Web Scripting 1

Day 09

Agenda

- Game Progress Check-In
- Progress Check-In
- Form Validation
- JSON
- Fetch
- Async / Await
- API's

Game Progress Check-In

- Please add your name to the Google Sheet in order to reserve a day and time for your game progress check-in meeting

Progress Check-In

- At this time you should have a rough idea of the following concepts
  - A basic understanding of:
    - Objects
    - Classes

Quick Introduction to Forms

Quick Introduction to Forms

- You will have a full lesson on forms in the Web Development 2 course

- Today's lesson will just provide a quick introduction:
  - What is an HTML form
  - How an HTML form works
  - Why to validate forms with HTML, CSS, and JavaScript
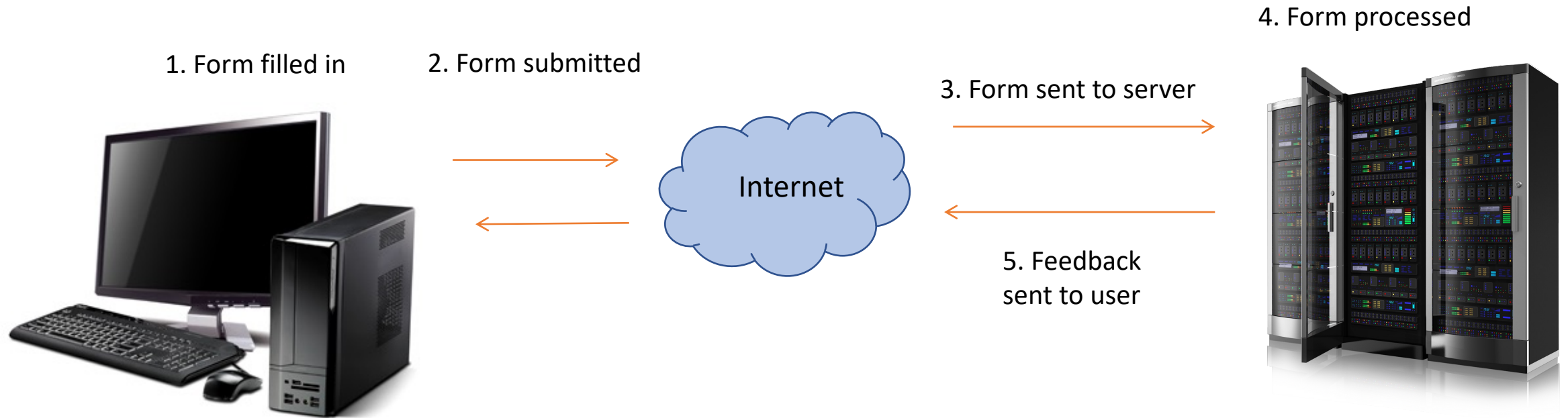 - How to validate forms with HTML, CSS, and JavaScript

Forms - Introduction

- Forms allow web sites users to interact with your web site

- You can use forms to do the following:
  - Collect data from users
  - Logging into a site
  - To perform calculations
  - Enable users to contact you
  - To pay for items online
  - To search for something online

How a Form Works

1. User fills in the form

2. User submits the form

3. Data from the form is sent to the form processor which is a server   script that runs on a web server

   - Not all forms are sent to the server, some forms such as calculators can be processed locally and never require data to be sent to a server

4. The form is processed

5. Feedback can optionally be given to the user to assure them that their information has been received

How a Form Works

1. Form filled in

2. Form submitted

3. Form sent to server

4. Form processed

Internet

5. Feedback sent to user

Form Validation

Why Validate Forms on the Front-End

- **User Experience:** Client-side validation can provide immediate feedback to the user as they fill out the form. This can help to prevent errors and improve the overall user experience

- **Performance:** By validating the form data on the client side, you can reduce the number of requests sent to the server, which can improve the performance of the web site

- **Reduced Server Load:** By catching errors on the client side, you can reduce the load on the server. This can be especially important for web sites with high traffic or a limited server resources

- **Security:** Client-side validation can also help to prevent malicious users from submitting invalid or malicious data. It can also help to prevent cross-site scripting (XSS) and SQL injection attacks

- **Accessibility:** Client-side validation can also improve the accessibility of web forms. It can help users who are using assistive technology to understand the requirements of the form and ensure that they are providing valid input

Text generated by: https://chat.openai.com/chat

How to Validate Forms on the Front-End

- **Using HTML5 Validation:** You can use HTML5 required and pattern attributes to check if the input is empty or matches a certain pattern. It also provides some built-in error messages that can be displayed to the user.

- **Using JavaScript:** You can use JavaScript to check the form input values and display error messages if the validation fails.
  - Provides for more flexibility and control over the validation process
  - Requires more code to be written.

- **Using a JavaScript Library or Framework:** There are several libraries and frameworks available that can be used to validate forms in JavaScript
  - Validation (jQuery)
    - https://jqueryvalidation.org
  - Formik (React)
    - https://formik.org
  - React-Form (React)
    - https://github.com/TanStack/form
  - These libraries typically provide a more comprehensive set of validation rules and error handling

Text modified from text generated by: https://chat.openai.com/chat

HTML Form Validation

- HTML5 introduced simple HTML form validation without any need for JavaScript

- You can use the "required" attribute on an input to make sure the user enters data on an input element

- If you want more custom looking form validation then you will need to turn to JavaScript

- **Note:** HTML form validation using the built-in HTML validation or using custom JavaScript validation is not secure. Always validate the data a 2nd time on the server when receiving data from an HTML form

HTML Form Validation

```html
<label for="city">City</label>
<input type="text" id="city" name="city" required>
```

Shipping Info

Your Address

Street Address

123 Any Street

City

Province

Newfoundland and Labrador

Please fill out this field.

Postal

O1O 1A1

Submit

Form Validation with the Pattern Attribute

- Using the required attribute alone allows for basic validation to make sure the user at least inputted something into an input

- If you require something a bit more custom, you can use the "pattern" attribute to make the browser validate an input against a regular expression
  - A regular expression is a pattern that the computer uses to test a string of text against

- With a pattern attribute you can validate for Credit Card numbers, postal codes, phone numbers and other common types of data

- For some pre-written HTML5 pattern values visit this web site:
  - http://html5pattern.com/

- Use the title attribute to provide helper text to the user if they input invalid data

Form Validation with the Pattern Attribute

```html
<input type="text"
       id="postal-code"
       name="postal-code"
       pattern="[A-Za-z][0-9][A-Za-z](\s)?[0-9][A-Za-z][0-9]"
       title="Format: A1A 1A1"
       required>
```

You can use the title attribute to display a helper message to the user if they enter incorrectly formatted data

The pattern attribute tells the browser to test the input entered by the user against the regular expression set in the pattern attribute. The pattern here will test for a Canadian postal code (A1A 1A1)

Form Validation with the Pattern Attribute

Postal Code

ABC 123

⚠ Please match the requested format.
Format: A1A 1A1

This input is being validated against a custom pattern set via the "pattern" attribute on the input element. This input is being validated for a Canadian postal code (A1A 1A1).

- Visit http://html5pattern.com/ to get some common pattern values for things such as telephone numbers, credit cards, postal codes and other common types of information

The text "Format: A1A 1A1" comes from the title attribute on the input element

JavaScript Form Validation

- Many ways to validate forms in JavaScript
- See the code demos for today's files for two examples of JavaScript form validation