

SOP 1 — Events & Timers (Page 1)

Question: Create a web page in HTML having a white background and two Button Objects. Write code using JavaScript such that when the mouse is placed over the first button object without clicking, the color of the background of the page should change after every second. There should at least be 7 different and visibly distinct background colors excluding the default color. When the second button object is clicked, appropriate message should be displayed in Browsers status bar. Create another web page using JavaScript where the background color changes automatically after every second on page load, and an alert is displayed on page unload.

File: sop1_buttons.html

*** Client side Script ***

```
<html>
<body bgcolor="white">
<h3>Background Color Changer – Mouseover & Click</h3>
<input type="button" id="b1" value="Start (mouseover)">
<input type="button" id="b2" value="Show Status (click)">

<script type="text/javascript">
var colors = ["red","orange","yellow","green","blue","indigo","violet","pink"];
var idx = 0;
var timer = null;
var defaultBg = "white";

function startCycle(){
    if(timer!==null) return;
    timer = setInterval(function(){
        document.body.style.backgroundColor = colors[idx % colors.length];
        idx++;
    }, 1000);
}
function stopCycle(){
    if(timer!==null){ clearInterval(timer); timer=null; }
    idx = 0;
    document.body.style.backgroundColor = defaultBg;
}

document.getElementById("b1").onmouseover = startCycle;
document.getElementById("b1").onmouseout  = stopCycle;

document.getElementById("b2").onclick = function(){
    window.status = "Second button clicked – status updated."; // legacy
    alert("Second button clicked – status updated.");
};
</script>
</body>
</html>
```

SOP 1 — Auto Change (Page 2)

Question: Create a web page in HTML having a white background and two Button Objects. Write code using JavaScript such that when the mouse is placed over the first button object without clicking, the color of the background of the page should change after every second. There should at least be 7 different and visibly distinct background colors excluding the default color. When the second button object is clicked, appropriate message should be displayed in Browsers status bar. Create another web page using JavaScript where the background color changes automatically after every second on page load, and an alert is displayed on page unload.

File: sop1_auto.html

```
*** Client side Script ***
```

```
<html>
<body bgcolor="white" onload="begin()" onunload="alert('Thanks for visiting! Page is unloading...')">
<h3>Auto Background Color Changer – On Load</h3>

<script type="text/javascript">
var colors = ["red","orange","yellow","green","blue","indigo","violet","pink"];
var i=0;
function begin(){
    setInterval(function(){
        document.body.style.backgroundColor = colors[i % colors.length];
        i++;
    }, 1000);
}
</script>
</body>
</html>
```

SOP 2 — HTML5 Validations

Question: Create JavaScript program for the following form validations. Make use of HTML5 properties to do the following validations.

File: sop2_validations.html

*** Client side Script ***

```
<html>
<head><title>Student Form</title></head>
<body>
<h1>Student Information</h1>
<form name="form1">
Enter Name: <input type="text" name="t1">
<br><br>
Enter Address:
<textarea name="t2" placeholder="RESIDENTIAL ADDRESS">
</textarea>
<input type="tel" name="tel" maxlength="10" pattern="[0-9]{10}" required p
<br><br>
Enter Telephone Number:
<input type="tel" maxlength="10">
<br><br>
Enter Email Address
<input type="email" name="t3" pattern="[A-Z,a-z]{5}-[@]{1}-[.]{1}"
placeholder="aus123@gmail.com">
<br><br>
<input type="button" name="b1" value="Submit" onClick="chk()">
</form>
<script type="text/javascript">
function chk()
{
var x=form1.t3.value;
var atpos=x.indexOf("@");

var lastat=x.lastIndexOf("@");
var firstdot=x.indexOf(".");
var dotpos =x.lastIndexOf(".");
if(atpos<1 || dotpos<atpos+2 || dotpos+2>=x.length || firstdot<atpos ||
atpos<lastat)
{
alert("Not a valid email address");
form1.t3.focus();
}
else
{
alert("Email address is accepted");
return true;
}
</script>
</body>
</html>
```

SOP 3 — String Task (Vowels)

Question: Create event driven JavaScript program for the following. Make use of appropriate variables, JavaScript inbuilt string functions and control structures.

File: sop3_vowels.html

*** Client side Script ***

```
<html>
<body>
<h3>Count Vowels</h3>
<form name="frm1">
Enter text: <input type="text" name="t1">
<input type="button" value="Count Vowels" onclick="cnt()">
</form>
<script type="text/javascript">
function cnt(){
    var s=document.frm1.t1.value;
    var c=0;
    for(var i=0;i<s.length;i++){
        var ch=s.charAt(i).toLowerCase();
        if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u'){ c++; }
    }
    alert("Number of Vowels in string are "+c);
}
</script>
</body>
</html>
```

SOP 4 — String Task (Palindrome)

Question: Create event driven JavaScript program for the following. Make use of appropriate variables, JavaScript inbuilt string functions and control structures.

File: sop4_palindrome.html

*** Client side Script ***

```
<html>
<body>
<h3>Check Palindrome</h3>
<form name="f1">
Enter text: <input type="text" name="t1">
<input type="button" value="Check" onclick="chk_palindrome()">
</form>
<script type="text/javascript">
function chk_palindrome(){
    var str=document.f1.t1.value;
    var s=str.toLowerCase();
    var p=1;
    for(var i=0;i<s.length/2;i++){
        if(s.charAt(i)!=s.charAt(s.length-1-i)){ p=0; break; }
    }
    if(p==1) alert("Entered string is Palindrome");
    else alert("Entered string is Not a Palindrome");
}
</script>
</body>
</html>
```

SOP 5 — Temperature Converter

Question: Create event driven JavaScript program to convert temperature to and from Celsius, Fahrenheit.

File: sop5_temp.html

*** Client side Script ***

```
<html>
<body>
<h3>Celsius ↔ Fahrenheit</h3>
Enter Celsius: <input type="text" id="c" onkeyup="convert('C')">
<br><br>
Enter Fahrenheit: <input type="text" id="f" onkeyup="convert('F')">
<p><i>Note: Math.round() is used to return integers.</i></p>
<script type="text/javascript">
function convert(degree){
    var x;
    if(degree=="C"){
        x=document.getElementById("c").value*9/5+32;
        document.getElementById("f").value=Math.round(x);
    }else{
        x=(document.getElementById("f").value-32)*5/9;
        document.getElementById("c").value=Math.round(x);
    }
}
</script>
</body>
</html>
```

SOP 6 — Average & Grade (6 subjects)

Question: Create JavaScript program which compute the average marks of students. Accept six subject marks of student from user. Calculate average marks of student which is used to determine the corresponding grades.

File: sop6_average.html

*** Client side Script ***

```
<html>
<body>
<h3>Average & Grade - 6 Subjects</h3>
<form name="frml">
English: <input type="number" name="t1"><br><br>
Maths: <input type="number" name="t2"><br><br>
Physics: <input type="number" name="t3"><br><br>
Chemistry: <input type="number" name="t4"><br><br>
IT: <input type="number" name="t5"><br><br>
Biology: <input type="number" name="t6"><br><br>
<input type="button" value="Print Grade" onclick="grade()">
</form>
<script type="text/javascript">
function grade(){
    var m1=+frml.t1.value, m2=+frml.t2.value, m3=+frml.t3.value, m4=+frml.t4.value, m5=+frml.t
    var a=(m1+m2+m3+m4+m5+m6)/6;
    alert("Average Marks of Student is "+a);
    if(a>=91) alert("Grade A");
    else if(a>=81) alert("Grade B");
    else if(a>=71) alert("Grade C");
    else if(a>=61) alert("Grade D");
    else if(a>=35) alert("Grade F");
    else alert("Not Promoted");
}
</script>
</body>
</html>
```

SOP 7 — Date Difference (dd mm yyyy)

Question: Write a JavaScript function to get difference between two dates in days. Create a page in HTML that contains input box to accept date from user in the format dd-mm-yyyy (no dropdowns).

File: sop7_datediff.html

*** Client side Script ***

```
<html>
<body>
<h3>Date Difference (days)</h3>
<form name="form_task" onsubmit="return false;">
Date1: <input type="text" name="d1" placeholder="dd-mm-yyyy"><br><br>
Date2: <input type="text" name="d2" placeholder="dd-mm-yyyy"><br><br>
<input type="button" value="Submit" onclick="getDays(form_task.d1.value, form_task.d2.value)" />
</form>
<p id="out"></p>
<script type="text/javascript">
function getDays(d1, d2){
    function parseDMY(s){
        var day = s.slice(0,2), mon = s.slice(3,5), yr = s.slice(6,10);
        return new Date(yr, mon-1, day);
    }
    var dt1 = parseDMY(d1), dt2 = parseDMY(d2);
    var one_day = 1000*60*60*24;
    var diff = Math.round((dt2.getTime()-dt1.getTime())/one_day);
    document.getElementById("out").innerHTML = "Difference (days): " + diff;
}
</script>
</body>
</html>
```


