**Chapter 41, 42**

**(While loops, do…while loops)**

**(All Questions must be done with both loops)**

1. Write a Code that runs twice and does nothing. The counter i has already been declared and assigned 0.

**Answer**:

javascript while (i < 2) { i++; }

javascript do { i++; } while (i < 2);

1. Code that looks for "pig" in the array. When it finds it, an alert displays saying, "Found it!" Use the length of the array as the loop limiter. Break out of the loop when it's found. var animals=["horse", "ox", "cow", "pig", "duck"];

**Answer**:

javascript var animals = ["horse", "ox", "cow", "pig", "duck"];

var i = 0; while (i < animals.length) { if (animals[i] === "pig") { alert("Found it!"); break; } i++; }

javascript var animals = ["horse", "ox", "cow", "pig", "duck"];

var i = 0; do { if (animals[i] === "pig") { alert("Found it!"); break; } i++; } while (i < animals.length);

1. Code to use a while & do while loop to print the numbers from 1 to 10.

**Answer**:

javascript // Using a while loop var i = 1; while (i <= 10) { console.log(i); i++; }

javascript // Using a do-while loop var i = 1; do { console.log(i); i++; } while (i <= 10);

1. To use a while loop to ask the user for a number and then print that number back to them.

**Answer**:

javascript var number; while (true) { number = prompt("Enter a number:"); if (number !== null) { console.log("You entered: " + number); break; } }

javascript var number; do { number = prompt("Enter a number:"); if (number !== null) { console.log("You entered: " + number); break; } } while (true);

1. To use a while loop to check if a number is even or odd.

**Answer**:

javascript var number = 1; while (number <= 10) { if (number % 2 === 0) { console.log(number + " is even"); } else { console.log(number + " is odd"); } number++; }

javascript var number = 1; do { if (number % 2 === 0) { console.log(number + " is even"); } else { console.log(number + " is odd"); } number++; } while (number <= 10);

1. Create a guessing game where the user has to guess a number between 1 and 100.

**Answer**:

javascript var targetNumber = Math.floor(Math.random() \* 100) + 1; var guess; while (true) { guess = parseInt(prompt("Guess a number between 1 and 100:")); if (isNaN(guess)) { alert("Please enter a valid number."); } else if (guess < targetNumber) { alert("Too low! Try again."); } else if (guess > targetNumber) { alert("Too high! Try again."); } else { alert("Congratulations! You guessed it."); break; } }

javascript var targetNumber = Math.floor(Math.random() \* 100) + 1; var guess; do { guess = parseInt(prompt("Guess a number between 1 and 100:")); if (isNaN(guess)) { alert("Please enter a valid number."); } else if (guess < targetNumber) { alert("Too low! Try again."); } else if (guess > targetNumber) { alert("Too high! Try again."); } else { alert("Congratulations! You guessed it."); break; } } while (true);

1. Use a while & do-while loop to create a countdown timer?

**Answer**:

javascript // Using a while loop var countdown = 10; while (countdown >= 0) { console.log(countdown); countdown--; }

javascript // Using a do-while loop var countdown = 10; do { console.log(countdown); countdown--; } while (countdown >= 0);

**Chapter 46, 48 (Events)**

1. Create a simple event that prints a message when the user clicks on an element.

**Answer**:

HTML: <div id="myElement">Click me</div> - JavaScript: javascript var element = document.getElementById("myElement"); element.addEventListener("click", function() { console.log("Element clicked!"); });

1. Create an event that hides an element when the user clicks on a different element

**Answer**:

HTML: <div id="elementToHide">Hide me</div> <button id="clickToShow">Click to Show</button> - JavaScript: javascript var elementToHide = document.getElementById("elementToHide"); var clickToShow = document.getElementById("clickToShow"); clickToShow.addEventListener("click", function() { elementToHide.style.display = "none"; });

1. Create a link that changes color when the user hovers over it and then back to its original color when the user moves the mouse away.

**Answer**:

HTML: <a id="colorChangeLink" href="#">Hover me</a> - JavaScript: javascript var colorChangeLink = document.getElementById("colorChangeLink"); colorChangeLink.addEventListener("mouseover", function() { colorChangeLink.style.color = "red"; }); colorChangeLink.addEventListener("mouseout", function() { colorChangeLink.style.color = "blue"; });

1. Create an event that scrolls to the top of the page when the user clicks on a link.

**Answer**:

HTML: <a id="scrollToTopLink" href="#">Scroll to Top</a> - JavaScript: javascript var scrollToTopLink = document.getElementById("scrollToTopLink"); scrollToTopLink.addEventListener("click", function() { window.scrollTo(0, 0); });

1. Create a link that plays a sound when the user clicks on it.

**Answer**:

HTML: <a id="playSoundLink" href="#">Play Sound</a> - JavaScript: javascript var playSoundLink = document.getElementById("playSoundLink"); var audio = new Audio("sound.mp3"); // Replace "sound.mp3" with the actual sound file playSoundLink.addEventListener("click", function() { audio.play(); });

1. Create a simple link that opens a new window when clicked.

**Answer**:

HTML: <a id="openNewWindowLink" href="#" target="\_blank">Open New Window</a> (Note: target="\_blank" opens a link in a new window)

1. Create a simple button that alert a message when clicked.

**Answer**:

HTML: <button id="alertButton">Click me for Alert</button> - JavaScript: javascript var alertButton = document.getElementById("alertButton"); alertButton.addEventListener("click", function() { alert("Button clicked!"); });

1. Create a button that changes color when the user hovers over it.

**Answer**:

HTML: <button id="colorChangeButton">Hover me</button> - JavaScript: javascript var colorChangeButton = document.getElementById("colorChangeButton"); colorChangeButton.addEventListener("mouseover", function() { colorChangeButton.style.backgroundColor = "red"; }); colorChangeButton.addEventListener("mouseout", function() { colorChangeButton.style.backgroundColor = "green"; });

1. Create a button that plays a sound when the user clicks on it.

**Answer**:

HTML: <button id="playSoundButton">Play Sound</button> - JavaScript: javascript var playSoundButton = document.getElementById("playSoundButton"); var audio = new Audio("sound.mp3"); // Replace "sound.mp3" with the actual sound file playSoundButton.addEventListener("click", function() { audio.play(); });

1. Create an event that alert a message when the user moves the mouse over an element.

**Answer**:

HTML: <div id="mouseOverElement">Mouse over me</div> - JavaScript: javascript var mouseOverElement = document.getElementById("mouseOverElement"); mouseOverElement.addEventListener("mouseover", function() { alert("Mouse over element!"); });

1. Create an event that hides an element when the user moves the mouse out of it.

**Answer**:

HTML: <div id="elementToHideOnMouseOut">Mouse out of me</div> - JavaScript: javascript var elementToHideOnMouseOut = document.getElementById("elementToHideOnMouseOut"); elementToHideOnMouseOut.addEventListener("mouseout", function() { elementToHideOnMouseOut.style.display = "none"; });

1. Create a link that opens a new window when the user clicks on it and then closes the window when the user clicks on a close button in the new window. The size of the new window should be determined by the user's mouse position.

**Answer**:

HTML: <a id="openCloseWindowLink" href="#">Open New Window</a> - JavaScript for opening and closing: javascript var openCloseWindowLink = document.getElementById("openCloseWindowLink"); var newWindow; openCloseWindowLink.addEventListener("click", function() { var windowWidth = window.innerWidth / 2; var windowHeight = window.innerHeight / 2; var left = window.screenX + windowWidth - 150; var top = window.screenY + windowHeight - 150; newWindow = window.open("", "", "width=300,height=300,left=" + left + ",top=" + top); newWindow.document.write("<button id='closeButton'>Close</button>"); var closeButton = newWindow.document.getElementById("closeButton"); closeButton.addEventListener("click", function() { newWindow.close(); }); });

**Chapter 49, 50 (Reading and Setting field values)**

1. Read the value of a user Input and print it to the console.

**Answer**:

<input type="text" id="userInput">

<button onclick="printUserInput()">Submit</button>

<script>

function printUserInput() {

var userInput = document.getElementById("userInput").value;

console.log("User Input: " + userInput);

}

</script>

1. Read the value of a checkbox and print it to the console

**Answer**:

<input type="checkbox" id="checkBox">

<button onclick="printCheckboxValue()">Submit</button>

<script>

function printCheckboxValue() {

var checkbox = document.getElementById("checkBox");

console.log("Checkbox Value: " + checkbox.checked);

}

</script>

1. Read the value of a select box and print it to the console.

**Answer**:

<select id="selectBox">

<option value="option1">Option 1</option>

<option value="option2">Option 2</option>

<option value="option3">Option 3</option>

</select>

<button onclick="printSelectValue()">Submit</button>

<script>

function printSelectValue() {

var select = document.getElementById("selectBox");

var selectedValue = select.options[select.selectedIndex].value;

console.log("Selected Value: " + selectedValue);

}

</script>

1. Place some text in a field. Make up an id for the field.

**Answer**:

<input type="text" id="customField">

<button onclick="fillCustomField()">Fill Field</button>

<script>

function fillCustomField() {

var customField = document.getElementById("customField");

customField.value = "Some text for the field";

}

</script>

1. Ask the user about Martial Status. If the variable married is false, place the value "available" in the field with the id "status"

**Answer**:

<input type="radio" name="maritalStatus" value="married"> Married

<input type="radio" name="maritalStatus" value="single"> Single

<input type="text" id="status">

<button onclick="fillStatusField()">Submit</button>

<script>

function fillStatusField() {

var married = document.querySelector('input[name="maritalStatus"]:checked').value === "married";

var statusField = document.getElementById("status");

if (!married) {

statusField.value = "available";

}

}

</script>

1. If a input is empty, fill it with a string.

**Answer**:

<input type="text" id="emptyField">

<button onclick="fillEmptyField()">Fill Field</button>

<script>

function fillEmptyField() {

var emptyField = document.getElementById("emptyField");

if (emptyField.value.trim() === "") {

emptyField.value = "Default";

}

}

</script>

1. Create a Registeration Form with Validation.

**Answer**:

<input type="text" id="emptyField">

<button onclick="fillEmptyField()">Fill Field</button>

<script>

function fillEmptyField() {

var emptyField = document.getElementById("emptyField");

if (emptyField.value.trim() === "") {

emptyField.value = "Default";

}

}

</script>

Create a Registration Form with Validation (a simplified example):

html

Copy code

<form id="registrationForm">

<label for="username">Username:</label>

<input type="text" id="username" required><br><br>

<label for="password">Password:</label>

<input type="password" id="password" required><br><br>

<button type="submit">Register</button>

</form>

<script>

document.getElementById("registrationForm").addEventListener("submit", function (e) {

e.preventDefault();

var username = document.getElementById("username").value;

var password = document.getElementById("password").value;

if (username.length < 6 || password.length < 8) {

alert("Username must be at least 6 characters long, and password must be at least 8 characters long.");

} else {

// Perform registration logic here

console.log("Registration successful");

}

});

</script>

**Chapter 51 (Reading and Setting paragraph text)**

1. How can I create a paragraph that expands when the user clicks on a Show More?

**Answer**:

HTML: <p id="expandableParagraph">This is some content that can be expanded.</p> <button onclick="expandParagraph()">Show More</button> - JavaScript: javascript function expandParagraph() { var paragraph = document.getElementById("expandableParagraph"); paragraph.style.overflow = "visible"; paragraph.style.height = "auto"; }

1. Read the text of a paragraph and use it to search for a specific word or phrase.

**Answer**:

HTML: <p id="searchParagraph">This is a paragraph with some text in it.</p> <input type="text" id="searchInput" placeholder="Search"> <button onclick="searchText()">Search</button> - JavaScript: javascript function searchText() { var paragraph = document.getElementById("searchParagraph").textContent; var searchWord = document.getElementById("searchInput").value; if (paragraph.includes(searchWord)) { console.log("Found: " + searchWord); } else { console.log(searchWord + " not found."); } }

1. Read the text of a paragraph and use it to find the longest word.

**Answer**:

HTML: <p id="longestWordParagraph">This is a paragraph with some words in it.</p> <button onclick="findLongestWord()">Find Longest Word</button> - JavaScript: javascript function findLongestWord() { var paragraph = document.getElementById("longestWordParagraph").textContent; var words = paragraph.split(" "); var longestWord = ""; for (var i = 0; i < words.length; i++) { if (words[i].length > longestWord.length) { longestWord = words[i]; } } console.log("Longest Word: " + longestWord); }

1. Set the text of a paragraph to the value of a text field, but only if the value is not empty.

**Answer**:

HTML: <input type="text" id="textField"> <button onclick="setText()">Set Text</button> - JavaScript: javascript function setText() { var textField = document.getElementById("textField"); var paragraph = document.getElementById("paragraphToSet"); var textValue = textField.value; if (textValue !== "") { paragraph.textContent = textValue; } }

1. Set the text of a paragraph to the value of a text field, but only if the value is equal to a specific word or phrase.

**Answer**:

HTML:<inputtype="text"id="textField"><button onclick="setText()">Set Text</button> - JavaScript: javascript function setText() { var textField = document.getElementById("textField"); var paragraph = document.getElementById("paragraphToSet"); var textValue = textField.value; if (textValue === "specificWordOrPhrase") { paragraph.textContent = textValue; } }

1. Set the text of a paragraph to the value of a text field, but only if the value is less than a certain length.

**Answer**:

HTML: <input type="text" id="textField"> <button onclick="setText()">Set Text</button> - JavaScript: javascript function setText() { var textField = document.getElementById("textField"); var paragraph = document.getElementById("paragraphToSet"); var textValue = textField.value; if (textValue.length < 10) { paragraph.textContent = textValue; } }

**Chapter 52 (Manipulating Images and Text)**

1. When the user clicks on the sentence, it turns bold.

**Answer**:

To make a sentence turn bold when clicked, you can use JavaScript to add a CSS class with font-weight: bold to the sentence element when it's clicked.

Here's an example in JavaScript:<br><br>javascript<br>const sentence = document.querySelector('your-sentence-selector');<br>sentence.addEventListener('click', () => {<br> sentence.classList.toggle('bold-text');<br>});<br><br>And in CSS, define a class like this:<br><br>css<br>.bold-text {<br> font-weight: bold;<br>}<br>

1. How can I make an image disappear when the user hovers over it and show text instead? When the user hovers off the image, the original image should reappear?

**Answer**:

You can achieve this by using CSS for the hover effect and toggling the visibility of the image and text. Here's an example:<br><br>css<br>.container {<br> position: relative;<br>}<br>.image {<br> display: block;<br>}<br>.text {<br> display: none;<br>}<br>.container:hover .image {<br> display: none;<br>}<br>.container:hover .text {<br> display: block;<br>}<br>```<br>With this CSS, when you hover over the container, the image will disappear (display: none), and the text will appear (display: block). When you hover off the container, the image will reappear, and the text will disappear.

1. When the user mouses over the heading, its background turns black, but it retains its original light gray color

**Answer**:

You can use CSS to achieve this effect by changing the background color on hover. Here's an example:<br><br>css<br>.heading {<br> background-color: lightgray;<br> transition: background-color 0.3s;<br>}<br>.heading:hover {<br> background-color: black;<br>}<br>```<br>

1. When user hover to a paragraph, Add a underline style to text.

**Answer**:

You can use CSS to add an underline style to text on hover. Here's an example:<br><br>css<br>p:hover {<br> text-decoration: underline;<br>}<br>```<br>

**Chapter 52 (Swapping Images)**

1. Swap the images when the user clicks on a button.

**Answer**:

(html) <img id="myImage" src="image1.jpg" alt="Image 1">

<button id="swapButton">Swap Image</button>

(JS) const imageElement = document.getElementById('myImage');

const swapButton = document.getElementById('swapButton');

// Array of image sources to swap between

const imageSources = ["image1.jpg", "image2.jpg", "image3.jpg"];

let currentImageIndex = 0;

// Add a click event listener to the button

swapButton.addEventListener('click', () => {

// Increment the current image index and ensure it stays within bounds

currentImageIndex = (currentImageIndex + 1) % imageSources.length;

// Set the new image source

imageElement.src = imageSources[currentImageIndex];

});