Javascript fundamentals

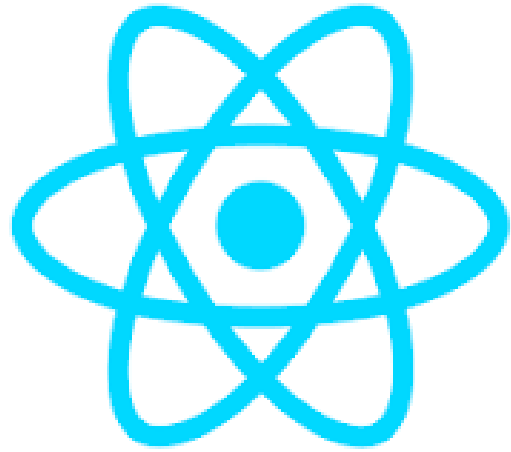Simran Makhija

What is JavaScript?

JavaScript is a scripting or programming language that allows you to implement complex features on web pages.

Why JavaScript?

Now that's a long answer question!

JavaScript for frontend web development

There is an abundance of frameworks and libraries for Single Page Application development in JavaScript
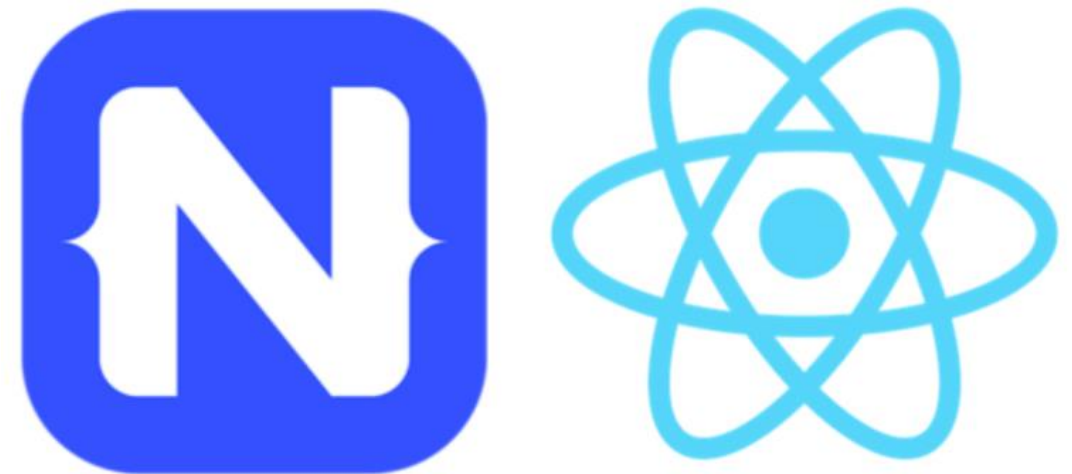
JavaScript for backend development

JavaScript for mobile app development

JavaScript for Desktop Apps
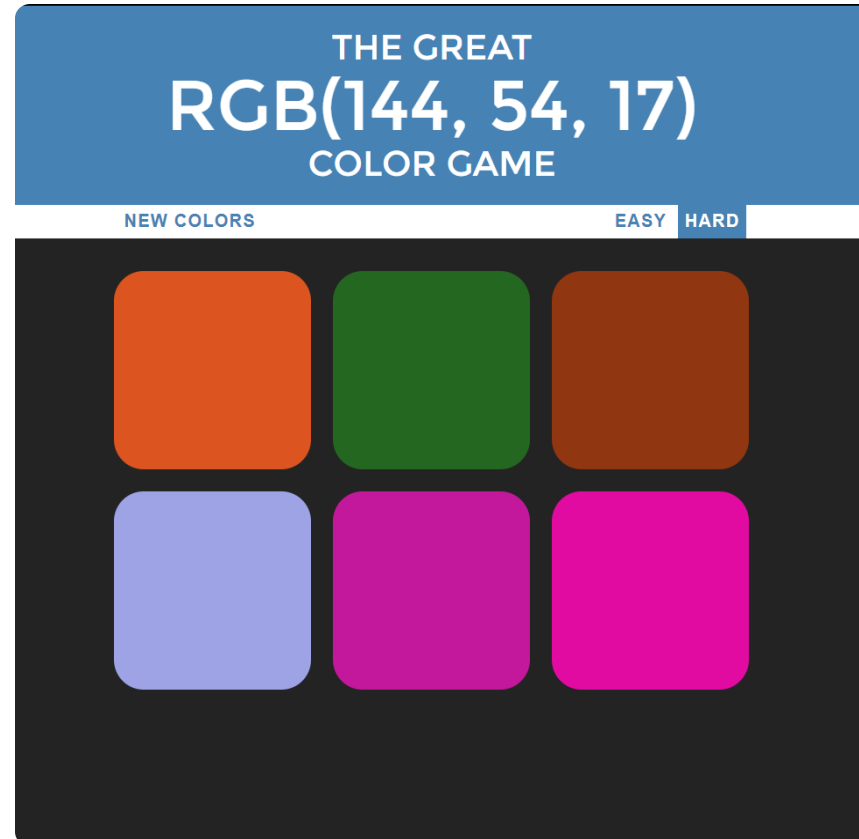
JavaScript for ML

TensorFlow.js

Bangle.js

What are we up to today?

A small little color guessing game!

THE GREAT
RGB(144, 54, 17)
COLOR GAME

NEW COLORS   EASY **HARD**

```javascript
var numSquares = 6;
var colors = [];
var pickedColor;
var squares = document.querySelectorAll(".square");
var colorDisplay = document.getElementById("colorDisplay");
var messageDisplay = document.querySelector("#message");
var h1 = document.querySelector("h1");
var resetButton = document.querySelector("#reset");
var modeButtons = document.querySelectorAll(".mode");
```

Declaring
variables

Generating random colors

```javascript
function generateRandomColors(num){
    //make an array
    var arr = []
    //repeat num times
    for(var i = 0; i < num; i++){
        //get random color and push into arr
        arr.push(randomColor())
    }
    //return that array
    return arr;
}
```

```javascript
function randomColor(){
    //pick a "red" from 0 - 255
    var r = Math.floor(Math.random() * 256);
    //pick a "green" from  0 -255
    var g = Math.floor(Math.random() * 256);
    //pick a "blue" from  0 -255
    var b = Math.floor(Math.random() * 256);
    return "rgb(" + r + ", " + g + ", " + b + ")";
}
```

```
function pickColor(){
    var random = Math.floor(Math.random() * colors.length);
    return colors[random];
}
```

Pick a color from
the 3/6 available

Setting up the squares' click listeners

```javascript
function setupSquares(){
    for(var i = 0; i < squares.length; i++){
    //add click listeners to squares
        squares[i].addEventListener("click", function(){
            //grab color of clicked square
            var clickedColor = this.style.background;
            //compare color to pickedColor
            if(clickedColor === pickedColor){
                messageDisplay.textContent = "Correct!";
                resetButton.textContent = "Play Again?"
                changeColors(clickedColor);
                h1.style.background = clickedColor;
            } else {
                this.style.background = "#232323";
                messageDisplay.textContent = "Try Again"
            }
        });
    }
}
```

```javascript
function changeColors(color){
    //loop through all squares
    for(var i = 0; i < squares.length; i++){
        //change each color to match given color
        squares[i].style.background = color;
    }
}
```

Change colors of
all squares

Setting up modes

```
function setupModeButtons(){
    for(var i = 0; i < modeButtons.length; i++){
        modeButtons[i].addEventListener("click", function(){
            modeButtons[0].classList.remove("selected");
            modeButtons[1].classList.remove("selected");
            this.classList.add("selected");
            this.textContent === "Easy" ? numSquares = 3: numSquares = 6;
            reset();
        });
    }
}
```

```javascript
function reset(){
    colors = generateRandomColors(numSquares);
    //pick a new random color from array
    pickedColor = pickColor();
    //change colorDisplay to match picked Color
    colorDisplay.textContent = pickedColor;
    resetButton.textContent = "New Colors";
    messageDisplay.textContent = "";
    //change colors of squares
    for(var i = 0; i < squares.length; i++){
        if(colors[i]){
            squares[i].style.display = "block"
            squares[i].style.background = colors[i];
        } else {
            squares[i].style.display = "none";
        }
    }
    h1.style.background = "steelblue";
}
```

Resetting

We're done!