TP 2543 : Labsheet (Java script II)

- Functions are created so that we can reuse the code once written again and again. Under this topic we will do the following js exercises on functions. Along with Js functions an event onclick will also be used in some of these functions to call a function.

- **Ex. #JS 1: Simple Functions**

  In this js exercise we will write a simple javascript example which will output some text on browser.

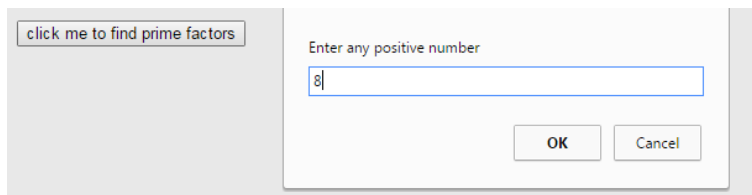- **Ex.#JS 2 & #3: Functions with Arguments and Return value**

  In this js exercise we will write a function with arguments and that function will return a value that will be printed on screen.

- **Ex. #JS 4 & #JS 5: Function that call other function.**
- In this js exercise will will write a function that calls another function.

Ex. #JS 1:

Write a javascript function that is called on javascript onclick() event. This function takes an integer value as input from user(using prompt()) and returns its prime factors and shows them on browser using document.write().

Expected Outcome:

2,2,2,

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
6    function primefac(){
7    var no;
8    var i=2;
     no=prompt("Enter any positive number");
9    no=parseInt(no);
10   while(i<= no){
11   if(no%i==0){
12   document.write(i+",");
     no=(no/i);i=1;
13   }
14   i++;
15   }
16   }
17   </script>
18   </head>
19   <body>
20   <input type="button" value="click me to find
     prime factors" onclick="return primefac();">
21   </body>
22   </html>
23
24
```

Ex. #JS 2:

Take two variables length and width which will store dimensions of a rectangle(say length=100 & width=50).Now write a function that will take these two values as arguments and return area of rectangle on button click.

Expected Outcome:

Area of rectangle is: 5000

click me to check output

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
     function area(length,width){
6    var area= length*width;
7    var ele=document.getElementById('text');
8    if(ele !== null){
9    ele.innerHTML="Area of rectangle is:   "+area;
10   }
11   }
12   </script>
13   </head>
14   <body>
     <p id='text'></p>
15   <input type="button" onclick="return area(100,50)"
     value="click me to check output">
16   </body>
17   </html>
18
19
```

Ex. #JS 3:

Write a function that takes marks received by a student in 3 subjects(say 70,20 and 30) as parameters and returns percentage marks scored by the student.

Expected Outcome:

Marks % of student is : 40%

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
     function percntg(a,b,c){
6    var marksper = (a+b+c)/300*100;
7    document.write("Marks % of student is : "+marksper+"%");
8    }
9    </script>
10   </head>
11   <body>
     <input type="button" value="click me to check answer"
12   onclick="return percntg(70,20,30);">
13   </body>
14   </html>
15
```

Ex. #JS 4:

In this js exercise you need to write two functions-.

First function named area() will have two arguments, length and width of rectangle(say 100 & 50 respectively) and it will calculate the area of rectangle using these dimensions.And this function will call another function named output() with argument area. This second function will print the area of rectangle on browser.

Expected Outcome:

Area of rectangle is: 5000

click me to check output

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
6    function area(length,width){
     var area= length*width;
7    output(area);
8    }
9    function output(area){
10   var ele=document.getElementById('text');
11   if(ele !== null){
     ele.innerHTML="Area of rectangle is: "+area;
12   }
13   }
14   </script>
15   </head>
16   <body>
17   <p id='text'></p>
     <input type="button" onclick="return area(100,50)"
18    value="click me to check output">
19   </body>
20   </html>
21
22
```

Ex. #JS 5:

In this js exercise also you need to write two functions-.

First function named percntg() will take marks of three subjects(say 70,20 and 30) of a student as arguments and will calculate his/her percentage then the same percentage is passed to another function called status(), depending upon the marks percentage the second function displays pass or fail message.

 Expected Outcome:

Student passed with 40% marks

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
6    function percntg(a,b,c){
7    var marksper = (a+b+c)/300*100;
8    status(marksper);
9    }
10   function status(percnt){
11   if(percnt >= 40){
12   document.write("Student passed with "+percnt+"% marks");
13   }else{
14   document.write("Student failed");
15   }
16   }
17   </script>
18   </head>
19   <body>
20   <input type="button" value="click me to check answer
21   " onclick="return percntg(70,20,30);">
     </body>
     </html>
```

When we need to store a number of variables of same type its better to use an array. Under this section we will be doing the following exercises.

Ex. #JS 6: Array Initialization

In this js exercise we will create an array using direct initialization and using array object.

Ex.#JS 7: Accessing array elements

In this js exercise we will create an array and access its elements one by one.

Ex. #JS 8 & #JS 9: Adding user input to array.

In this js exercise we will create a function and pass some parameters to it.Then these parameters will be used to create an array.

Ex. #10 & #11: Accessing array elements using loop.

In this js exercise we will create an array an access its elements one by one using loop.

Ex. #12: Manipulating array elements.

In this js exercise we will see how to manipulate array elements.

Ex. #13 : Array with loops.

In this js exercise we will create an array and access its elements one by one using loop.

Ex. #14: Passing an entire array to a function.

In this js exercise we will create an array and a function and the complete array will be passed to the function in a single parameter.

Ex. #15: Create 2D array and access its elements.

In this js exercise we will create a 2D array and see how to access its elements.

Ex. #JS 6:

Create an array named weekDays and store name of week days in that array starting with Sunday. Access elements of this array using array indexes.

Note: Array indexes starts with 0.

Expected Outcome:

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

Script

```
1
2     <!DOCTYPE html>
3     <html>
4     <body>
5     <script>
      var weekDays=["Sunday","Monday","Tuesday","Wednesday","Thursday",
6     "Friday","Saturday"];
7     document.write(weekDays[0]+"<br>");
      document.write(weekDays[1]+"<br>");
8     document.write(weekDays[2]+"<br>");
9     document.write(weekDays[3]+"<br>");
10    document.write(weekDays[4]+"<br>");
11    document.write(weekDays[5]+"<br>");
12    document.write(weekDays[6]);
13    </script>
      </body>
14    </html>
15
16
```

In this js exercise we will see how to create javascript array using direct initialization[] and using keyword 'new'and them access array elements and display them on browser using document.write().

Ex. #JS 7:

Create two arrays one using direct initialization [ ] and another using array objects.Store some random values say 2,4,77,14,-9,12,22 in those arrays. And print those arrays on screen using document.write().

Expected Outcome:

```
2,4,77,14,-9,12,22
2,4,77,14,-9,12,22
```

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <body>
5    <script>
6    var arr1=[2,4,77,14,-9,12,22];
7    var arr2=new Array(2,4,77,14,-9,12,22);
     document.write(arr1);
8    document.write("<br>");
9    document.write(arr2);
10   </script>
11   </body>
12   </html>
13
```

In this j sexercise we will see how to create javascript array from user input, access its elements and show them on browser using document.getElementById() and innerHTML.

Ex. #JS 8:

For this js exercise write a function that will be called on button click. And that function will accept some(say 5) arguments(say 2,4,8,77,21) which will be used to create an array.

Expected Outcome:
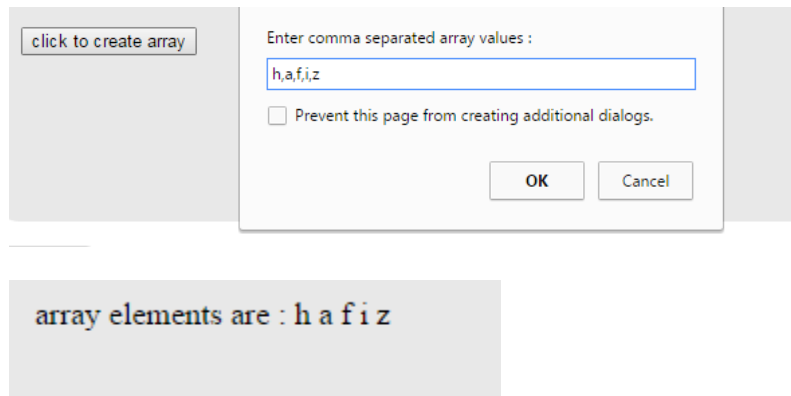
2,4,8,77,21

click me to check output

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
     function createArray(para1,para2,para3,para4,para5){
6    var arr=[para1,para2,para3,para4,para5];
7    var ele=document.getElementById('text');
8    if(ele !== null){
9    ele.innerHTML=arr;
10   }
     }
11   </script>
12   </head>
13   <body>
14   <p id="text" ></p>
     <input type="button" onclick="return createArray(2,4,8,77,21)"
15   value="click me to check output">
16   </body>
17   </html>
18
19
```

Ex. #JS 9:

For this js exercise write a function that will take input from user as comma separated string and then split that string from commas to get array elements. And finally show that array on browser using document.write().

Expected Outcome:

click to create array

Enter comma separated array values :

h,a,f,i,z

☐ Prevent this page from creating additional dialogs.

OK   Cancel

array elements are : h a f i z

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
     function createArray(){
6    var elements = prompt("Enter comma separated array values : ");
7    elements=elements.split(",");
8    document.write("array elements are : ");
9    for(i=0;i<elements.length;i++){
     document.write(elements[i]+" ");
10   }
11   }
12   </script>
13   </head>
14   <body>
     <input type="button" value="click to create array"
15    onclick="return createArray();">
16   </body>
17   </html>
18
19
```

In this jsexercise we will see how to create javascript array, assign values to its elements, access them using for loop and display them on browser using document.write().

Ex. # JS 10:

This js exercise can be devided into two parts.

In first part write a function named createArray( ) that will be called on button click.In this function create an array from months' names and pass elements of this array to display( ) function.

In second part of exercise create a display( ) function which will accept array elements one by one and will show them on browser.

Expected Outcome:

January
February
March
April
May
June
July
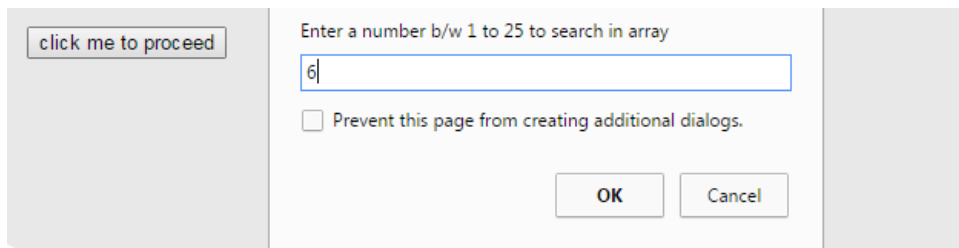August   All months will be display

Script

```
1    <!DOCTYPE html>
2    <html>
3    <head>
4    <script>
5    function createArray(){
6    var months=["January",
7    "February",
8    "March",
9    "April",
10   "May",
11   "June",
12   "July",
13   "August",
14   "September",
15   "October",
16   "November",
17   "December"];
18   var i;
19   for(i=0;i<months.length;i++){
20   display(months[i]);
21   }
22   }
23   function display(month){
24   document.write(month+"<br>");
25   }
26   </script>
     </head>
     <body>
     <input type="button" onclick="return createArray()"
     value="click me to check output">
     </body>
     </html>
```

Ex. #JS 11:

Twenty-five random numbers between 1 and 25 are entered in an array using Math.random(). The number to be searched in array is entered through the keyboard by the user. Write a program to find if the number to be searched is present in the array and if it is present, display the number of times it appears in the array.

Expected Outcome:

click me to proceed

Enter a number b/w 1 to 25 to search in array

6

☐ Prevent this page from creating additional dialogs.

OK   Cancel

Array elements are : 13,8,24,22,14,24,7,18,10,8,22,15,1,21,24,2,23,18,12,21,3,16,5,7,20,
Number not found

Script

```
1    <!DOCTYPE html>
2    <html>
3    <head>
4    <script>
5    function chck(){
6    var i;var arr=[];
7    for(i=0;i<25;i++){
8    arr[i]=Math.floor((Math.random()*25)+1);
9    }
10   var search=prompt("Enter a number b/w 1 to 25 to search in array");
11   var count=0;
12   for(i=0;i<25;i++){
     if(arr[i]==search)
     count++;
     }
```

```
13    document.write("Array elements are : ");
14    for(i=0;i<25;i++)
15    document.write(arr[i]+",");
16    if(count){
      document.write("<br>"+search+" occured "+count+" times in array.");
17    }else{
18    document.write("<br>Number not found");
19    }
20    }
21    </script>
22    </head>
23    <body>
24    <input type="button" value="click me to proceed" onclick="return chck()">
25    </body>
26    </html>
27
```

In this js exercise we will see how to create javascript array, access its element, manipulate them and show them on browser using document.write().

Ex. #JS 12:

For this js exercise write a function that will be called on button click.In that function create an array with integer values, and echo those values with message "Before manipulation: ".

Then check each array element one by one if the number is positive or negative and make it positive if found negative and finally echo that array elements with message "after manipulation".

Expected Outcome:

Before manipulation
22,63,-95,-87,68,-43
After manipulation
22,63,95,87,68,43

Script

```
1
2
3    <!DOCTYPE html>
4    <html>
5    <head>
6    <script>
     function manipulateArray(){
7    var arr=[22,63,-95,-87,68,-43];
8    document.write("Before manipulation"+"<br>"+arr+"<br>");
9    for(i=0;i<arr.length;i++){
     if(arr[i] < 0){
10   arr[i] = -arr[i];
11   }else{
12   continue;
13   }
     }
14   document.write("After manipulation"+"<br>"+arr);
15   }
16   </script>
17   </head>
18   <body>
19   <input type="button" onclick="return manipulateArray()"
     value="click me to check output">
20   </body>
21   </html>
22
23
```

Ex. #JS 13:

In this js exercise we will see how to create javascript array, store values in it using for loop, reverse those elements and echo those values on browser using for loop and document.write().

For this js exercise write a function that will be called on button click. In that function create an array named arr1 and store 1 to 20 in that array using for loop. & Do not forget to echo the array :)

Next reverse that array and store reversed elements in another array say arr2.Finally echo arr2.

 Expected Outcome:

Array 1:
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
Array 2:
20,19,18,17,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1

Script

```
1
2
3      <!DOCTYPE html>
4      <html>
5      <head>
6      <script>
7      function reverseArray(){
8      var arr1=[];var arr2=[];
9      var i;
10     for(i=0;i<20;i++){
11     arr1[i]=i+1;
12     }
13     document.write("Array 1: "+"<br>"+arr1+"<br>");
14     for(i=0;i<20;i++){
15     arr2[i]=arr1[arr1.length-1-i];
16     }
17     document.write("Array 2: "+"<br>"+arr2+"<br>");
18     }
19     </script>
20     </head>
21     <body>
22     <input type="button" onclick="return reverseArray()"
23     value="click me to check output">
       </body>
       </html>
```

In this js exercise we will see how to create javascript array, pass array to javascript function, how to use switch case in javascript and how to use document.getElementById() & innerHTML to show data on browser.

Ex. #JS 14:

Earlier we saw how to pass array elements to a function one by one. In this exercise we will see how to pass complete array to a function in a single variable.

So for this j sexercise write a function in which declare an array with weekdays as elements. And later pass the same array to another function which will display the array elements as-

- First day of week is Monday.
- Second day of week is Tuesday.
- ....

 Expected Outcome:

First day of week is Monday
Second day of week is Tuesday
Third day of week is Wednesday
Fourth day of week is Thursday
Fifth day of week is Friday
Sixth day of week is Saturday
Seventh day of week is Sunday

Script

```
1   <!DOCTYPE html>
2   <html>
3   <head>
4   <script>
5   function weekDays(){
6   var days=["Monday","Tuesday","Wednesday","Thursday",
7   "Friday","Saturday","Sunday"];
8   display(days);
9   }
10  function display(days){
11  var i,dayCount;
12  for(i=1;i<8;i++){
    switch(i){
    case 1:
    dayCount="First";
```

```
13    break;
14    case 2:
15    dayCount="Second";
16    break;
17    case 3:
18    dayCount="Third";
19    break;
20    case 4:
21    dayCount="Fourth";
22    break;
23    case 5:
24    dayCount="Fifth";
25    break;
26    case 6:
27    dayCount="Sixth";
28    break;
29    case 7:
30    dayCount="Seventh";
31    break;
32    default :
33    dayCount="Not a week day.";
34    break;
35    }
36    document.write(dayCount+" day of week is "+days[i-1]+"<br>");
37    }
38    }
39    </script>
40    </head>
41    <body>
      <input type="button" onclick="return weekDays()"
       value="click me to check output">
      </body>
      </html>
```

Ex. #JS 15:

In this js exercise we will work on javascript 2D(two dimensional) array, javascript for loop,string and document.getElementById().

In javascript we can not declare a two dimensional array directly but we can store arrays inside another array as its elements.In this jsexercise we will do the same.

Declare an array as employees and in each element of that array store Name,Age and Salary of employee.Use the following data -

Name	Age	Salary
Honey	25	30000
Money	28	35000
Sunny	22	40000

At last, use for loop to display the data as-

- This is Honey. He is 25 years old. His salary is 30000.
- ...

Expected Outcome:

> This is Honey. He is 25 years old. His salary is 30000.
> This is Money. He is 28 years old. His salary is 35000.
> This is Sunny. He is 22 years old. His salary is 40000.

Script

```
1
2    <!DOCTYPE html>
3    <html>
4    <head>
5    <script>
6    function twoDimensionalArray(){
7    var employees=[["Honey",25,"30000"],
8    ["Money",28,"35000"],
9    ["Sunny",22,"40000"]];
10   var i;
11   for(i=0;i<employees.length;i++){
12   document.write("This is "+employees[i][0]+". He is "+employees[i][1]+" \
13   years old. His salary is "+employees[i][2]+".<br>");
14   }
15   }
16   </script>
17   </head>
18   <body>
19   <input type="button" onclick="return twoDimensionalArray()"
     value="click me to check output">
     </body>
     </html>
```