9" value="a"> Increase fuel economy</label><br>

                    <label><input type="radio" name="q9" value="b"> Reduce harmful emissions</label><br>

                    <label><input type="radio" name="q9" value="c"> Cool the engine</label><br>

                    <label><input type="radio" name="q9" value="d"> Oil filtering</label>

                </div>

                <div class="quiz-question">

                    <p>10. What does the odometer measure?</p>

                    <label><input type="radio" name="q10" value="a"> Battery voltage</label><br>

                    <label><input type="radio" name="q10" value="b"> Fuel level</label><br>

                    <label><input type="radio" name="q10" value="c"> Distance traveled</label><br>

                    <label><input type="radio" name="q10" value="d"> Engine temperature</label>

                </div>

                <div class="quiz-question">

                    <p>11. What is the purpose of engine oil?</p>

                    <label><input type="radio" name="q11" value="a"> Clean the car</label><br>

                    <label><input type="radio" name="q11" value="b"> Lubricate moving parts</label><br>

                    <label><input type="radio" name="q11" value="c"> Power the electric system</label><br>

                    <label><input type="radio" name="q11" value="d"> Absorb vibrations</label>

                </div>

                <div class="quiz-question">

                    <p>12. What is the primary purpose of the air filter?</p>

                    <label><input type="radio" name="q12" value="a"> Improve engine performance</label><br>

                    <label><input type="radio" name="q12" value="b"> Reduce noise</label><br>

                    <label><input type="radio" name="q12" value="c"> Prevent dirt and debris entering the engine</label><br>

                    <label><input type="radio" name="q12" value="d"> Cool the engine</label>

                </div>

                <div class="quiz-question">

                    <p>13. What maintains a consistent temperature in the engine?</p>

                    <label><input type="radio" name="q13" value="a"> Coolant</label><br>

                    <label><input type="radio" name="q13" value="b"> Oil</label><br>

                    <label><input type="radio" name="q13" value="c"> Gasoline</label><br>

                    <label><input type="radio" name="q13" value="d"> Air</label>

                </div>

                <div class="quiz-question">

                    <p>14. What is a benefit of an ABS system?</p>

                    <label><input type="radio" name="q14" value="a"> Better control during braking</label><br>

                    <label><input type="radio" name="q14" value="b"> Improved fuel efficiency</label><br>

                    <label><input type="radio" name="q14" value="c"> Longer tire life</label><br>

                    <label><input type="radio" name="q14" value="d"> Quieter ride</label>

                </div>

                <div class="quiz-question">

                    <p>15. What does it mean if your dashboard has a check engine light?</p>

                    <label><input type="radio" name="q15" value="a"> The engine is working perfectly</label><br>

                    <label><input type="radio" name="q15" value="b"> There is an issue with the engine</label><br>

                    <label><input type="radio" name="q15" value="c"> You need to refill fuel</label><br>

                    <label><input type="radio" name="q15" value="d"> Your brakes need checking</label>

                </div>

                <button type="button" onclick="submitQuiz()">Submit</button>

            </form>

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

        </div>

        <div class="gamification-container" id="gamification-page" style="display: none;">

            <h2>Gamification Elements</h2>

            <p>Explore the fun aspects of our car simulation project!</p>

            <h3>Achievements & Badges</h3>

            <div class="badge">🏅 Engine Expert</div>

            <p>View all engine components to earn this badge!</p>

            <h3>Interactive Challenges</h3>

            <p><strong>Find the Fault:</strong> Identify the faulty part in a non-starting car!</p>

            <h3>Time-Based Assembly Game</h3>

            <p>Drag and drop car parts to assemble a working engine or wheel system within a time limit!</p>

            <button onclick="alert('Challenge will be available soon!')">Start Challenge</button>

        </div>

        <div class="augmented-container" id="augmented-vr-page" style="display: none;">

            <h2>AR/VR Features</h2>

            <p>Experience our car simulation through augmented and virtual reality!</p>

            <h3>AR View of Car Parts</h3>

            <p>Scan a QR code to see a 3D model of the engine or any other part in your own environment.</p>

            <img src="https://example.com/ar\_sample.jpg" alt="AR Sample" class="ar-vr-image">

            <h3>VR Mode for Car Exploration</h3>

            <p>Explore our 360-degree VR environment to learn about different parts of the car!</p>

            <button onclick="startVRMode()">Enter VR Mode</button>

        </div>

        <div class="ai-container" id="ai-page" style="display: none;">

            <h2>AI-Powered Features</h2>

            <p>Engage with our intelligent assistant and personalized learning paths!</p>

            <h3>AI Assistant for Car Knowledge</h3>

            <p>Type your question in the box below:</p>

            <input type="text" id="ai-question" placeholder="Ask a question like 'How does a turbocharger work?'">

            <button onclick="askAI()">Ask the AI</button>

            <div id="ai-response" class="result" style="display: none;"></div>

            <h3>Personalized Learning Path</h3>

            <p>Track your exploration and receive recommendations for the next car part to learn about.</p>

        </div>

    </div>

    <script>

        let rotationInterval;

        function startSimulation() {

            let wheels = document.querySelectorAll(".wheel");

            let engine = document.getElementById("engine");

            // Start the engine by increasing its opacity

            engine.style.opacity = "1";

            // Rotate wheels

            rotationInterval = setInterval(() => {

                wheels.forEach(wheel => {

                    let currentRotation = parseInt(wheel.getAttribute('data-rotation') || 0);

                    currentRotation += 10;  // Rotate by 10 degrees

                    wheel.style.transform = `rotate(${currentRotation}deg)`;

                    wheel.setAttribute('data-rotation', currentRotation);

                });

            }, 100); // Adjust the interval to speed up or slow down the rotation

        }

        function stopSimulation() {

            clearInterval(rotationInterval);

            document.getElementById("engine").style.opacity = "0.5"; // Dim the engine when stopped

        }

        function toggleDarkMode() {

            document.body.classList.toggle("dark-mode");

            const sidebar = document.getElementById("sidebar");

            sidebar.style.backgroundColor = sidebar.style.backgroundColor === "black" ? "#333" : "black";

        }

        function showSection(section) {

            const sections = ["homepage", "simulation-page", "info-page", "quiz-page", "gamification-page", "augmented-vr-page", "ai-page"];

            sections.forEach(id => {

                document.getElementById(id).style.display = (id === section) ? "block" : "none";

            });

            document.getElementById('result').style.display = 'none'; // Reset result display

            document.getElementById('ai-response').style.display = 'none'; // Reset AI response display

        }

        function submitQuiz() {

            const answers = {

                q1: 'a',

                q2: 'c',

                q3: 'a',

                q4: 'b',

                q5: 'b',

                q6: 'b',

                q7: 'b',

                q8: 'a',

                q9: 'b',

                q10: 'c',

                q11: 'b',

                q12: 'c',

                q13: 'a',

                q14: 'a',

                q15: 'b',

            };

            let score = 0;

            let totalQuestions = Object.keys(answers).length;

            let resultsHtml = "<h3>Results:</h3><p>You scored " + score + " out of " + totalQuestions + "!</p>";

            Object.keys(answers).forEach((key) => {

                const selectedAnswer = document.querySelector(`input[name="${key}"]:checked`);

                if (selectedAnswer && selectedAnswer.value === answers[key]) {

                    score++;

                } else if (selectedAnswer) {

                    resultsHtml += `<p>Question ${key.replace('q', '')}: Correct answer is "${answers[key]}". Your answer: "${selectedAnswer.value}"</p>`;

                } else {

                    resultsHtml += `<p>Question ${key.replace('q', '')}: You did not answer. Correct answer is "${answers[key]}".</p>`;

                }

            });

            const resultDiv = document.getElementById('result');

            resultDiv.innerHTML = resultsHtml;

            resultDiv.style.display = 'block';

        }

        function startVRMode() {

            // Here you would integrate with a VR library such as A-Frame or Three.js

            alert('VR Mode is now starting up... (placeholder)');

        }

        function askAI() {

            const question = document.getElementById('ai-question').value;

            const responseDiv = document.getElementById('ai-response');

            // Placeholder for AI response (This should ideally connect to an AI API)

            responseDiv.innerHTML = `You asked: "${question}". <br> AI says: "That's a great question! (placeholder answer)"`;

            responseDiv.style.display = 'block';

        }

    </script>

</body>

</html>