UNIVERSITI MALAYSIA TERENGGANU

CSM3103 FRONT-END PROGRAMMING (K1)

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 4 – JAVA SCRIPT

SEMESTER 4 2023/2024

Prepared for:

DR. RABIEIL B MAMAT

Prepared by:

NUR ARINA BINTI ABDUL MALEK (S65361)

Lab 4

Task 1 – JavaScript Function

1. Write a function to find the square of a given number

```
function squareNumber(number) {
   return number * number;
     }
```

2. Write a function to find sum of cubes of two numbers

```
function sumOfCubes(num1, num2) {
   return Math.pow(num1, 3) + Math.pow(num2, 3);
     }
```

3. Write a function to reverse a number
   [Hint n =12345 output : 54321]

```
function reverseNumber(number) {
   let reversed = 0;
   while (number > 0) {
      reversed = reversed * 10 +
    (number % 10);
      number = Math.floor(number / 10);
   }
   return reversed;
     }
```

4. Write a function to print all numbers between 1 and 100 which is divisible by given number z

```
function printDivisibleNumbers(z) {
   for (let i = 1; i <= 100; i++) {
      if (i % z === 0) {
         console.log(i);
      }
    }
    }
```

Task 2 - JavaScript Recursion Function

1. Write a JavaScript function to find sum of digits of a number

```
function sumOfDigits(number) {
    let sum = 0;
    while (number > 0) {
        sum += number % 10;
        number = Math.floor(number / 10);
    }
    return sum;
      }
```

2. Write a JavaScript program to compute x raise to the power y using recursion

```
function power(x, y) {
   if (y === 0) {
      return 1;
   } else if (y > 0) {
      return x * power(x, y - 1);
   } else {
      return 1 / power(x, -y);
   }
    }
```

Task 3 – JavaScript Object and Prototype

1. Write a JavaScript program to create object product,
    a. Add the property Product Name, Quantity and price.
    b. Access all the properties and display them.

```
let product = {
   productName: "Laptop",
   quantity: 5,
   price: 1000
};

console.log("Product Name:", product.productName);
console.log("Quantity:", product.quantity);
     console.log("Price:", product.price);
```

2. Write a JavaScript program to create object book
    a. Add the property book name, author name
    b. Add the prototype property price .
    c. Display all the properties.

```
let book = {
   bookName: "JavaScript Programming",
   authorName: "John Doe"
};

book.__proto__.price = 50;

console.log("Book Name:", book.bookName);
console.log("Author Name:", book.authorName);
     console.log("Price:", book.price);
```

3. Write a JavaScript program to create Parent object employee (Property : Employee Name , Employee Id , Salary) and Child object Manager (Property : Manager Name , Branch). Inherit all the properties of employee and display all the properties.

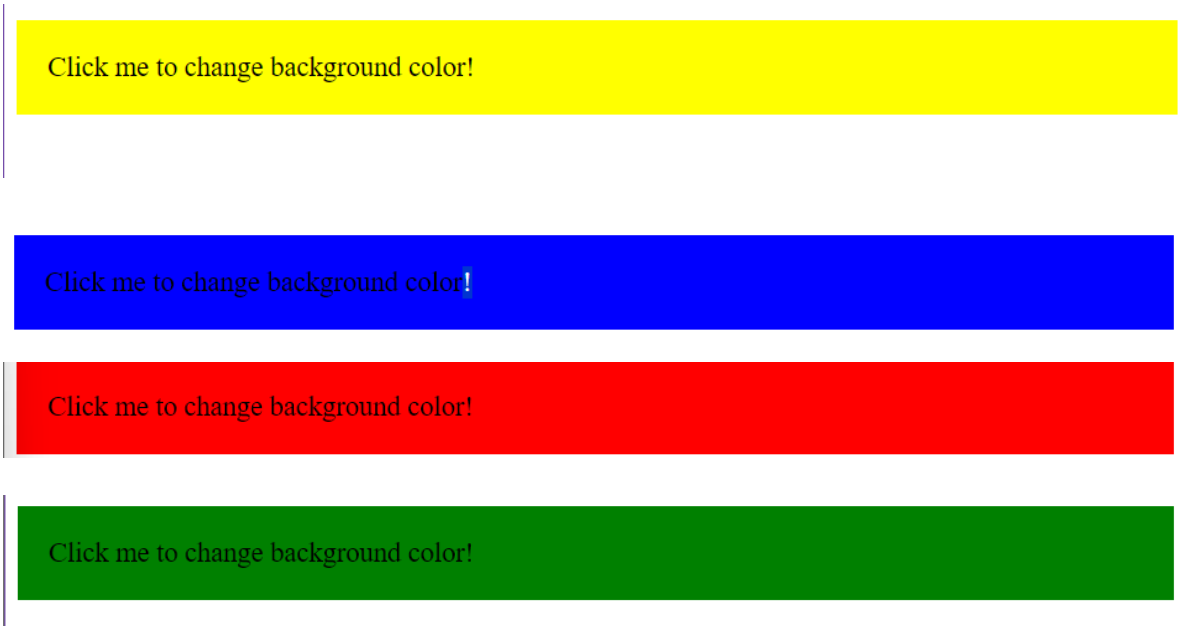
```
let employee = {
   employeeName: "John Smith",
   employeeId: 12345,
   salary: 50000
};

let manager = Object.create(employee);
manager.managerName = "Alice Johnson";
manager.branch = "Sales";

console.log("Employee Name:", manager.employeeName);
console.log("Employee ID:", manager.employeeId);
console.log("Salary:", manager.salary);
console.log("Manager Name:", manager.managerName);
     console.log("Branch:", manager.branch);
```

Task 4 – Event Manager

1. Create a HTML page with <p> paragraph. Change the paragraph color according to the following mouse events
    a. Onclick, yellow background
    b. ondblclick, blue background
    c. onmouseover , red background
    d. onmouseout, green background

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Change Paragraph Color</title>
<style>
    p {
        padding: 20px;
        font-size: 18px;
        cursor: pointer; /* Change cursor to pointer to indicate clickable */
    }
</style>
</head>
<body>

<p id="colorChange">Click me to change background color!</p>

<script>
    // Get the paragraph element by its id
    let paragraph = document.getElementById("colorChange");

    // Add event listeners for different mouse events
    paragraph.onclick = function() {
        this.style.backgroundColor = "yellow";
    };

    paragraph.ondblclick = function() {
        this.style.backgroundColor = "blue";
    };

    paragraph.onmouseover = function() {
        this.style.backgroundColor = "red";
    };
```

```
35
36      paragraph.onmouseout = function() {
37          this.style.backgroundColor = "green";
38      };
39  </script>
40
41  </body>
42  </html>
43
```



2. Create a HTML page with textfield. Show some effects on the textfield when the following events occurred:
    a. Onchange
    b. Onfocus
    c. Onblur

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Text Field Effects</title>
<style>
    input[type="text"] {
        padding: 10px;
        font-size: 16px;
        border: 1px solid #ccc;
        transition: border-color 0.3s ease;
    }

    input[type="text"]:focus {
        border-color: blue;
        box-shadow: 0 0 5px rgba(0, 0, 255, 0.5);
    }
</style>
</head>
<body>

<label for="textField">Enter your text:</label>
<input type="text" id="textField">

<script>
    // Get the text field element by its id
    let textField = document.getElementById("textField");

    // Add event listeners for different events
    textField.onchange = function() {
        this.style.backgroundColor = "yellow";
    };

    textField.onfocus = function() {
        this.style.border = "2px solid green";
    };

    textField.onblur = function() {
        this.style.border = "1px solid #ccc";
    };
</script>

</body>
</html>

```

Enter your text: hi

Task 5

Given the following HTML table

1	Ahmad Faisal	ahmadfaisal@gmail.com	0199088888
2.	Ismail Sabri	isabri@mail.com	0199076760
3	Fateh Yakin	ffateh@hotmail.com	0176067762

1. Using javascript add the following record into table
    a. Name: Mukhriz Jamil Asoka
    b. Email: mukriz@corp.jo
    c. Phone: 651181187223
2. Using javascript add the table header as follow:
    a. #, Name, Email, Phone #
3. Using javascript, delete any row from table when clicked on that row

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Table Manipulation</title>
<style>
  /* CSS style for blue color and underline for email */
  .blue-email {
    color: blue;
    text-decoration: underline;
  }
</style>
</head>
<body>

<table id="myTable" border="1">
  <!-- Table header will be added dynamically -->
</table>

<script>
  // Function to add a new row to the table
  function addRow(name, email, phone) {
    let table = document.getElementById("myTable");
    let newRow = table.insertRow(-1); // Insert new row at the end (-1)
    let cell1 = newRow.insertCell(0);
    let cell2 = newRow.insertCell(1);
    let cell3 = newRow.insertCell(2);
    let cell4 = newRow.insertCell(3);
    cell1.innerHTML = table.rows.length - 1; // Auto-increment for #
    cell2.innerHTML = name;
    cell3.innerHTML = `<span class="blue-email">${email}</span>`; // Email with blue color and underline
    cell4.innerHTML = phone;
```

```
    // Add event listener to delete row when clicked
    newRow.addEventListener("click", function() {
      table.deleteRow(newRow.rowIndex);
    });
  }

  // Function to add table header dynamically
  function addTableHeader() {
    let table = document.getElementById("myTable");
    let headerRow = table.insertRow(0); // Insert at the beginning (index 0)
    let headers = ["#", "Name", "Email", "Phone #"];
    for (let i = 0; i < headers.length; i++) {
      let headerCell = headerRow.insertCell(i);
      headerCell.innerHTML = headers[i];
    }
  }

  // Add the new record and table header
  addRow("Ahmad Faisal", "ahmadfaisal@gmail.com", "0199088888");
  addRow("Ismail Sabri", "isabri@mail.com", "0199076760");
  addRow("Fateh Yakin", "ffateh@hotmail.com", "0176067762");
  addRow("Mukhriz Jamil Asoka", "mukriz@corp.jo", "651181187223");

  addTableHeader();
</script>

</body>
</html>
```

#	Name	Email	Phone #
0	Ahmad Faisal	ahmadfaisal@gmail.com	0199088888
1	Ismail Sabri	isabri@mail.com	0199076760
2	Fateh Yakin	ffateh@hotmail.com	0176067762
3	Mukhriz Jamil Asoka	mukriz@corp.jo	651181187223

#	Name	Email	Phone #
0	Ahmad Faisal	ahmadfaisal@gmail.com	0199088888
1	Ismail Sabri	isabri@mail.com	0199076760

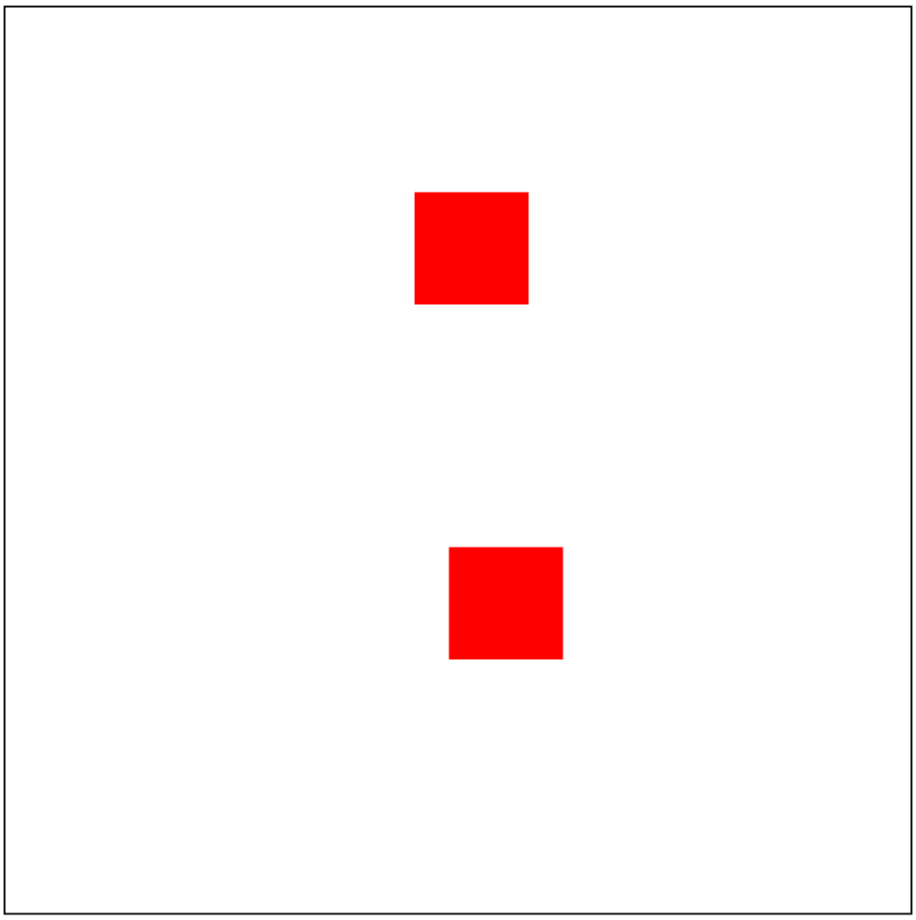
Task 6

Write a JavaScript program to move two small squares inside one big square in a random manner. User should be able to start and stop this animationusing button based events

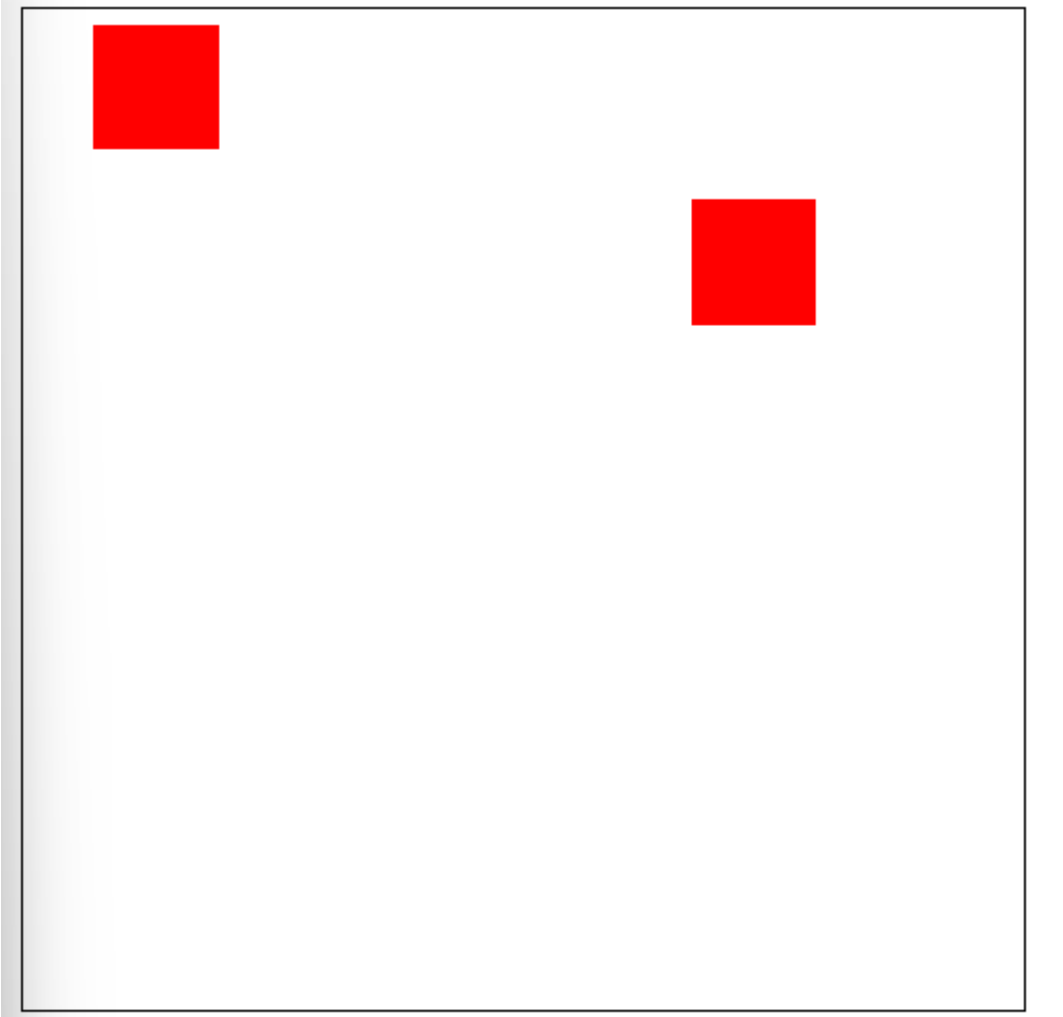
Math.floor(Math.random() * Math.floor(max)) will give you a random number that is less than max value

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Move Squares Animation</title>
<style>
  #container {
    position: relative;
    width: 400px;
    height: 400px;
    border: 1px solid black;
  }

  .square {
    position: absolute;
    width: 50px;
    height: 50px;
    background-color: red;
    transition: all 0.5s ease;
  }

  #startBtn, #stopBtn {
    margin-top: 10px;
    padding: 5px 10px;
    cursor: pointer;
  }
</style>
</head>
<body>

<div id="container">
  <div class="square" id="square1" style="top: 50px; left: 50px;"></div>
  <div class="square" id="square2" style="top: 200px; left: 200px;"></div>
</div>

<button id="startBtn">Start Animation</button>
<button id="stopBtn">Stop Animation</button>

<script>
  let square1 = document.getElementById("square1");
  let square2 = document.getElementById("square2");
  let container = document.getElementById("container");
  let animationInterval;

  document.getElementById("startBtn").addEventListener("click", startAnimation);
  document.getElementById("stopBtn").addEventListener("click", stopAnimation);

  function startAnimation() {
    animationInterval = setInterval(moveSquares, 1000);
  }

  function stopAnimation() {
    clearInterval(animationInterval);
  }

  function moveSquares() {
    let maxX = container.offsetWidth - square1.offsetWidth;
    let maxY = container.offsetHeight - square1.offsetHeight;
    let randomX1 = Math.floor(Math.random() * maxX);
    let randomY1 = Math.floor(Math.random() * maxY);
    let randomX2 = Math.floor(Math.random() * maxX);
    let randomY2 = Math.floor(Math.random() * maxY);

```

```
64
65      square1.style.left = randomX1 + "px";
66      square1.style.top = randomY1 + "px";
67      square2.style.left = randomX2 + "px";
68      square2.style.top = randomY2 + "px";
69    }
70  </script>
71
72  </body>
73  </html>
74
```



Start Animation | Stop Animation


Start Animation
Stop Animation