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19BCE245

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## Practical 6

- A. Write a JavaScript function that read an integer value and finds the factorial of the entered number.

### practical6a.html

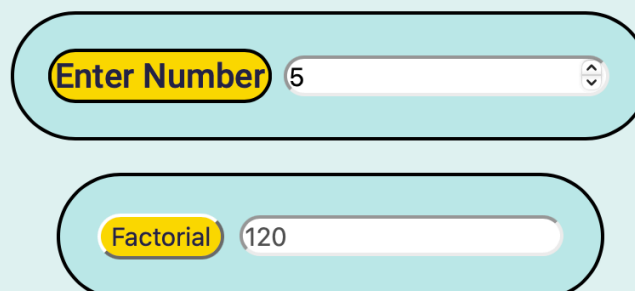
```
1. <!--Write a JavaScript function that read an integer value
   and finds the factorial of the entered number.-->
2.
3. <link rel="preconnect" href="https://fonts.gstatic.com">
4. <link href="https://fonts.googleapis.com/css2?
   family=Roboto:wght@500&display=swap" rel="stylesheet">
5. <html>
6. <head>
7.     <script>
8.         //          JavaScript function for factorial of a
           number :
9.         function show(){
10.             var i, no, fact;
11.             fact = 1;
12.             no =
               Number(document.getElementById("num").value);
13.             for(i=1; i<=no; i++) {
14.                 fact= fact*i;
15.             }
16.             document.getElementById("answer").value= fact;
17.         }
18.     </script>
19.     <style>
20.         body {
21.             font-family: 'Roboto', sans-serif;
```

```
22.         background-color: #def4f3;
23.     }
24.     .mainheader {
25.         text-align: center;
26.         color: #272343;
27.     }
28.     .mainbody {
29.         display: flex;
30.         align-items: center;
31.         justify-content: center;
32.         flex-direction: column;
33.     }
34.     .container {
35.         display: flex;
36.         align-items: center;
37.         justify-content: center;
38.         border: 2px solid black;
39.         border-radius: 50px;
40.         padding: 20px;
41.         background-color: #bae8e8;
42.         color: white;
43.         font-size: 20px;
44.     }
45.     .stylingbutton {
46.         cursor: pointer;
47.         background-color: #ffd803;
48.         color: #272343;
49.         border-radius: 50px;
50.         font-size: 15px;
51.     }
52.     .namestyle {
53.         cursor: pointer;
54.         margin-right: 5px;
55.         background-color: ffd803;
56.         border: 2px solid black;
57.         color: #272343;
58.         border-radius: 50px;
59.         padding: 2px;
60.     }
61.     .inputstyle {
62.         border-radius: 50px;
63.         font-size: 15px;
64.     }
```

```
65.     </style>
66.</head>
67.<body>
68.     <div class="mainheader">
69.         <h2>Write a JavaScript function that read an
           integer value and
70.         <br>finds the factorial of the entered
           number.</h2>
71.     </div>
72.     <div class="mainbody">
73.         <div class="container">
74.             <div class="namestyle">Enter Number </div>
             <input class="inputstyle" id="num" type="number">
75.         </div>
76.         <br>
77.         <div class="container">
78.             <div>
79.                 <button class="stylingbutton"
                   onclick="show()">Factorial</button>
80.                 <input class="inputstyle" id="answer"
                   disabled="">
81.             </div>
82.         </div>
83.     </div>
84.</body>
85.</html>
```


## Output

**Write a JavaScript function that read an integer value and finds the factorial of the entered number.**



The screenshot shows a web application interface with a light blue background. It contains two main input sections, each enclosed in a rounded rectangle. The first section features a yellow button with the text "Enter Number" and a white text input field containing the number "5". The second section features a yellow button with the text "Factorial" and a white disabled text input field containing the number "120".

✓ Run Succeeded | Time 15 ms | Peak Memory 700K

 show | Spaces: 4 | Line 11, Column 22

- B. Write a JavaScript function that read an integer value and finds the factorial of the entered number.

### practical6b.html

```
1. <!--Create a JavaScript that merges two arrays without
   duplicating elements.-->
2. <link rel="preconnect" href="https://fonts.gstatic.com">
3. <link href="https://fonts.googleapis.com/css2?
   family=Roboto:wght@500&display=swap" rel="stylesheet">
4. <html>
5.   <head>
6.     <style>
7.       body {
8.         font-family: 'Roboto', sans-serif;
9.         background-color: #def4f3;
10.      }
11.     .mainheader {
12.       text-align: center;
13.       color: #272343;
14.     }
15.     .mainbody {
16.       display: flex;
17.       align-items: center;
18.       justify-content: center;
19.       flex-direction: column;
20.     }
21.     .container {
22.       display: flex;
23.       align-items: center;
24.       justify-content: center;
25.       border: 2px solid black;
26.       border-radius: 50px;
27.       padding: 20px;
28.       background-color: #bae8e8;
29.       color: white;
30.       font-size: 20px;
31.     }
32.     .stylingbutton {
33.       cursor: pointer;
34.       background-color: #ffd803;
35.       color: #272343;
```

```
36.         border-radius: 50px;
37.         font-size: 15px;
38.     }
39.     .namestyle {
40.         cursor: pointer;
41.         margin-right: 5px;
42.         background-color: ffd803;
43.         border: 2px solid black;
44.         color: #272343;
45.         border-radius: 50px;
46.         padding: 2px;
47.     }
48.     .inputstyle {
49.         border-radius: 50px;
50.         font-size: 15px;
51.     }
52. </style>
53. <script>
54.     //      JavaScript function for merging 2
        arrays and removing duplicates :
55.     function mergeWithoutDuplicates(){
56.         var arr1 =
        (document.getElementById("arr1").value).split(",")
57.         var arr2 =
        (document.getElementById("arr2").value).split(",")
58.
59.         var arr3 = arr1.concat(arr2);
60.         for(var i=0; i<arr3.length; ++i) {
61.             for(var j=i+1; j<arr3.length; ++j) {
62.                 if(arr3[i] === arr3[j]) {
63.                     arr3.splice(j, 1); //The
        splice() method adds/removes items to/from an array, and
        returns the removed item(s). || at position 'j' removes 1
        item.
64.                     }
65.                 }
66.             }
67.
        document.getElementById("result_arr").value = arr3;
68.     }
69. </script>
70. </head>
71. <body>
```

```
72.     <div class="mainheader">
73.         <h2>Create a JavaScript that merges two arrays
       <br>without duplicating elements.</h2>
74.     </div>
75.     <div class="mainbody">
76.         <div class="container">
77.             <div class="namestyle">Enter 1st Array :
       </div> <input class="inputstyle" id="arr1">
78.         </div>
79.         <br>
80.         <div class="container">
81.             <div class="namestyle">Enter 2nd Array :
       </div> <input class="inputstyle" id="arr2">
82.         </div>
83.         <br>
84.         <br>
85.         <div class="container">
86.             <div>
87.                 <button class="stylingbutton"
       onclick="mergeWithoutDuplicates()">Resultant Array : </
       button>
88.                 <input class="inputstyle"
       id="result_arr" disabled>
89.             </div>
90.         </div>
91.     </div>
92. </body>
93.</html>
```

## Output

**Create a JavaScript that merges two arrays without duplicating elements.**

Enter 1st Array : 1,2,3,4,5

Enter 2nd Array : 4,5,6,7,8,9

Resultant Array : 1,2,3,4,5,6,7,8,9

Run Succeeded | Time 11 ms | Peak Memory 700K | Symbol | Tabs: 4 | 95 Lines, 2596 Characters

## C. Apply following validation rules to the student registration form designed in practical 3b

### practical6c.html

```

1. <!DOCTYPE html>
2.
3. <!--Apply following validation rules to the student
   registration form designed in practical 3b-->
4. <!--· First Name and Last Name should not be empty.-->
5. <!--· Name fields should accept letters only.-->
6. <!--· Email should be in the form of
   DDCCDDDD@nirmauni.ac.in,where D-->
7. <!--and C represent any digit and letter, respectively.-->
8. <!--· Password must be a minimum of eight characters long
   consisting of-->
9. <!--a combination of uppercase letter, lowercase letter, and
   digits. · Password and re-type password must be the same.-->
10.
11. <html>
12.   <head>
13.     <meta charset="UTF-8">
14.     <title>Student Registration Form</title>
15.     <link rel="stylesheet" type="text/css" href=". /
        6c_style.css">
16.     <script src=". /6c_script.js"> //JAVASCRIPT for form
        validation :</script>
17.   </head>
18.   <body bgcolor=#cadefc>
19.     <h1 style="white-space: nowrap;"
        align="center"><font color="#383e56">STUDENT REGISTRATION
        FORM</font></h1>
20.     <br>
21.     <form id="registrationForm" method="post"
        onsubmit="return validateForm()">
22.
23.       <label> First name : &nbsp;&nbsp;&nbsp;</label>
24.       <input type="text" name="firstname" size="15"
        placeholder="Aayush" maxlength="20" id="first_name" /> <br>
        <br>

```

```
25.         <label> Middle name : </label>  
26.         <input type="text" name="middlename" size="15"  
placeholder="Umeshbhairai" id="middle_name"/> <br> <br>  
27.         <label> Last name :           </label>  
28.         <input type="text" name="lastname" size="15"  
placeholder="Shah" id="last_name"/> <br> <br>  
29.         <label> Date of Birth :  
            &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&~</label>  
30.         <input type="date" name="lastname" size="15"/>  
            <br> <br>  
31.  
32.         <label>  
33.             Course :  
                &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&~</label>  
34.     </label>  
35.     <select>  
36.         <option selected disabled>Select course</o  
option>  
37.         <option value="Course">Course</option>  
38.         <option value="BCA">BCA</option>  
39.         <option value="BBA">BBA</option>  
40.         <option value="B.Tech">B.Tech</option>  
41.         <option value="MBA">MBA</option>  
42.         <option value="MCA">MCA</option>  
43.         <option value="M.Tech">M.Tech</option>  
44.     </select>  
45.  
46.     <br>  
47.  
48.     <br>  
49.     <label>  
50.         Gender :  
51.     </label>  
52.     <input type="radio" name="gender"  
value="gender-male"/> Male  
53.     <input type="radio" name="gender"  
value="gender-female"/> Female  
54.     <br>  
55.  
56.     <br>  
57.     <label>  
58.         Hobby :
```



```

59.         </label>
60.         <input type="checkbox" name="Hobby" value="H1 "
        checked>Reading
61.         <input type="checkbox" name="Hobby" value="H2 "
        >Dancing
62.         <input type="checkbox" name="Hobby" value="H3 "
        >Singing
63.         <br>
64.         <br>
65.
66.         <label>Phone number : </label>
67.         <!--         <input type="text" name="country
        code" value="91" size="2" style="width: 40px;"/>         -->
68.         <input type="text" name="phone" size="10"
        maxlength="10"placeholder="9898123123"/> <br> <br>
69.         Address :
70.         <br>
71.         <textarea cols="40" rows="5" value="address"
        placeholder="Enter your address here"></textarea>
72.         <br> <br>
73.         <label>Email: <label><br>
74.         <input type="email" id="email"
        name="email" placeholder="19BCE245@nirmauni.ac.in" /> <br>
75.         <br>
76.         Password: <br>
77.         <input type="Password" name="pass"
        placeholder="Str0ngP@ss123" id="password"> <br>
78.         <br>
79.         Re-type password: <br>
80.         <input type="Password" name="repass"
        placeholder="Str0ngP@ss123" id="rePassword"> <br> <br>
81.         <pre><input type="Submit" value="Submit"
        form="registrationForm" class="button"/>&nbsp;<input
        type="Reset" value="Reset" form="registrationForm"
        class="button"> </pre>
82.     </form>
83. </body>
84.</html>

```

## 6c\_style.css

```
1. @import url('https://fonts.googleapis.com/css?
   family=Poppins:200,300,400,500,600,700,800,900&display=swap'
   );
2. *{
3.   font-family: 'Poppins', sans-serif;
4. }
5. form{
6.   background: #defcf9; /* applying bgcolor */
7.   padding: 3em 4em 2em; /* applying padding : top,right-
   left,bottom */
8.   max-width: 400px;
9.   margin: 5px auto 0;
10.  box-shadow: 0 0 1em #845ec2;
11.  border-radius: 10px;
12.}
13..button {
14.  background-color: #bb8ae3;
15.  color: white; /* applying color */
16.  padding: 16px 20px; /* applying padding */
17.  margin: 8px 0; /* applying margin */
18.  border: none;
19.  cursor: pointer;
20.  width: 50%;
21.  opacity: 0.8;
22.  border-radius: 5px;
23.}
24.input[type=text],input[type=password],input[type=email],
   select, textarea {
25.  width: 100%; /* applying full width */
26.  padding: 12px; /* applying padding */
27.  border: 1px solid #bb8ae3; /* border and its color */
28.  border-radius: 4px; /* Rounded borders */
29.  box-sizing: border-box; /* Make sure that padding and
   width stays in place */
30.  margin-top: 6px; /* Add a top margin */
31.  margin-bottom: 16px; /* Bottom margin */
32.  resize: vertical; /* Allow the user to vertically resize
   the textarea (not horizontally) */
33.}
34..button:hover {
```

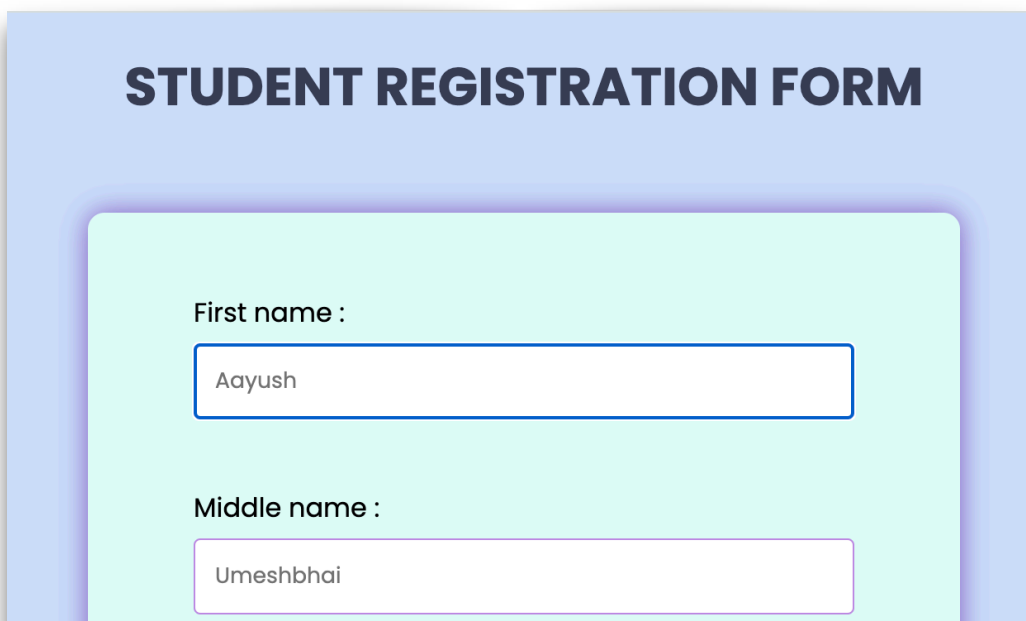
```
35. opacity:1;
36.}
```

## 6c script.js

```
1. function validateForm(){
2.
3.     var firstName = document.getElementById("first_name");
4.     var lastName = document.getElementById("last_name");
5.     var email = document.getElementById("email");
6.     var password = document.getElementById("password");
7.     var rePassword = document.getElementById("rePassword");
8.     var checkName = /^[a-z]+$ /i;
9.     var checkEmail = /[0-9]{2}[a-zA-Z]{3}[0-9]{3}
    @nirmauni.ac.in/;
10.    var check_passwordword = /^(?=\d)(?=[a-z])(?=[A-
    Z]).{8,20}$/;
11.
12.    if(firstName.value.trim() == '' ||
    lastName.value.trim() == '')
13.    {
14.        alert("Please enter first name and last name :");
15.        firstName.style.border = "solid 2px red";
16.        lastName.style.border = "solid 2px red";
17.        return false;
18.    }
19.    else if(!checkName.test(firstName.value) || !
    checkName.test(lastName.value))
20.    {
21.        alert("Please enter name properly :");
22.        firstName.style.border = "solid 2px red";
23.        lastName.style.border = "solid 2px red";
24.        return false;
25.    }
26.    else if(email.value == "" || !
    checkEmail.test(email.value))
27.    {
28.        alert("Please enter valid email address [valid
    format is : DDCCDD@nirmauni.ac.in]");
29.        email.style.border = "solid 2px red";
30.        return false;
```

```
31.     }
32.     else if(password.value.trim().length < 8)
33.     {
34.         alert("Password must contain 8 characters :");
35.         password.style.border = "solid 2px red";
36.         return false;
37.     }
38.     else if(!password.test(Password.value))
39.     {
40.         alert("Password must be a combination of uppercase
letter, lowercase letter, and digits :");
41.         password.style.border = "solid 2px red";
42.         return false;
43.     }
44.     else if(password.value != rePassword.value)
45.     {
46.         alert("Password doesn't match !");
47.         password.style.border = "solid 2px red";
48.         rePassword.style.border = "solid 2px red";
49.         return false;
50.     }
51.     else
52.     {
53.         return true;
54.     }
55. }
```

### Output (same as practical 3b)

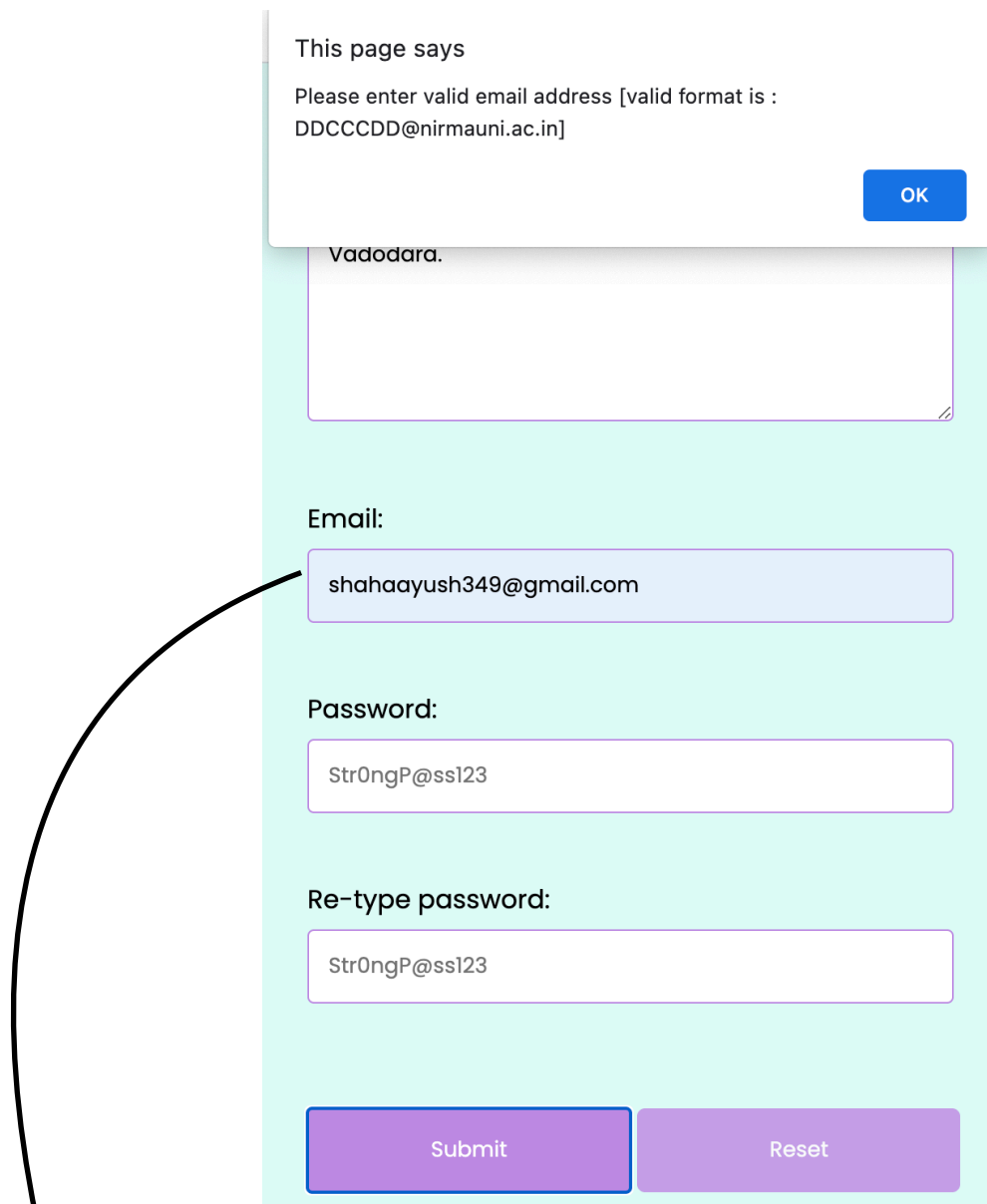


**STUDENT REGISTRATION FORM**

First name :

Middle name :

After entering wrong formatted email id (*on submit*):



This page says

Please enter valid email address [valid format is : DDCCCDD@nirmauni.ac.in]

OK

Vadodara.

Email:

shahaayush349@gmail.com

Password:

Str0ngP@ssl23

Re-type password:

Str0ngP@ssl23

Submit Reset

A curved arrow points from the email input field to the text 'Red border on invalid input fields :'

Red border on invalid input fields :



Email:

shahaayush349@gmail.com

Like this all required error message implemented.

## Conclusion

Here we have learned about JavaScript and its syntax along with how we can change the values in html with javascript.

- *One of many JavaScript HTML methods is `getElementById()`.*
- *Here, we used this to change the content of text area in our practical.*
- **6a** - *We calculated the factorial of a number through javascript function which is called by a button in html and will fetch the text from input text area and calculate its factorial and display it.*
- **6b** - *We merged two array without duplication with the use of javascript. Here we used `split` function in javascript to split elements from comma.*
- **6c** - *We validate the form using javascript function. The function will check each value and give proper error message along with red fields where wrong values are entered when proper values are not entered.*