



OCTOBER 23, 2023

Lightning Development Basics



[LWC Week3] – Day 1

 Download the git folder with the challenges [Week 3 - Challenges](#)

1. JavaScript mini challenges (30mins)
2. Astronaut challenge (1h)
3. Set up the environment (30mins)
 - a. trailhead: <https://trailhead.salesforce.com/content/learn/projects/quick-start-lightning-web-components> (parts 1 and 2)
 - b. <https://developer.salesforce.com/blogs/2023/05/developer-tooling-from-scratch-part-1-of-2>
4. Dice Game challenge (1h)
5. Challenge solutions and discussion (1h)



JavaScript mini challenges (1/5)

Exercise 1: hoisting

1. assign in a variable 'myString' a value without initializing the variable and log the result
2. repeat the step 1 using 'use string' and with 'use string' commented out
3. initialize a variable with var keyword and console.log the variable before its initialization
4. in a line before logging the variable try to assign a value to it
5. repeat the steps 3 and 4 but declare the variable with let and const
6. What do you observe?



JavaScript mini challenges (2/5)

Exercise 2: Variable mutation and comparison

1. Declare two variables `num` with value 7 and `str` with value '3'
2. The point of this exercise is to understand the type coercion of the variables:
 - a. use the `typeof` keyword to log the type (log also the value using `console.log(value, typeof)`) of
 - i. the variables `num` , `str`
 - ii. the variable `str + num`
 - iii. the variable `str * num`
 - iv. the variable `str*1`
 - v. the variable `+str`
 - vi. the variable `''+num`
 - vii. the variable `String(num)`
 - viii. the variable `Boolean(num)`
 - b. What are the Falsy and Truthy values?
 - i. try to log with the boolean constructor the values: 0, '', null, undefined, NaN
 - ii. try to log with the boolean constructor the values: 1, ' ', {}, [], Infinity



JavaScript mini challenges (3/5)

- 2.c. In the following code try first to write as a comment in the end of each line the expected outcome (True or False) then run the code to your js file and think about the errors in the expected and actual values

```
console.log('comparison')
// https://developer.mozilla.org/en-US/docs/Web/JavaScript/Equality\_comparisons\_and\_sameness
console.log('0 == false: ', 0 == false)
console.log('1 == true: ', 1 == true)
console.log('1 === true: ', 1 === true)
console.log('1 == "1": ', 1 == '1')
console.log('1 === "1": ', 1 === '1')
console.log('null == undefined: ', null == undefined)
console.log('null == false: ', null == false)
console.log('NaN === NaN: ', NaN === NaN)
console.log('!null: ', !null)
console.log('!!null: ', !!null)
console.log('!NaN: ', !NaN)
console.log('!!NaN: ', !!NaN)
```

JavaScript mini challenges (4/5)

Exercise 3: Objects and this keyword

1. Create a person object with attributes `firstName`, `lastName`, `birthYear` and a `printInfo` function (leave blank for now)
2. log persons `firstName`
3. log persons `lastName` but using something like `person['last' + 'Name']`
4. get the date today and store to a variable the current year
5. in the print info function try to return a string like that
`'Full Name: yourFullName, Age: yourAge'`
6. log the result of the `printInfo` function
7. Use template literal to return the info (step 5)
8. copy the person object code and create a `person2` object with only difference instead of a named function use an arrow function
9. log the function results, what do you observe?



JavaScript mini challenges (5/5)

Exercise 4: Arrays

Given the array `[4, 5, -1, 6, 0, 10, 3]`

1. calculate the min of the array using `for loop` or `Array.prototype.forEach`
2. calculate the max of the array using `for loop` or `Array.prototype.forEach`
3. calculate the sum of the elements using `for loop`, `Array.prototype.forEach` or `Array.prototype.reduce`



Astronaut instructions – part 1 (1/2)

index.html file

1. link the other two style sheets existing in the astronaut challenge folder
2. Add a h1 element with the title "How Many people are in space 🌍?"
3. Add a button element with the "btn" class and label "Calculate"
4. Link the 'scriptWithAsync.js' file using <script> tag

style.css file

5. add a class name hidden which will modify the display attribute to none

scriptWithAsync.js file

6. Add a variable to store the button element added on the html,
you can use getElementById method of the document element to access the button
7. Call init function
8. Use addEventListener method and a callback function in the button element created in step 6.
 - a. The callback function must be asynchronous (async keyword must be used)



Astronaut instructions – part 1 (2/4)

8.b. the callback function will call and await the fetchData function

8.c. The callback function must remove the hidden class added to the outcome element in the init function.

9. a. Use the fetch API as shown in the [documentation](#) to fetch the data from apiUrl.

b. store the response in a variable called response (as shown in the step 9.a link)

c. store the response json in a variable called data (as shown in the step 9.a link)

d. console.log the data variable and see the results of the API call

Hint: the data object should be like this:

```
data = { people: [array], number: num, message: 'success' }
```

10. Store in the numberOfPeople variable the data attribute that has the number of people

11. a. For each item of the peopleArray create a temp line like this:

```
'<p>&nbsp;👤name, 🚀spacecraftName</p>'
```

b. Add the line to moreInfoOutput string

c. print the moreInfoOutput in the '.outcome__people__info' element

12. Print the moreInfoOutput in the '.outcome__people__info' element



Astronaut instructions – part 2

13. Copy the `scriptWithAsync.js` and paste it in the same folder but rename it `'scriptWithThen.js'`

14. Remove the `async...await` of the functions along with the result and data variable assignment inside the `fetchData`

15. Use the

```
fetchPromise.then(response => get response json)
               .then(data => {
                   move all the logic from console.log(data)
                   until the end of try block
               })
```

help: <https://www.developerway.com/posts/fetching-in-react-lost-promises>

You can keep the `try...catch` or replace it with `.catch((err) => {handle error})`

16. In the `html` replace the `src` of the `script` tag to point to `'scriptWithThen.js'`

17. The results are rendering twice (once with the initial values and once with the correct values) can you explain why?



Astronaut instructions – part 3

18. Switch back to 'scriptWithAsync.js'

19. Replace the Calculate text inside the button block with this:

```
<span class="btn__label">calculate</span>
<span class="loader">
  <span class="loader__element"></span>
  <span class="loader__element"></span>
  <span class="loader__element"></span>
</span>
```

20. In the js file add in the beginning two more variables,
one to select the '.loader' and one to select the '.btn__label' elements.

21. In the init the style.display attribute to hide the '.loader' element
(it's the same logic as the hidden class)

22. In the calculate callback function we should have the logic

```
hide btn label (add hidden class)
show loading dots (style.display = 'flex')
***** fetching data *****
hide loading dots (you did the same in step4)
show button label (remove hidden)
```



Astronaut instructions – part 4

23. (html) Inside the outcome div add after the last <p> element

```
<div>
```

```
  <a href="" class="showLess" target="">> Hide Results</a>
```

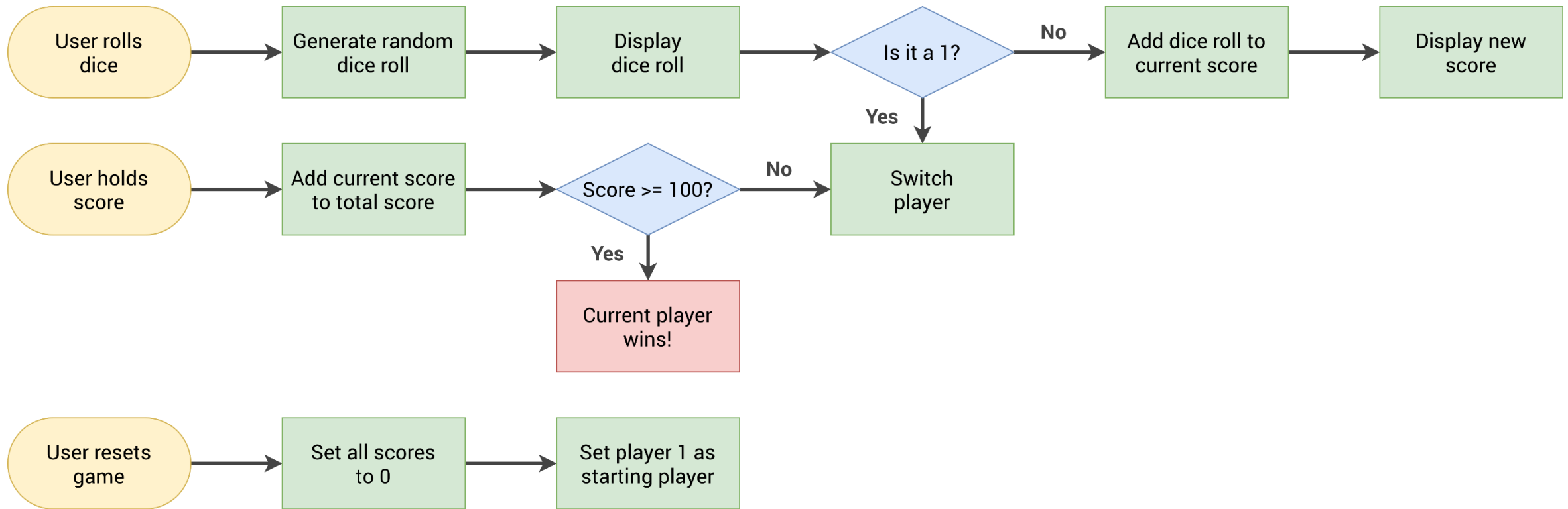
```
</div>
```

24. (.js) Add a variable and save the '.showLess' element

25. Add an click event listener to the element and in the callback function add hidden to the outcome element

Congratulations you finished the challenge!!!! 🎉 🎉 🎉 ✨ ✨

Dice Game flow chart



Dice Game instructions (1/2)

➤ *talk about variables and onclick events in LWC framework*

 `diceGameChallenge.html` file

#1. Set the score variable `scoreP2` for P2. (html - 119)

#2. Set the current score variable `currentP2` for P2. (html - 123)

#3. Connect the `handleRollBtnClicked` and `handleHoldBtnClicked` functions to the appropriate button elements

 `diceGameChallenge.js` file

#4. Initialize the variables `scoreP1`, `scoreP2`, `currentP1`, `currentP2` to 0.

#5. Remove the `player--winner` class from `player1` and `player2` elements

#6. Create the basic algorithm of the user roll dice

a. if `diceNum` is not equal to 1

i. add to the current score (`currentScore` variable) the `diceNum`.

ii. assign the `currentScore` variable to the current score of the active player

Help: if this `activePlayer` is P1 assign the current score to `currentP1` variable.

if this `activePlayer` is P2 assign the current score to `currentP2` variable.

(Hint: `currentP1 = current + P1` and `activePlayer` is either P1 or P2 strings 🎲)



Dice Game instructions (2/3)

6.b. if diceNum is equal to 1 according to the flow chart we must switch the player so the switchPlayer function must be called.

#7. Complete the user holds score algorithm:

a. Add the current score to the score of the active player.

Hint: For example if the active player is P1 add the currentScore to the scoreP1 variable

b. If the score of the active player is greater or equal than 100

i. set the playing variable to false

ii. select the game element and add hidden class

iii. select the active player element and add the

'player--winner' class and remove the 'player--active' class.

iv. select the name+ActivePlayer--winner element and remove the hidden class

c. if the score of the active player is lower than 100,
the switchPlayer function must be called.



Dice Game instructions (3/3)

#8. Complete the switch player logic:

- a. set the current+Active player score to 0
- b. set the currentScore to zero
- c. we must switch the activePlayer!!
 - i. if the current activePlayer is 'P1' the activePlayer must be set to 'P2'
 - ii. if the current activePlayer is 'P2' the activePlayer must be set to 'P1'

➤ *Talk about how to improve the code using*

- template literals
- ternary operator

[LWC Week3] – Day 2

1. Lightning Web Component Basics (~70mins)
2. Lightning Web Components and Salesforce Data (~70mins)
3. Pokedex Challenge (~1h)
4. Final Exercise

Pokedex instructions – html (1/4)

- #1. Create a lightning-card with narrow variant,
 `title: Pokedex, icon: standard:contract_line_item`
- #2. In the actions slots of the card put a button with label: Reset Data
 and onclick bind a method with name "initializeApp". You can style your button red
 using the right variant!!
- #3. In the javascript file make sure that the method initializeApp () {}
 exists if not add the method.
- #4. After the button put a div with `class="slds-m-around_small"`,
 inside the div will be the card-body
- #5. Inside the card body put
 - a. A div with inline `style="display:flex;flex-direction:row;
 justify-content:flex-start;align-items:flex-end; margin-bottom: 1rem;"`
 This will be the search div.
 - b. A div with `class="slds-grid slds-wrap slds-m-around_small slds-border_bottom"`
 this will be the results header

Pokedex instructions – html (2/4)

5.c. A similar div as in 5.b without border and with margin around small this will be the results data

Inside the `<template></template>` your structure must be similar to the following

```
<card__div>
  <reset__button></reset__button>
  <card-body__div>
    <search__div>
    </search__div>
    <results-header__div>
    </results-header__div>
    <results-data__div>
    </results-data__div>
  </card-body__div>
</card div>
```

#6. [search__div] Inside the search__div put a lightning input with:

- label 'Pokemon Name'
- value: pokemonName (variable initialized to 'charizard')
- onchange: handleChange (handler method, parameter event)
- class="slds-m-right_xx-small"

Pokedex instructions – html (3/4)

- #7. [search__div] Inside the search__div, after the input put a lightning button with:
 - a. label 'Search Pokemon'
 - b. variant: "brand"
 - c. onclick: searchPokemon (handler method, parameter event)
 - d. disabled: disableSearch (variable initialized to false)
- #8. [.js] In your javascript file make sure that your variables and handler methods exist if not add them.
- #9. [results-header__div] Inside the results-header__div add 4 columns with the same space using the instructions of the slds-grid each one of them must have additional
 - class slds-text-heading_small and
 - the labels of this elements should be: Name, Appearance, Abilities, Stats.
- #10. [results-data__div] we want to show this div only if data exist:
 - a. bind the div with an if directive and show it only if the hasData variable is true initialize the variable to false.
 - b. put the following div after the results-data__div closing tab

```
<div lwc:else class="slds-m-around_large">
  {errorMessage}
</div>
```

Pokedex instructions – html (4/4)

#11. Inside the results data div put the following code:

```
<div class="slds-size_1-of-4 slds-align-middle">
  print pokemon's name
</div>
<div class="slds-size_1-of-4">
  <img src={currentPokemon.imageUrl}>
</div>
<div class="slds-size_1-of-4 slds-text-color_weak slds-align-middle">
  print a list and each item will represent an ability
</div>
<div class="slds-size_1-of-4 slds-text-color_weak slds-align-middle">
  <ul>
    <template for:each={currentPokemon.stats} for:item="stat">
      <li key={stat}>{stat.name}: {stat.value}</li>
    </template>
  </ul>
</div>
```

#12. Your html is almost done.... Put a lightning spinner inside the card-body__div and before anything else.

The spinner will take a variable spinner initialized to false.

We will use it to inform the user that something is loading.....

[LWC Week3] – Day 3

Final Exercise

[LWC Week3] – Day 4

1. Final Exercise
2. Solution and Discussion
3. Lightning Web Component Troubleshooting (45mins)



Thank you.

This publication contains general information only, and none of the member firms of Deloitte Touche Tohmatsu Limited, its member firms, or their related entities (collective, the "Deloitte Network") is, by means of this publication, rendering professional advice or services. Before making any decision or taking any action that may affect your business, you should consult a qualified professional adviser. No entity in the Deloitte Network shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte USA LLP, Deloitte LLP and their respective subsidiaries. Certain services may not be available to attest clients under the rules and regulations of public accounting.

**Copyright © 2018 Deloitte Development LLC.
All rights reserved. Member of Deloitte Touche Tohmatsu Limited**

Deloitte.

Digital