Coding for Kids - Intro Lab

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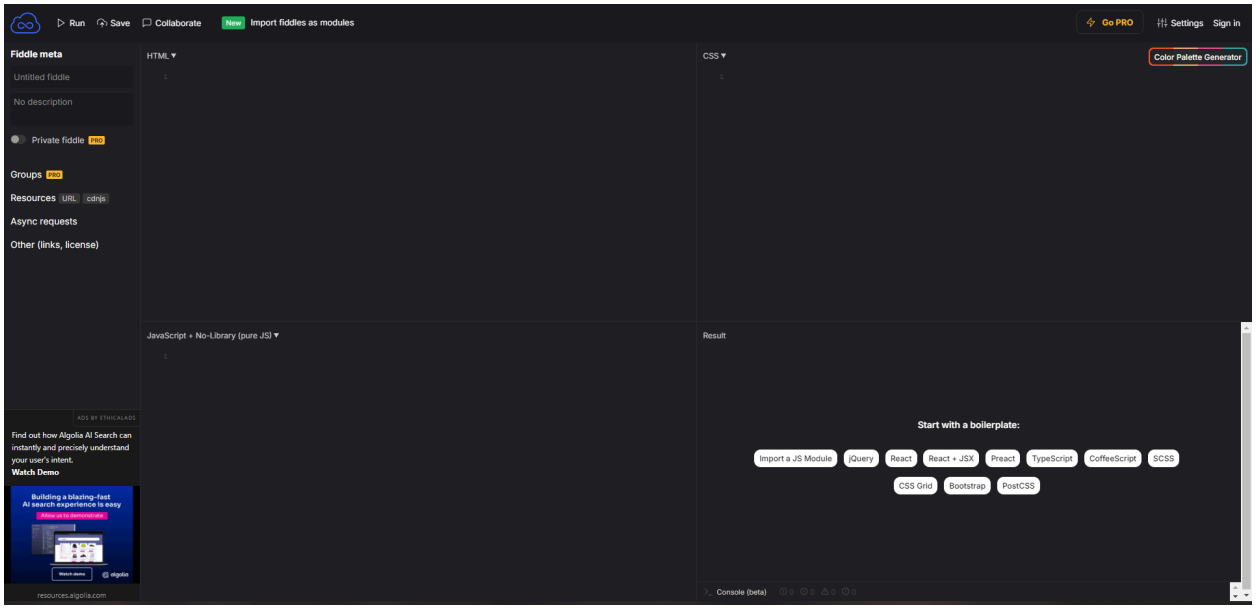
The best way to learn is by doing, so today, instead of learning a bunch of concepts all at once, we will be working on making a fun website. We'll learn the important ideas as we go along.

Step 1 - Go to JSFiddle - https://jsfiddle.net/



What is JSFiddle? JSFiddle is a website where you can write and test your code in a "sandbox." A sandbox is a safe place where you can play with code without worrying about breaking anything. It lets you see what your code does right away.

Step 2 - In the HTML area we want to type in this code:

```html
<div id="gameArea">
    <button id="catchMe">Catch me!</button>
</div>
<p>Score: <span id="score">0</span></p>
<p>Time Left: <span id="timeLeft">30</span> seconds</p>
```

What is HTML? HTML stands for HyperText Markup Language. It's like the skeleton of your website that tells the computer what to display on the screen. It's how you add things like text, buttons, and images to your website.

Step 3 - In the CSS area of JSFiddle, type in this markup (another word for code):

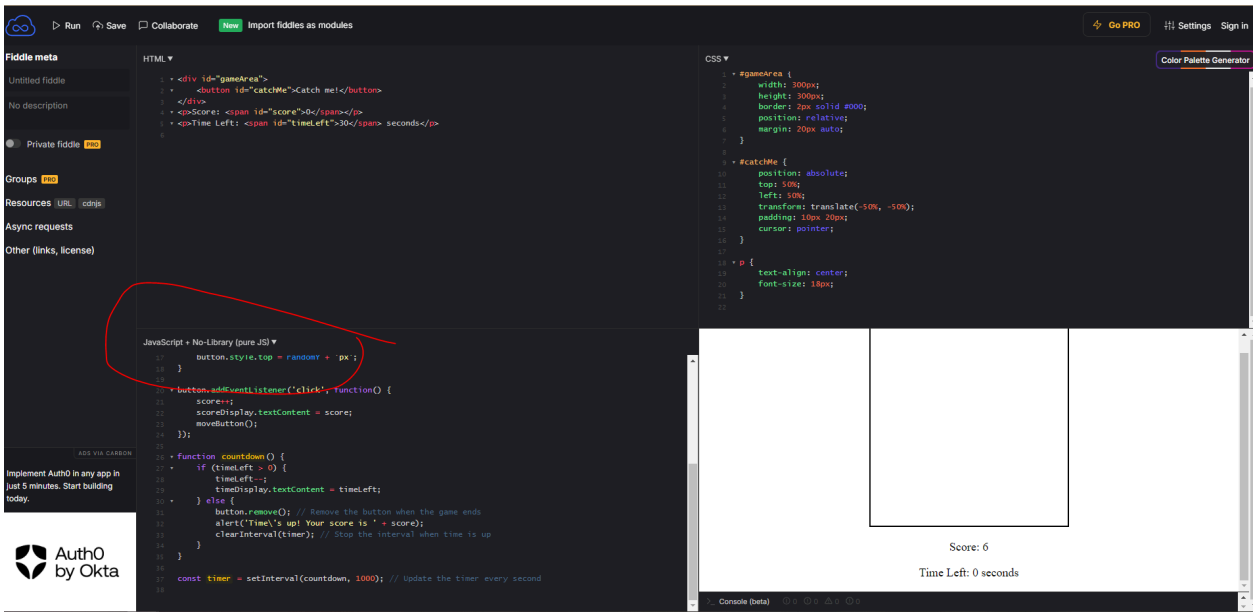
```css
#gameArea {
    width: 300px;
    height: 300px;
    border: 2px solid #000;
    position: relative;
    margin: 20px auto;
}

#catchMe {
    position: absolute;
    top: 50%;
    left: 50%;
    transform: translate(-50%, -50%);
    padding: 10px 20px;
    cursor: pointer;
}

p {
    text-align: center;
    font-size: 18px;
}
```

What is CSS? CSS stands for Cascading Style Sheets. It's like the clothes and decorations for your website. CSS makes everything look nice by changing colors, sizes, and positions of the things you added with HTML.

Step 4 - JavaScript - This is the main logic for the game, including moving the button, updating the score, and handling the timer.

What is JavaScript? JavaScript is the brain of your website. It makes things happen, like moving buttons, keeping score, and counting down time. It's what makes your website interactive and fun to use.

For the following part you will type in the code into the JavaScript Panel



First Declare Variables

```
let score = 0; // This stores your score
let timeLeft = 30; // This stores the time left
```

What are Variables? Variables are like boxes that store information. You can put numbers, text, or other data inside them, and then use that data later in your code.

Make Buttons

```
const button = document.getElementById('catchMe');
const scoreDisplay = document.getElementById('score');
const timeDisplay = document.getElementById('timeLeft');
const gameArea = document.getElementById('gameArea');
```

Now we will work with Functions

What is a Function? A function is like a recipe. It's a set of instructions that the computer follows to do something. You can create a function once and use it over and over. Brackets in functions are used to define the parameters of the function. Parameters are the inputs that the function takes.

Program the function of the buttons

```
function moveButton() {
    const areaWidth = gameArea.clientWidth;
    const areaHeight = gameArea.clientHeight;

    const randomX = Math.random() * (areaWidth - button.clientWidth);
    const randomY = Math.random() * (areaHeight - button.clientHeight);

    button.style.left = randomX + 'px';
    button.style.top = randomY + 'px';
}
```

Add a listener for the buttons

```
button.addEventListener('click', function() {
    score++;
    scoreDisplay.textContent = score;
    moveButton();
});
```

What is an Event Listener? An event listener waits for something to happen, like a button click, and then tells the computer what to do when it happens.

Create a GameClock

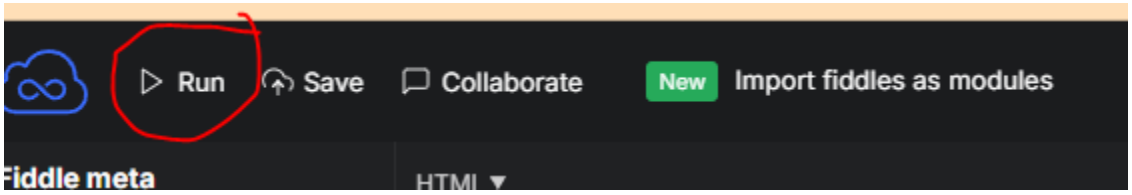
```
function countdown() {
    if (timeLeft > 0) {
        timeLeft--;
        timeDisplay.textContent = timeLeft;
    } else {
        button.remove(); // Remove the button when the game ends
        alert('Time\'s up! Your score is ' + score);
        clearInterval(timer); // Stop the interval when time is up
    }
}
```

Make it count down

```
const timer = setInterval(countdown, 1000); // Update the timer every second
```

Now Test your code, click the Run Button

Now that you've written your code, it's time to see it in action! Click the "Run" button at the top of JSFiddle and play your game.



Challenge - To challenge you, you should customize the code.

- **Change the button text in the HTML (e.g., `Catch me!` to `Gotcha!`).**
- **Modify the colors in the CSS.**
- **Add a reset button in the HTML and JavaScript to restart the game.**