

PROJECT-1

Digital Clock Web Application

Project done by:-
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Objective

The objective of this project was to create a real-time digital clock that displays the current hours, minutes, and seconds, updating automatically every second. This project helped me understand real-time data handling in web applications.

Technologies Used

HTML

CSS

JavaScript

Key Features

Displays current time in **HH:MM:SS** format

Automatically updates every second

Clean and visually appealing user interface

Responsive layout for different screen sizes

Contents of index.html

```
<> index.html ...\digital-clock X # style.css ...\digital-clock JS script.js ...\digital-clock JS script.js
html > quiz-app > digital-clock > <> index.html > html
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <title>Digital Clock</title>
7   <link rel="stylesheet" href="style.css">
8 </head>
9
10 <body>
11
12   <div class="clock-container">
13     <h1>Digital Clock</h1>
14     <div id="clock">00:00:00 AM</div>
15     <div id="date">January 1, 1970</div>
16     <button id="mode-toggle">Toggle Dark/Light Mode</button>
17   </div>
18
19   <script src="script.js"></script>
20 </body>
21
22 </html>
```

Contents of script.js

```
html > quiz-app > digital-clock > JS script.js > ...
1  function updateClock() {
2      const now = new Date();
3
4      // Time
5      let hours = now.getHours();
6      let minutes = now.getMinutes();
7      let seconds = now.getSeconds();
8      let ampm = "AM";
9
10     if (hours >= 12) {
11         ampm = "PM";
12         if (hours > 12) hours -= 12;
13     }
14
15     if (hours === 0) hours = 12;
16
17     hours = hours < 10 ? "0" + hours : hours;
18     minutes = minutes < 10 ? "0" + minutes : minutes;
19     seconds = seconds < 10 ? "0" + seconds : seconds;
20
21     document.getElementById("clock").textContent =
22         `${hours}:${minutes}:${seconds} ${ampm}`;
23
24     // Date
25     const options = { weekday: 'long', year: 'numeric', month: 'long', day: 'numeric' };
26     document.getElementById("date").textContent = now.toLocaleDateString('en-US', options);
27 }
28
29 // Update every second
30 setInterval(updateClock, 1000);
31 updateClock();
32
33 // Dark/Light Mode Toggle
34 const toggleButton = document.getElementById("mode-toggle");
35 toggleButton.addEventListener("click", () => {
36     document.body.classList.toggle("light-mode");
37 });
```

Contents of style.css

```
html > quiz-app > digital-clock > # style.css > .clock-container
```

```
1  body {
2    display: flex;
3    justify-content: center;
4    align-items: center;
5    height: 100vh;
6    font-family: 'Arial', sans-serif;
7    transition: background 0.5s, color 0.5s;
8    background: #121212;
9    color: #ffffff;
10 }
11 .clock-container {
12   text-align: center;
13   background: #1f1f1f;
14   padding: 40px 60px;
15   border-radius: 15px;
16   box-shadow: 0 0 20px rgba(0, 0, 0, 0.5);
17   transition: background 0.5s, color 0.5s;
18 }
19 h1 {
20   margin-bottom: 20px;
21   font-size: 2em;
22 }
23 #clock {
24   font-size: 50px;
25   margin-bottom: 10px;
26   letter-spacing: 2px;
27   animation: pulse 1s infinite;
28 }
29 #date {
```

```
29 #date {
30   font-size: 20px;
31   margin-bottom: 20px;
32   animation: fadeIn 2s;
33 }
34 #mode-toggle {
35   padding: 10px 20px;
36   border: none;
37   border-radius: 5px;
38   background: #00ffcc;
39   color: #121212;
40   font-weight: bold;
41   cursor: pointer;
42   transition: background 0.3s;
43 }
44 #mode-toggle:hover {
45   background: #00d1a3;
46 }
47 @keyframes pulse {
48   0% {
49     transform: scale(1);
50   }
51   50% {
52     transform: scale(1.05);
53   }
54   100% {
55     transform: scale(1);
56   }
57 }
```

```
57 }
58
59 @keyframes fadeIn {
60   from {
61     opacity: 0;
62   }
63   to {
64     opacity: 1;
65   }
66 }
67 .light-mode body {
68   background: #f0f0f0;
69   color: #121212;
70 }
71 .light-mode .clock-container {
72   background: #ffffff;
73   color: #121212;
74 }
75 .light-mode #mode-toggle {
76   background: #121212;
77   color: #ffffff;
78 }
79 .light-mode #mode-toggle:hover {
80   background: #333333;
81 }
```

Implementation Details

The clock was implemented using JavaScript's Date object to fetch the current system time. The setInterval() function was used to update the time every 1000 milliseconds. DOM manipulation techniques were applied to dynamically update the time on the webpage without refreshing it. CSS was used for styling the clock layout, font size, colors, and alignment to enhance the user experience.

Challenges & Solutions

One challenge was ensuring accurate time updates without lag. This was resolved by synchronizing the setInterval() function correctly and formatting single-digit values using conditional logic.

Outcome

This project improved my understanding of JavaScript timing functions, DOM manipulation, and real-time UI updates.

We can change the mode from light to dark by pressing the Toggle button

