NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

SL3003 - Web Engineering Lab

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Lab 4

Aim: - Introduction to JavaScript (JS)

How to add JavaScript to html:

External:

```
<script src="myScript.js"></script>
```

```
<script src="https://www.abc.com/asd/script.js"></script>
```

Internal:

```
<script>
document.getElementById("demo").innerHTML = "This is JavaScript";
</script>
```

Syntax:

```
<script>
document.write(10);
</script>
```

_____

```
<h2>A heading</h2>
<p>A paragraph.</p>

<button type="button" onclick="document.write(10)">Click Me!</button>
```

_____

```
window.alert("This is an Alert")

console.log("This is Console Log")
```

Comments:

Single-line comments —   //

Multi-line comments —   /* and */

Data Types

- Numbers —   var age = 23
- Variables —   var x
- Text (strings) —   var a = "init"
- Operations —   var b = 1 + 2 + 3
- Boolean —   var c = true
- Objects —   var name = {firstName:"John", lastName:"Doe"}
- Arrays —   var name = [1,2,3,4,5]

Basic Operators

- + —   Addition
- - —   Subtraction
- * —   Multiplication
- / —   Division
- % —   Modulus (remainder)
- ++ —   Increment numbers
- -- —   Decrement numbers

Comparison Operators

- == —   Equal to
- === —   Equal value and equal type
- != —   Not equal
- !== —   Not equal value or not equal type
- > —   Greater than
- < —   Less than
- >= —   Greater than or equal to
- <= —   Less than or equal to

Logical Operators

- && —   Logical and
- || —   Logical or
- ! —   Logical not

Functions

function name(parameter1, parameter2, parameter3) {
   // what the function does
}

Outputting Data

- alert()
- confirm()
- console.log()
- document.write()
- prompt()

JavaScript Loops

```
for (var i  ;   i<5  ;  i++) {
    // what to do during the loop
}
```

You have several parameters to create loops:
- For
- While
- do while
- Break
- continue

If – Else Statements

```
if (condition) {
    // what to do if condition is met
} else {
    // what to do if condition is not met
}
```

JavaScript Events

Events are things that can happen to HTML elements and are performed by the user. The programming language can listen for these events and trigger actions in the code. No JavaScript cheat sheet would be complete without them.

Mouse

- onclick — The event occurs when the user clicks on an element
- oncontextmenu — User right-clicks on an element to open a context menu
- ondblclick — The user double-clicks on an element
- onmousedown — User presses a mouse button over an element
- onmouseenter — The pointer moves onto an element
- onmouseleave — Pointer moves out of an element
- onmousemove — The pointer is moving while it is over an element
- onmouseover — When the pointer is moved onto an element or one of its children
- onmouseout — User moves the mouse pointer out of an element or one of its children
- onmouseup — The user releases a mouse button while over an element

Keyboard

- onkeydown — When the user is pressing a key down
- onkeypress — The moment the user starts pressing a key
- onkeyup — The user releases a key

Task :

Currency Converter

| Dollar ∨ | **TO** | Pak Rupees ∨ |

| Enter Amount | calculate | output |

Prime numbers upto this amount:
2, 3, 5, 7, 11, 13, 17, 19

Even numbers upto this amount:
2,4,6,8,10,12,14,16,18,20

Index of Prime Number = 3

Index of Even Number = 7

Index of Prime Number is "less than" Index of Even Number

<u>Please refer to the instructions on next page</u>

Instructions:

- There are three currencies (Dollar , Euro , Pak Rupees)

  1 Dollar = 176.25 Pak Rupees
  1 Euro = 199.77 Pak Rupees
  1 Dollar = 0.88 Euro

- User can select any currency from both currency dropdowns
- User can Enter any number in 'Enter Amount' input box
- When the user clicks calculate, the calculated amount is shown in the output box. This output box is read-only. User can not write anything in it.
- Prime numbers and Even numbers are displayed in the box below the calculator. These numbers must not exceed the entered number.
- When the user hovers on a number, its position is displayed in the below fields i.e. Prime and Even. Position should start from 1.
- If the user hovers a prime number and an even number both, the line below should say if the position of the prime number is less than or greater than the even number or if they are equal.

To make the index part easier for you, the code below will REALLY help:

```
<script>

const cars = ["Corolla", "Civic", "Mehran"];
var str = ""

for(var i=0; i<cars.length; i++){
      str = str+"<span id="+i+" onclick='alert(this.id)'>"+cars[i]+"</span>";
}

</script>
```

NOTE:
- YOU WILL GET MORE THAN 2 HOURS to perform this task.
- NO SUBMISSION WILL BE ACCEPTED AFTER 10:45 am

The End...!