JavaScript
Winter 2025
Take-Home Assignment 01

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Assignment 1: World Clock for Jackson Electronics

Jackson Electronics is a global company with six corporate offices located around the world. Communication between these offices is crucial, and employees often need to know the local time in each office when making calls or sending important data.

David Lin, who manages the corporate website, has asked for your help in creating a **World Clock** that displays the current time at each corporate office. The clock should be dynamic and update in real-time.

As part of this assignment, you will leverage JavaScript's **Date** object to calculate the local time for each office based on their offset from Coordinated Universal Time (UTC).

Corporate Office Information
The offices and their UTC offsets (in minutes) are as follows:

- Office 1: **Houston**: UTC -360
- Office 2: **London**: UTC +0
- Office 3: **New York**: UTC -300
- Office 4: **Seattle**: UTC -480
- Office 5: **Sydney**: UTC +660
- Office 6: **Tokyo**: UTC +540

Data files needed for this assignment

time-zones.css | je_logo.jpg | map.jpg | world-time.html | time_zones.js
Note: you can choose the design you like or look at the attached screenshots for inspiration. Be creative!

Assignment Objectives:

1. **Display Local Time:**
   - Create a webpage that displays the local time for all six corporate offices.
   - Use the UTC offsets provided to calculate the time for each location.
2. **Dynamic Updates:**
   - Ensure the clocks update automatically every second to reflect the current time in real-time.
3. **Responsive Design (Bonus):**
   - Make the layout responsive so it looks good on different devices (desktop, tablet, mobile).
4. **Optional Features (Extra Credit):**
   - Account for Daylight Saving Time (DST) in regions where it applies.
   - Style the webpage with CSS to make it visually appealing.

Technical Requirements:

1. Use the **JavaScript Date object** to:
   - Retrieve the current UTC time.
   - Adjust the time based on each office's UTC offset.
2. Use **setInterval**() to update the clocks dynamically every second.

3. Display the clocks with clear labels for each corporate office.
4. Write modular code with reusable functions where possible.

Deliverables:

1. A functional webpage with:
   - Six clocks showing the local time for each office.
   - The clocks labeled clearly with their respective office names.
2. A zip file or a GitHub repository containing your source code (HTML, CSS, JavaScript).

Evaluation Criteria:

1. **Functionality** (50%):
   - Does the webpage correctly calculate and display the local time for each office?
   - Do the clocks update automatically in real-time?
2. **Code Quality** (30%):
   - Is the code modular, well-structured, and readable?
   - Are comments included where necessary?
3. **Visual Design** (20%):
   - Is the design clear and visually appealing?
   - Is the layout responsive?

Here is an example layout

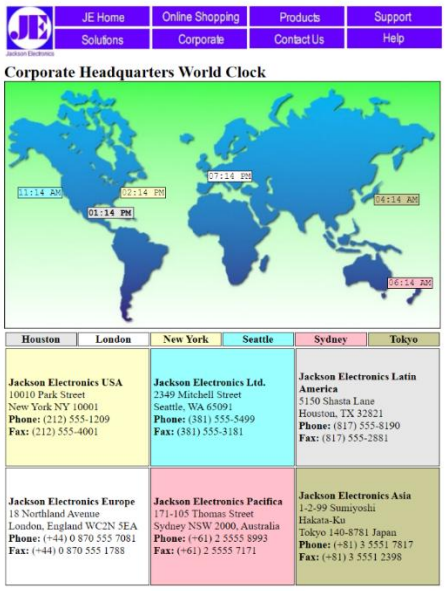

Figure 1 Corporate Headquarters Worl Clock.

***Note**: This is a simplified example of what is a very complicated problem. Different countries apply time zones in different ways. For example, China spans several time zones but applies a uniform time throughout the country. Some countries also shift their time(s) twice a year during daylight saving time (otherwise known as summertime) while others do not apply daylight savings time at all. For example, the reported times in the case problem will be off by 1 hour during daylight saving time for the Seattle,*

Houston, and New York clocks. To create a truly accurate world clock, you would have to consider all the various idiosyncrasies of global timekeeping.

NOTE

1. **Use the W3C Markup Validation Service to validate the index.html document, and then, if necessary, fix any errors that the document contains.**

2. **Make sure you organize the content of the project in different folders: images, styles, and scripts folders.**

Hints and Resources:

- Use MDN Web Docs: Date to understand how the JavaScript Date object works.
- Explore setInterval() to implement real-time updates.
- For styling, consider using **CSS Flexbox or CSS Grid** for layout.
- Website mockup design: the complete guide with tools: https://webflow.com/blog/website-mockup
- What is Adobe XD and what is it used for? https://www.adobe.com/products/xd/learn/get-started/what-is-adobe-xd-used-for.html
- Get started with our step-by-step guide. https://www.adobe.com/products/xd/learn/get-started.html
- The Quickest Way to Create Mockups from a Live Web Page https://creativepro.com/the-quickest-way-to-create-mockups-from-a-live-web-page/
- 5 Free Mockup Generator Tools to Create Device Mockups https://www.webnots.com/5-free-mockup-generator-tools-to-create-device-mockups/
- JavaScript for Web Warriors, Seventh Edition. Patrick Carey / Sasha Vodnik. ISBN: 978-0-357-63800-2. © 2022 Cengage Learning, Inc.
- New Perspectives on HTMLS, CSS3, and JavaScript 6th Edition. Patrick Carey. ISBN: 978-1-305-50392-2. © 2018 Cengage Learning, Inc.