K. K. Wagh Polytechnic, Nashik-03

A Laboratory Manual for

Client Side Scripting

(22519)

Third Year Diploma in **(CO/CM/IF)**

Semester-V

K. K. Wagh Education Society's

K. K. Wagh Polytechnic, Nashik-03

Lab Manual for Students

Sr. No.	Designation	Team of Design
1.	Project Institution	K. K. Wagh Polytechnic, Amrutdham, Panchavati, Nashik-03
2.	Chief Project Coordinator	Prof. P. T. Kadave Principal
3.	Project Coordinator	Mr. G. B. Katkade Head, Department of Computer Technology Ms. M. S. Karande Head, Department of Information Technology
4.	Subject Experts	Mrs. A. R. Sonawane Lecturer, Department of Computer Technology Mr. P. S. Chavan Lecturer, Department of Computer Technology Mrs. M. D. Patil Lecturer, Department of Information Technology Mrs. D. D. Pawar Lecturer, Department of Information Technology

K. K. Wagh Polytechnic, Nashik-03

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

Certificate

This is to certify that Mr. / Ms. ……..

Roll No. ……. ……of Fifth Semester of Diploma in Computer Technology/Information Technology of Institute, K. K. Wagh Polytechnic (Code:0078/1103) has completed term work satisfactorily in course **Client Side Scripting Engineering (22519)** for the academic year to as prescribed in the curriculum.

Place :Nashik Enrolment No:…….

Date:……. Exam Seat No:……..

Course Faculty Head of Department Principal

Seal of Institution

Institute Vision: - Strive to empower students with Quality Technical Education.

Institute Mission :- Committed to develop students as Competent and Socially Responsible Diploma Engineers by inculcating learning to learn skills, values and ethics, entrepreneurial attitude, safe and eco-friendly outlook and innovative thinking to fulfill aspirations of all the stakeholders and contribute in the development of Organization, Society and Nation.

Department Vision :- (Version – 1.1)

To impart quality technical education for development of technocrats.

Department Mission :- (Version – 1.2)

M1- To provide quality in education and facilities for students to help them to achieve higher academic career growths.

M2- To impart education to meet the requirements of the industry and society by technological solutions.

M3- Develop technical & soft skill through co–curricular and extra-curricular activities for improving personality.

Program Educational Objectives:- (Version – 1.2)

PEO1: Provide socially responsible, environment friendly solutions to Computer engineering related broad-based problems adapting professional ethics.

PEO2: Adapt state-of-the-art Computer engineering broad-based technologies to work in multi-disciplinary work environments.

PEO3: Solve broad-based problems individually and as a team member communicating effectively in the world of work

Program Specific Outcome:- (Version – 1.2)

PSO 1: **Computer Software and Hardware Usage:** Use state-of-the-art technologies for operation and application of computer software and hardware.

PSO 2: **Computer Engineering Maintenance:** Maintain computer engineering related software and hardware systems.

Program Outcomes:- (Version – 1.2)

PO 1: Basic knowledge: Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Computer engineering problem.

PO 2: Discipline knowledge: Apply Computer engineering discipline - specific knowledge to solve core computer engineering related problems.

PO 3: Experiments and practice: Plan to perform experiments and practices to use the results to solve broad -based Computer engineering problems.

PO 4: Engineering tools: Apply relevant Computer technologies and tools with an understanding of the limitations.

PO 5: The engineer and society: Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Computer engineering.

PO 6: Environment and sustainability: Apply Computer engineering solutions also for sustainable development practices in societal and environmental contexts and demonstrates the knowledge and need for sustainable development.

PO 7: Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Computer engineering.

PO 8: Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

PO 9: Communication: Communicate effectively in oral and written form.

PO10: Life-long learning: Engage in independent and life-long learning activities in the context of technological changes in the Computer engineering field and allied industry.

Practical –Course Outcome matrix

	Course Outcomes (Cos):- a) Create Interactive web pages using program flow control structure b) Implement arrays and functions in Javascript c) Create event based web forms using Javascript d) Use Javascript for handling cookies e) Create interactive webpage using regular expressions for validations f) Create menus and navigations in web pages						
Sr. No.	**Practical Outcome**	**CO a.**	**CO b.**	**CO c.**	**CO d.**	**CO e.**	**CO f.**
1.	Write Simple JavaScript with HTML for Arithmetic Expression Evaluation and Message	✔	-	-	-	-	-
2.	Develop JavaScript to use Decision Making and Looping Statements	✔	-	-	-	-	-
3.	Develop JavaScript to implement array functionalities	-	✔	-	-	-	-
4.	Develop JavaScript to implement functions	-	✔	-	-	-	-
5.	Develop JavaScript to implement Strings	-	-	✔	-	-	-
6.	Create a webpage using Form Elements	-	-	✔	-	-	-
7.	Create a webpage to implement Form Events-I	-	-	✔	-	-	-
8.	Create a webpage to implement Form Events-II	-	-	✔	-	-	-
9.	Develop a webpage using Intrinsic Java Functions	-	-	✔	-	-	-
10.	Develop a webpage for creating session and persistent cookies. Observe the effects with	-	-	-	✔	-	-
11.	Develop a webpage for placing the window on screen and working with child window	-	-	-	✔	-	-
12.	Develop a webpage for Validation of Form Fields using Regular Expression	-	-	-	-	✔	✔
13.	Create a webpage with rollover effect	-	-	-	-	✔	✔
14.	Develop a webpage for implementing Menus	-	-	-	-	-	✔
15.	Develop a webpage for implementing status bar and web page protection	-	-	-	-	-	✔
16.	Develop a Webpage for implementing Slideshow, Banner	-	-	-	-	-	✔

List of Industry relevant Skills

The following industry relevant skills of the competency “Client Side Scripting”are expected to be developed in you by undertaking the practicals of this laboratory manual.

1. Develop Applications using Javascript
2. Write and Execute Javascript programs using functions, arrays.
3. Write and Execute Javascript programs using Forms, Cookies and Session
4. Write and Execute Javascript programs using Regular Expression, Rollover and Banner

Instructions for Students

1. For incidental writing on the day of each practical session every student should maintain a dated log book for the whole semester, apart from this laboratory manual which he/she has to submit for assessment to the teacher in next practical session.
2. For effective implementation and attainment of practical outcomes, in the beginning itself of each practical, students need to read through the complete write up including the practical related questions and assessment scheme of that practical sheet
3. Student ought to refer the reference books, lab manuals etc
4. Students should not hesitate to ask any difficulties they face during the conduct of practicals.

Content Page

List of Practicals and Progressive Assessment Sheet

Sr. No.	Practical Outcome	Page No	Date of Performance	Date of Submission	Assessment marks (25)	Dated sign of Teacher	Remarks (if any)
1.	Write Simple JavaScript with HTML for Arithmetic Expression Evaluation and Message Printing						
2.	Develop JavaScript to use Decision Making and Looping Statements						
3.	Develop JavaScript to implement array functionalities						
4.	Develop JavaScript to implement functions						
5.	Develop JavaScript to implement Strings						
6.	Create a webpage using Form Elements						
7.	Create a webpage to implement Form Events-I						
8.	Create a webpage to implement Form Events-II						
9.	Develop a webpage using Intrinsic Java Functions						
10.	Develop a webpage for creating session and persistent cookies. Observe the effects with Browser Cookie settings						
11.	Develop a webpage for placing the window on screen and working with child window						
12.	Develop a webpage for Validation of Form Fields using Regular Expression						
13.	Create a webpage with rollover effect						
14.	Develop a webpage for implementing Menus						

15.	Develop a webpage for implementing status bar and web page protection						
16.	Develop a Webpage for implementing Slideshow, Banner						
Total Marks							
Total Marks(Scaled to 25 Marks)							

*** To be transferred to Performa of CIAAN-2017**

Name and Sign of Student **Name & Sign of Faculty**

Practical No.1 : Write simple JavaScript with HTML for arithmetic expression Evaluation and message printing.

I. Practical Significance

An arithmetic expression is an expression in code that consists of a numeric value. Arithmetic expressions are extremely important in fundamental computer syntax because they provide numeric values that support code functions. Message printing is an important part which is used for displaying outputs.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems**.**
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations**.**
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency 'Write simple JavaScript with HTML for arithmetic expression evaluation and message printing'.

IV. Relevant Course Outcome(s)

Create interactive web pages using program flow control structure.

V. Practical Outcome(Pros)

Write a HTML Program using JavaScript to define different Arithmetic Expressions

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

Arithmetic Expressions:

An operator, in computer programing, is a symbol that usually represents an action or process. These symbols were adapted from mathematics and logic. An operator is capable of manipulating a certain value or operand. Arithmetic operators perform Arithmetic Operations on numbers (literals or variables).

Types of Operator:

JavaScript supports the following Arithmetic Operators:

Operator	Meaning	Example
+	Addition or Unary plus	c=a+b
-	Subtraction or Unary	d=-a
*	Multiplication	c=a*b
/	Division	c=a/b
%	Modulus	c=a%b
++	Increment	a++
--	Decrement	a--

Dialog Boxes in JavaScript:

The following dialog boxes are supported by Javascript

1. **Alert Dialog Box :** An alert dialog box is mostly used to give a warning message to the users. For example, if one input field requires to enter some text but the user does not provide any input, then as a part of validation, you can use an alert box to give a warning message.

Syntax: alert ("This is a warning message!");

2. **Confirmation Dialog Box**: A confirmation dialog box is mostly used to take user's consent on any option. It displays a dialog box with two buttons: OK and Cancel. If the user clicks on the OK button, the window method confirm() will return true. If the user clicks on the Cancel button, then confirm() returns false.

Syntax: var retVal = confirm("Do you want to continue ?");

3. **Prompt Dialog Box:** The prompt dialog box is very useful when you want to pop-up a text box to get user input. Thus, it enables you to interact with the user. The user needs to fill in the field and then click OK. This dialog box is displayed using a method called prompt() which takes two parameters: (i) a label which you want to display in the text box and (ii) a default string to display in the text box.This dialog box has two buttons: OK and Cancel. If the user clicks the OK button, the window method prompt() will return the entered value from the text box. If the user clicks the Cancel button, the window method prompt() returns null.

Syntax: var retVal = prompt("Enter your name : ", "your name here");

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	Operating System: Windows 7 or higher Memory: 2 GB RAM or higher Processor Speed: Intel core i3 or higher Hard Drive: 500 GB or larger		
2	**Software**	Notepad++, Chrome		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
1.	Software	
1.	Any other resource used	

XI Result :

……

……

XII. Conclusion(s)

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XIII. Questions:-

1. **State the features of JavaScript.**
2. **How to write a Hello World example of JavaScript?**
3. **How to write a comment in JavaScript?**

XIV. Exercise:-

1. **Write a program to read arithmetic expression from user, evaluate it and display the answer using alert box.**
2. **Write a program to accept the name from user using prompt box and display a message in format "Good Morning Adam" using alert box.**

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_arithmetic.asp
2. https://codesjava.com/arithmetic-operators-javascript-js
3. https://www.digitalocean.com/community/tutorials/how-to-do-math-in-javascript-with-operators
4. https://www.javatpoint.com/javascript-operators

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		70%
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		30%
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		100%

Marks Obtained			Dated Sign of Teacher
Process Related	Process Related	Total	

Practical No. 2 : Develop JavaScript to use decision making and looping statements.

I. Practical Significance

Decision making statements play an important role in deciding the flow of the program. It includes statements of if, if-else and switch case. Also when the statements are to be executed number of times then such iterations can be implemented using loops. Loops supported by JavaScript includes for, for..in, while and do-while

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations**.**
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry**.**

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency 'Develop JavaScript to use decision making and looping statements'.

IV. Relevant Course Outcome(s)

Create interactive web pages using program flow control structure.

V. Practical Outcome(Pros)

Develop JavaScript to use decision making and looping statements

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

I. <u>Decision Making Statements:</u>

Conditional/Decision Making statements are used to perform different actions based on different conditions.

In JavaScript we have the following conditional statements:

- Use if to specify a block of code to be executed, if a specified condition is true

```
if (condition)
{
 //block of code to be executed if the condition is true
}
```

- **Use else to specify a block of code to be executed, if the same condition is false**

```
if (condition)
{
 //block of code to be executed if the condition is true
}
else
{
  //block of code to be executed if the condition is false
}
```

- **Use else if to specify a new condition to test, if the first condition is false**

```
if (condition1)
{
//block of code to be executed if condition1 is true
}
else if (condition2)
{
//block of code to be executed if the condition1 is false and condition2 is true
}
Else
{
//block of code to be executed if the condition1 is false and condition2 is false
}
```

- **Use switch to specify many alternative blocks of code to be executed**

```
switch(expression)
{
  case x:
    // code block
    break;
  case y:
    // code block
  break;
  default:
    // code block
}
```

II. Loops

Loops are used to repeat the statements a number of times.

Any loop is made of 4 basic parts:

a. the start value: An initial value is assigned to a variable, usually called i (but you can call it anything you like). This variable acts as counter for the loop.

b. the end value or test condition: The loop needs a limit to be set: either a definite number (loop 5 times) or a truth condition (loop until this condition evaluates to true). Failing this, you run the risk of triggering an infinite loop.

This is very bad: it a never-ending repetition of the same code that stops users & browsers from responding. Avoid infinite loops at all costs by making sure you set a boundary condition to your loops;

c. the action or code to be executed: You type a block of code once and it'll be executed the number of times between your start value and end value;

d. the increment: This is the part that moves the loop forward: the counter you initialize has to move up (or down in case you opt for looping backwards). As long as the loop does not reach the end value or the test condition is not satisfied, the counter is incremented (or decremented). This is usually done using mathematical operators.

Loops in JavaScript:

a. **FOR LOOP**: Choose a for loop if you know in advance how many times your script should run.

Syntax:

```
for (var=startvalue; var<=endvalue; var=var+increment)
{
   //code to be executed
}
```

b. **FOR..IN LOOP:** The for/in statement loops through the properties of an object. The block of code inside the loop will be executed once for each property.

Syntax:

```
for (var in object)
{
  code block to be executed
}
```

c. **WHILE LOOP:** If you don't know the exact number of times your code is supposed to execute, use a while loop. With a while loop your code executes while a given condition is true; as soon as this condition evaluates to false, the while loop stops.

Syntax:

```
while (variable <= endvalue)
{
//code to be executed
}
```

d. **DO..WHILE LOOP :** This kind of loop is similar to the while loop. The difference between the two is this: In the case of the while loop, if the test condition is false from the start, the code in the loop will never be executed. In the case of the do ... while loop, the

test condition is evaluated after the loop has performed the first cycle. Therefore, even if the test condition is false, the code in the loop will execute once.

Syntax:

```
do
{
//code to be executed
} while (variable <= endvalue)
```

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	Computer System	Operating System: Windows 7 or higher		
2	Software	Notepad++, Chrome		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1	**Computer System with broad specifications**	
2	**Software**	
3	**Any other resource used**	

XI Result:

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XII. Conclusion(s)

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XIII. Questions:-

1. **Explain for loop with example.**
2. **Explain switch case with example.**
3. **Explain nested if-else**

XIV. Exercise:-

1. **Write a program to display even and odd numbers.**
2. **Write a program to display prime numbers**
3. **Write a program to ask user whether he wants to change background colour. If user says yes ask for the colour and change or else display alert box with message "You decided not to change colour**

Blank page for Answer to Write

Blank page for Answer to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_switch.asp
2. https://www.w3schools.com/js/js_loop_for.asp
3. https://www.teaching-materials.org/javascript/exercises/forloops

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		70%
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		30%
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		100%

Marks Obtained			Dated Sign of Teacher
Process Related	Process Related	Total	

Practical No. 3: Develop JavaScript to implement array functionalities.

I. Practical Significance

An array is a special variable, which can hold more than one value at a time. An array can hold many values under a single name, and you can access the values by referring to an index number.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop JavaScript to implement array functionalities'**.

IV. Relevant Course Outcome(s)

Implement arrays and functions in Java script

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. Basics of Array:

- An array is a numbered group of data items that you can treat as a single unit.
- For example, you might use an array called scores to store several scores for a game.
- Arrays can contain strings, numbers, objects, or other types of data.
- Each item in an array is called an element of the array

B. Declaring & Initialising Array

Syntax :

name_of_array = new Array(size_of_array)

Eg : scores = new Array(4);

Assigning values to array

To assign a value to the array, you use an index in brackets. Indexes begin with 0

```
scores[0] = 39;
scores[1] = 40;
scores[2] = 100;
scores[3] = 49;
```

Initialising an array

An array can be initialised at the time of declaration also.

```
scores = new Array(39,40,100,49);
```

In JavaScript 1.2 and later, you can also use a shorthand syntax to declare an array and specify its contents.

The following statement is an alternative way to create the scores array:

```
scores = [39,40,100,49];
```

C. Accessing array elements

Element s are accessed using index

```
scores[0] = 39; //sets element 39 at location 0
//following statement stores the elements at location 0,1,2 in a variable scoredisp
scoredisp = “Scores: “ + scores[0] + “,” + scores[1] + “,” + scores[2];
document.write(scoredisp);
```

D. Looping an Array

An array can be looped in 2 basic ways.

1. using standard loops

```
cars = {" alto", " verna" , " city" , "bolero" }
var      i;
for (i = 0; i < cars.length; i++)
          {
             document.write(cars[i] + "<br>");
          }
```

2. using forEach()

```
var txt = "";
var numbers = [45, 4, 9, 16, 25];
numbers.forEach(myFunction);
function myFunction(value, index, array) {
  txt = txt + value + "<br>";
}
```

Along with these, 2 more methods can be used as:

1.using Array.map()

The map() method creates a new array by performing a function on each array element.

The map() method does not execute the function for array elements without values.

The map() method does not change the original array.

```
var numbers1 = [45, 4, 9, 16, 25];
var numbers2 = numbers1.map(myFunction);
function myFunction(value) {
  return value * 2;
}
```

2. using Array.filter()

The filter() method creates a new array with array elements that passes a test.

```
var numbers = [45, 4, 9, 16, 25];
var over18 = numbers.filter(myFunction);
function myFunction(value, index, array) {
return value > 18;
}
```

E. Methods used with Arrays

1. Push : It is used for adding elements at end of array
   var fruits = ["Banana", "Orange", "Apple", "Mango"];
   fruits.push("Kiwi");
2. Unshift :It is used for adding elements at beginning of array
   var list = ["foo", "bar"];
   list.unshift("baz", "qux");
   ["baz", "qux", "foo", "bar"] // result
3. Splice: it is used for adding elements in between
   var list = ["foo", "bar"];
   list.splice(1, 0, "baz"); // at index position 1, remove 0 elements, then add "baz" to that position
   ["foo", "baz", "bar"]
4. Concat: it is used for adding array to another array
   var list = ["foo", "bar"];
   var newlist = list.concat(["baz", "qux"]);
   ["foo", "bar", "baz", "qux"] // newlist result
5. Add an Array Element at a Particular Index
   var list = ["foo", "bar"];
   list[2] = "baz"; // add element "baz" to the index position 2 in the array
   list[3] = "qux";
   ["foo", "bar", "baz", "qux"] // result
6. Sort: This method is used to sort the array elements
   var fruits = ["Banana", "Orange", "Apple", "Mango"];
   fruits.sort();
7. Reverse: This method is used to reverse an array
   var fruits = ["Banana", "Orange", "Apple", "Mango"];
   fruits.sort();
   fruits.reverse();
8. Join: This method returns the array as a string. The elements will be separated by a specified separator. The default separator is comma (,).
   var fruits = ["Banana", "Orange", "Apple", "Mango"];
   var energy = fruits.join(" and ");
   o/p Banana and Orange and Apple and Mango
9. Pop:It removes the last element from an array
   var fruits = ["Banana", "Orange", "Apple", "Mango"];
   fruits.pop(); // Removes the last element ("Mango") from fruits
10. Shift: This method removes the first array element and "shifts" all other elements to a lower index.
    var fruits = ["Banana", "Orange", "Apple", "Mango"];
    fruits.shift(); // Removes the first element "Banana" from fruits
11. Unshift: This method adds a new element to an array (at the beginning), and "unshifts" older elements:
    var fruits = ["Banana", "Orange", "Apple", "Mango"];
    fruits.unshift("Lemon"); // Adds a new element "Lemon" to fruits
12. Delete is used to delete element from array
    var fruits = ["Banana", "Orange", "Apple", "Mango"];
    delete fruits[0]; // Changes the first element in fruits to **undefined**

13. Splice : This method can be used to add new items to an array:
    var fruits = ["Banana", "Orange", "Apple", "Mango"];
    fruits.splice(2, 0, "Lemon", "Kiwi");
    New Array:
    Banana,Orange,Lemon,Kiwi,Apple,Mango
14. Slice: This method slices out a piece of an array into a new array. The slice() method creates a new array. It does not remove any elements from the source array.
    var fruits = ["Banana", "Orange", "Lemon", "Apple", "Mango"];
    var citrus = fruits.slice(1);
    o/p Orange,Lemon,Apple,Mango

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

……

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain array with an example.
2. Explain any 4 methods that can be used with arrays for adding elements.
3. Explain splice and slice methods. Also state the difference between them.

XIV. Exercise:-

1. Write a program to perform all the array operations.
2. Write a program to Accept the marks of 10 subjects from the user and store it in array. Sort them and display

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_arrays.asp
2. https://developer.mozilla.org/en-US/ docs/ Web/ JavaScript/ Reference/ Global_Objects/Array

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total(50)**	

Practical No. 4: Develop JavaScript to implement Functions.

I. Practical Significance

Functions are one of the fundamental building blocks in JavaScript. A function is a JavaScript procedure i.e a set of statements that performs a task or calculates a value.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop JavaScript to implement array functionalities'**.

IV. Relevant Course Outcome(s)

Implement arrays and functions in Java script

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

a. **Function:** A JavaScript function is a block of code designed to perform a particular task. A JavaScript function is executed when "something" invokes it. Function in JavaScript has following properties

- A JavaScript function is defined with the function keyword, followed by a name, followed by parentheses ().
- Function names can contain letters, digits, underscores, and dollar signs (same rules as variables).
- The parentheses may include parameter names separated by commas:(parameter1, parameter2, ...)
- The code to be executed, by the function, is placed inside curly brackets: {}

Example:

```
function myFunction(p1, p2) {
  return p1 * p2;
}
```

b. Function Invocation

The code inside the function will execute when "something" invokes (calls) the function:

- When an event occurs (when a user clicks a button)
- When it is invoked (called) from JavaScript code
- Automatically (self invoked)

c. Advantages of using Functions

- You can reuse code i.e define the code once, and use it many times.
- You can use the same code many times with different arguments, to produce different results

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain function with parameters in JavaScript.
2. Explain local and global variables.

XIV. Exercise:-

1. Write a program to display even and odd numbers using function.
2. Write a program to display prime numbers using function
3. Write a program to perform stack operations of push and pop using function \

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_functions.asp
2. https://codeburst.io/javascript-functions-understanding-the-basics-207dbf42ed99

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total(50)**	

Practical No. 5: Develop JavaScript to implement Strings.

I. Practical Significance

JavaScript strings are used for storing and manipulating text.he String object lets you work with a series of characters; it wraps JavaScript's string primitive data type with a number of helper methods.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop JavaScript to implement strings**.

IV. Relevant Course Outcome(s)

Implement strings Java script

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. Basics of String:

- In computer programming, a string is traditionally a sequence of characters, either as a literal constant or as some kind of variable
- Depending on programming language and precise data type used, a variable declared to be a string may either cause storage in memory to be statically allocated for a predetermined maximum length or employ dynamic allocation to allow it to hold a variable number of elements.

B. Declaring & Initialising String

Syntax :

```
var carName1= "VolvoXC60";
var carName2 = 'Volvo XC60';
```

C. String length

```
var txt= "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
var sln = txt.length;
```

D. Special characters

To use special characters in string , they are preceded by \
Egvar x = "We are the so-called \"Vikings\" from the north.";

E. Methods used with Strings

1. indexOf() : It is used for returning the index of (the position of) the first occurrence of a specified text in a string:
   ```
   var str = "Please locate where 'locate' occurs!";
   var pos = str.indexOf("locate");
   ```
2. lastIndexOf() :It is used for returning the index of the last occurrence of a specified text in a string
   ```
   var str = "Please locate where 'locate' occurs!";
   var pos = str.lastIndexOf("locate");
   ```
3. search():This method searches a string for a specified value and returns the position of the match
   ```
   var str = "Please locate where 'locate' occurs!";
   var pos = str.search("locate");
   ```
4. slice():extracts a part of a string and returns the extracted part in a new string
   The method takes 2 parameters:
   the start position, and the end position (end not included).
   This example slices out a portion of a string from position 7 to position 12
   ```
   varstr = "Apple, Banana, Kiwi";
   var res = str.slice(7, 13);
   ```
5. Substring():This method is similar to slice(). The difference is that substring() cannot accept negative indexes.
   ```
   varstr = "Apple, Banana, Kiwi";
   var res = str.substring(7, 13);
   ```
6. Substr():It is similar to slice(). The difference is that the second parameter specifies the length of the extracted part.
   ```
   varstr = "Apple, Banana, Kiwi";
   var res = str.substr(7, 6);
   ```
7. replace():replaces a specified value with another value in a string.
   ```
   str = "Please visit Microsoft!";
   var n = str.replace("Microsoft", "W3Schools");
   ```
8. toUpperCase():Converts text into uppercase
   ```
   var text1 = "Hello World!";       // String
   var text2 = text1.toUpperCase(); // text2 is text1 converted to upper
   ```
9. toLowerCase():A string is converted to lower case
   ```
   var text1 = "Hello World!";       // String
   var text2 = text1.toLowerCase(); // text2 is text1 converted to lower
   ```
10. concat():joins two or more strings
    ```
    var text1 = "Hello";
    ```

var text2 = "World";
var text3 = text1.concat(" ", text2);

11. trim(): This method removes whitespace from both sides of astring
    varstr = " Hello World! ";
    alert(str.trim());
12. charAt(position): It returns the character at a specified index (position) in a string
    varstr = "HELLO WORLD";
    str.charAt(0); // returns H
13. charCodeAt() :This methodreturns the unicode of the character at a specified index in a string
    varstr = "HELLO WORLD";
    str.charCodeAt(0); // returns 72
14. parseInt(),parseFloat() : It is used for converting string to integer/float values
15. toString() : It is used for converting number to String

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain string with an example.
2. Explain the methods that can be used with string for searching a particular word or character in string
3. Explain the difference between substring and slice method.

XIV. Exercise:-

1. Write a program to perform all the string operations.
2. Write a program that checks whether a passed string is palindrome or not.
3. Write a program to insert a string within a string at a particular position

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_arrays.asp
2. https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total(50)**	

Practical No.6: Create a webpage using Form Elements.

What is Form Tag?

- Form is typical layout on the web page by which a **user can interact with the web page.**
- Typical components of forms are **text, textarea, checkboxes, radio buttons & push buttons**. These components of form are also called as **form controls.**
- HTML allows us to place these form components on the web page.
- All these form contents in the **<form> tag**.
- The form has an attributes action which **gets executed user clicks a button on the form**.

Uses of form:

1. Forms are used to collect the information from customer for online registration.
2. Forms are used for online survey.
3. Forms are used for conduction online examination.
4. The information present in the forms is submitted to the server for further processing.

Properties & Methods Of Form:

ATTRIBUTES	DESCRIPTION
action	It specifies the **url where the form should be submitted**.
method	It specifies the **HTTP methods such as GET, POST.** **get:** default. Append the form data to the URL in name/value pair: URL?name=value& name=value. **Post:** Send the form data as an HTTP post transaction
name	This attributes denotes the name of the form.
Target	It specifies the **target of the address in the action attributes**. The target value is as follow: **_blank**: Opens in a new window. **_self**: Opens in the same frame as it was clicked. **_parent**: Opens in the parent frameset. **_top**: Opens in the full body of the window. **framename**: Opens in a named frame.

Syntax:

<form name="myform" action="/myserverPage" method= "GET" target="_blank">

</form>

1. **Text:**

- Text is typically required to place one line text.

- This control is used for items that require only one line of user input is known as Single- line text input controls.
- They are created using HTML <input> tag.

Sr.No	Attribute & Description
1	**Type: Indicates** the type of input control and for text input control it will be set to **text**.
2	**Name:** Used to give a name to the control, which is sent to the server to be recognized and get the value.
3	**Value:** This can be used to provide an initial value inside the control.
4	**Size:** Allows to specify the width of the text-input control in terms of characters.
5	**Maxlength:** Allows to specify the maximum number of characters a user can enter into the text box.

2. **Textarea:**

- This is used when the user is required to give details that may be longer than a single sentence.
- Multi-line input controls are created using HTML <textarea> tag.

Sr.No	Attribute & Description
1	**Name:** Used to give a name to the control, which is sent to the server to be recognized and get the value.
2	**Rows:** Indicates the number of rows of text area box.
3	**Cols:** Indicates the number of columns of text area box

3. **Button:**

- There are various ways in HTML to create clickable buttons.
- You can also create a clickable button using <input>tag by setting its type attribute to button.

Sr.No	Type & Description
1	**Submit:** This creates a button that automatically submits a form.
2	**Reset:** This creates a button that automatically resets form controls to their initial values.
3	**Button:** This creates a button that is used to trigger a client-side script when the user clicks that button.
4	**Image:** This creates a clickable button but we can use an image as background of the button.

4. **Checkbox:**

- Checkboxes are used when more than one option is required to be selected.
- They are also created using HTML <input> tag but type attribute is set to checkbox.

Sr.No	Attribute & Description
1	**Type:** Indicates the type of input control and for checkbox input control it will be set to **checkbox.**
2	**Name:** Used to give a name to the control, which is sent to the server to be recognized and get the value.
3	**Value:** The value that will be used if the checkbox is selected.
4	**Checked:** Set to *checked* if you want to select it by default.

5. **Radio button:**

- Radio buttons are used when out of many options, just one option is required to be selected.
- They are also created using HTML <input> tag but type attribute is set to radio.

Sr.No	Attribute & Description
1	**Type:** Indicates the type of input control and for checkbox input control, it will be set to radio.
2	**Name:** Used to give a name to the control, which is sent to the server to be recognized and get the value.
3	**Value:** The value that will be used if the radio box is selected.
4	**Checked:** Set to *checked* if you want to select it by default.

6. **Select elements.**

- A select box, also called drop down box which provides option to list downvarious options in the form of drop down list, from where a user can select one or more options.

Sr.No	Attribute & Description of <select> tag
1	**Name:** Used to give a name to the control, which is sent to the server to be recognized and get the value.
2	**Size:** This can be used to present a scrolling list box.
3	**Multiple:** If set to "multiple" then allows a user to select multiple items from the menu.
Sr.No	**Attribute & Description of <option> tag**
1	**Value:** The value that will be used if an option in the select box box is selected.
2	**Selected:** Specifies that this option should be the initially selected value when the page loads.
3	**Label:** An alternative way of labeling options

Conclusion: We understand that how to create a webpage using form elements JavaScript.

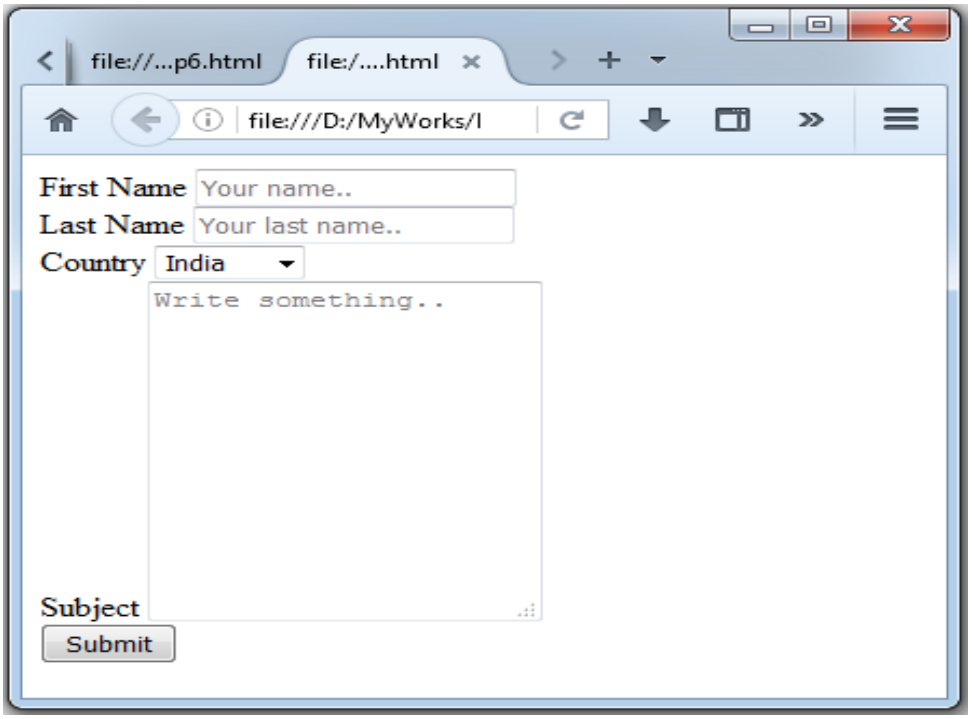
Create a webpage using Form Elements:

```
<html>
 <div class="container">
  <form >

   <label for="fname">First Name</label>
   <input type="text" id="fname" name="firstname" placeholder="Your name.."><br>

   <label for="lname">Last Name</label>
   <input type="text" id="lname" name="lastname" placeholder="Your last name.."><br>
   <label    for="country">Country</label>
   <select id="country"name="country">
    <option value="india">India</option>
    <option value="canada">Canada</option>
    <option value="usa">USA</option>
   </select><br>
   <label for="subject">Subject</label>
   <textarea id="subject" name="subject" placeholder="Write something.."
         style="height:200px"></textarea><br>
   <input type="submit" value="Submit">
  </form>
</div>
</html>
```

********** OUTPUT **********



VI. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Computer System	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	Software	**Notepad++, Chrome**		

VII. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

VIII. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain form methods.
2. Explain the difference between text area and textbox
3. Write a html code to generate dropdown list consisting of branches CM, IF, EJ, ME, EE and CE.

XIV. Exercise:-

1. Write a program to design a form for placing pizza order.
2. Write a program to design Registration form for College
3. Write a webpage that accepts Username and Aadhar Card as input texts.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_form.asp
2. https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Form

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total (50)**	

Practical No.7: Create a webpage to implement Form Events. Part-I.

Introduction:

An event is something that happens when user interact with the web page, such as when he clicked a link or button, entered text into an input box or textarea, made selection in a select box, pressed key on the keyboard, moved the mouse pointer, submits a form, etc. In some cases, the Browser itself can trigger the events, such as the page load and unload events.

When an event occur, you can use a JavaScript event handler (or an event listener) to detect them and perform specific task or set of tasks. By convention, the names for event handlers always begin with the word "on", so an event handler for the click event is called onclick, similarly an event handler for the load event is called onload, event handler for the blur event is called onblur, and so on.

What is Form Event?

- Event is an activity that represent a change in the environment.
- A JavaScript event is an action that can be detected by JavaScript. Many of them are initiated by user action but the browser generates some.
- Event is triggered & then it can be caught by JavaScript functions, which then do something response.
- Event handler is a script that are executed in response to these events. Event handler enables the web documents to respond the user activities through the browser window.
- Event are specified in lowercase & these are case sensitive.

Object	Event Handler
button	onClick, onBlur, onFocus
checkbox	onClick, onBlur, onFocus.
FileUpLoad	onClick, onBlur, onFocus
hidden	none
password	onBlur, onFocus, onSelect.
radio	onClick, onBlur, onFocus
reset	onReset.
select	onFocus, onBlur, onChange.
submit	onSubmit
text	onClick, onBlur, onFocus , onChange
textarea	onClick, onBlur, onFocus , onChange

Form Event:

A form event is fired when a form control receive or loses focus or when the user modify a form control value such as by typing text in a text input, select any option in a select box etc. Here're some most important form events and their event handler.

1. **The Focus Event (onfocus)**

The focus event occurs when the user gives focus to an element on a web page. You

can handle the focus event with the onfocus event handler.

2. **The Blur Event (onblur)**

The blur event occurs when the user takes the focus away from a form element or a window. You

can handle the blur event with the onblur event handler.

3. **The Change Event (onchange)**

The change event occurs when a user changes the value of a form element.

You can handle the change event with the onchange event handler.

4. **The Submit Event (onsubmit)**

The submit event only occurs when the user submits a form on a web page. You

can handle the submit event with the onsubmit event handler.

Document/Window Events:

Events are also triggered in situations when the page has loaded or when user resize the browser window, etc. Here're some most important document/window events and their event handler.

1. **The Load Event (onload)**

The load event occurs when a web page has finished loading in the web browser. You

can handle the load event with the onload event handler.

2. **The Unload Event (onunload)**

The unload event occurs when a user leaves the current web page. You

can handle the unload event with the onunload event handler.

3. **The Resize Event (onresize)**

The resize event occurs when a user resizes the browser window. The resize event also occurs in situations when the browser window is minimized or maximized.

You can handle the resize event with the onresize event handler.

Conclusion: We understand that how to create a webpage using form events.

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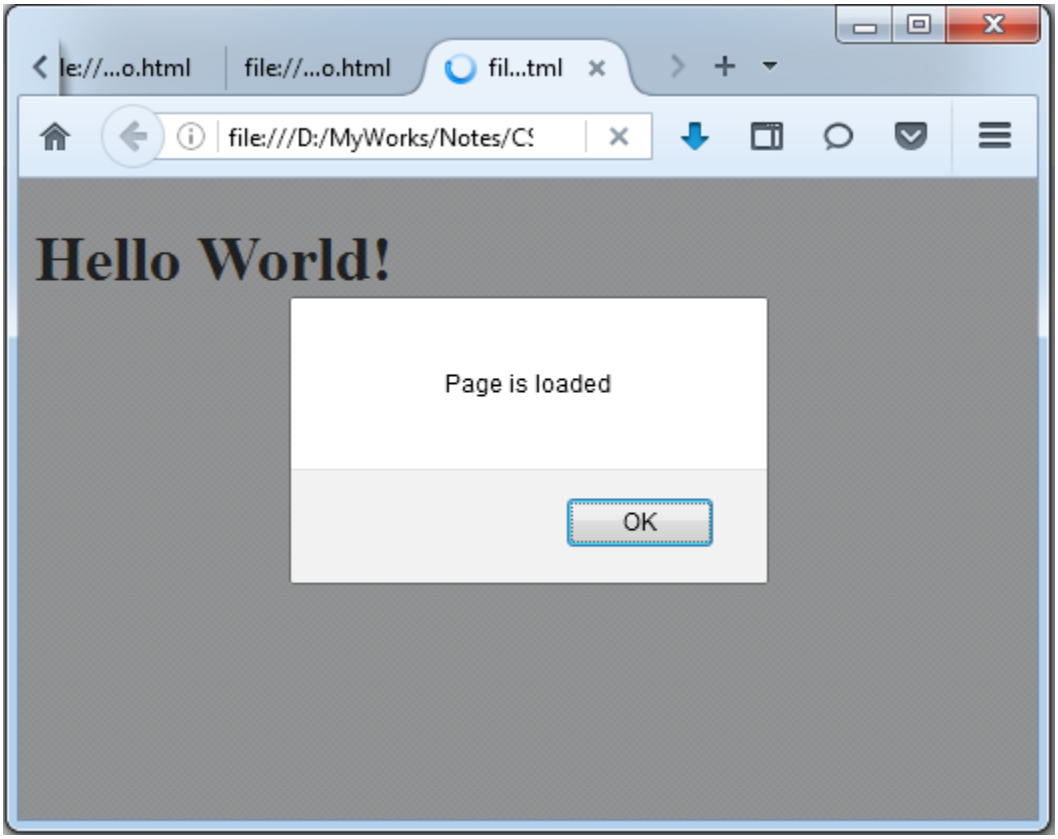
Programs on Various event handler.

JavaScript on onload event handler:

```
<!DOCTYPE html>
<html>
<body onload="myFunction()">
<h1>Hello World!</h1>
<script>
        function myFunction()
        {
        alert("Page is loaded");
        }
</script>
</body>
</html>
```

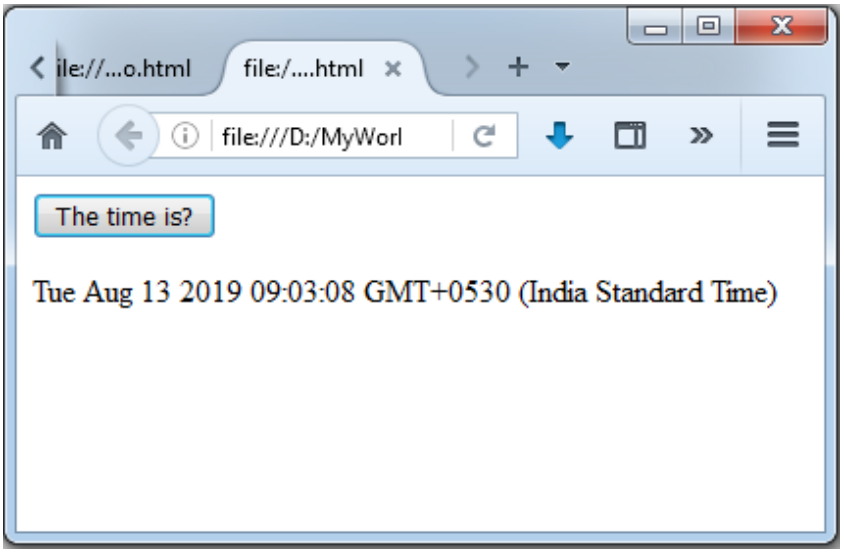
********** OUTPUT **********



JavaScript on onclick event handler.

```
<!DOCTYPE html>
<html>
<body>
<button onclick="document.getElementById('demo').innerHTML=Date()">The time is?</button>
<p id="demo"></p>
</body>
</html>
```

********** OUTPUT **********



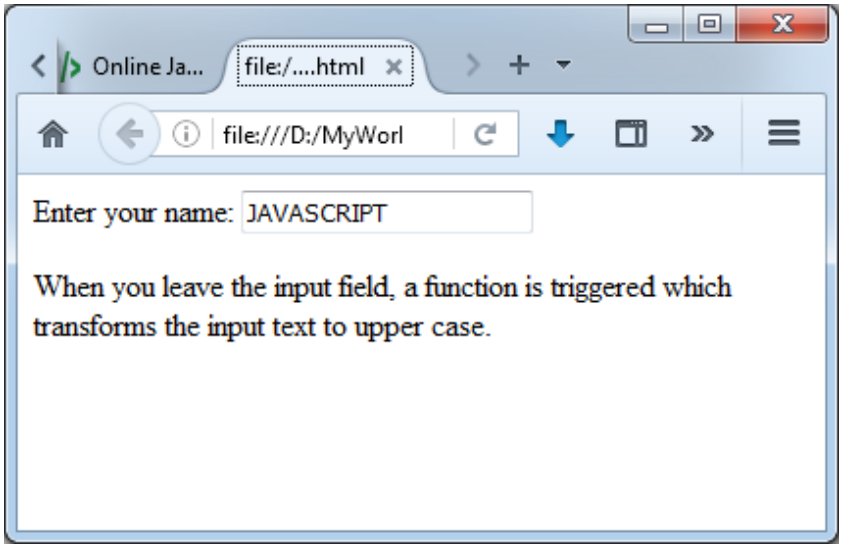
JavaScript on onblur event handler.

```
<!DOCTYPE html>
<html>
<body>

Enter your name: <input type="text" id="fname" onblur="myFunction()">

<p>When you leave the input field, a function is triggered which transforms the input text to upper case.</p>
<script>
function myFunction()
{
  var x = document.getElementById("fname"); x.value
  = x.value.toUpperCase();
}
</script>
</body>
</html>
```

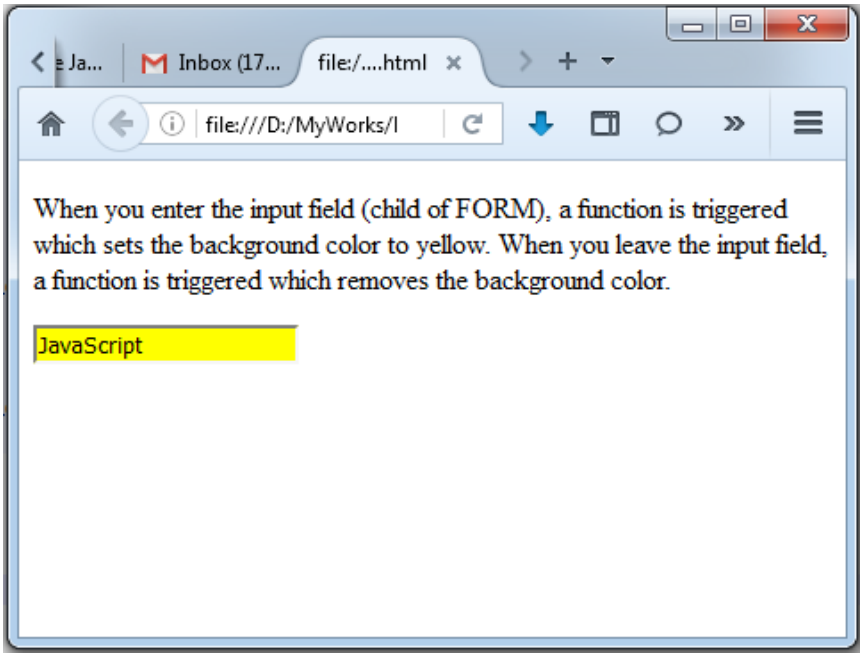
********** **OUTPUT**
****



JavaScript on onblur & onfocus event handler.

```
<!DOCTYPE html>
<html>
<body>
<p>When you enter the input field (child of FORM), a function is triggered which sets the background color to yellow. When you leave the input field, a function is triggered which removes the background color.</p>
<form id="myForm">
  <input type="text" id="myInput">
</form>
<script>
var x = document.getElementById("myForm");
x.addEventListener("focus", myFocusFunction,
true); x.addEventListener("blur",
myBlurFunction, true); function
myFocusFunction() {
  document.getElementById("myInput").style.backgroundColor = "yellow";
}
function myBlurFunction() {
  document.getElementById("myInput").style.backgroundColor = "";
}
</script>
</body>
</html>
```

********** OUTPUT **********



VI. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

VII. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

VIII. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain form events.
2. Explain the difference between onblur and onfocus Event
3. Write a html code to handle onsubmit Event

XIV. Exercise:-

1. Write a program to design a form and handle onblur Event.
2. Write a program to design a form and handle onload Event.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. Formhttps://www.w3schools.com/js/js_form.asp
2. https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/FormEvents

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total (50)**	

Practical No.8: Create a webpage to implement Form Events. Part-II. Mouse Event:

- Mouse Event are used to capture the interaction made by the user by using mouse.

Attribute	Value	Description
onclick	script	Fires on a mouse click on the element
ondblclick	script	Fires on a mouse double-click on the element
onmousedown	script	Fires when a mouse button is pressed down on an element
onmousemove	script	Fires when the mouse pointer is moving while it is over an element
onmouseout	script	Fires when the mouse pointer moves out of an element
onmouseover	script	Fires when the mouse pointer moves over an element
onmouseup	script	Fires when a mouse button is released over an element
onmousewheel	script	Deprecated. Use the onwheel attribute instead
onwheel	script	Fires when the mouse wheel rolls up or down over an element

1. Mousedown, mouseup, click:

If the user clicks on an element no less than three mouse events fire, in this order:

1. mousedown, user depresses the mouse button on this element
2. mouseup, user releases the mouse button on this element
3. click, one mousedown and one mouseup detected on this element

2. Dblclick:

The dblclick event is rarely used. Even when you use it, you should be sure *never* to register both an onclick and an ondblclick event handler on the same HTML element. Finding out what the user has actually done is nearly impossible if you register both.

3. **Mousemove:**

The mousemove event works fine, but you should be aware that it may take quite some system time to process all mousemove events. If the user moves the mouse one pixel, the mousemove event fires. Even when nothing actually happens, long and complicated functions take time and this may affect the usability of the site: everything goes very slowly, especially on old computers.

4. **Mousing out of a layer:**

In a layer-based navigation you may need to know when the mouse leaves a layer so that it can be closed. Therefore you register an onmouseout event handler to the layer. However, event bubbling causes this event handler to fire when the mouse leaves any element inside the layer, too.

5. **Mouseover and mouseout:**

Take another look at the example, switch the mouseovers on and try them. The example adds an onmouseover event handler to ev3 only. However, you'll notice that a mouseover event takes place not only when the mouse enters ev3's area, but also when it enters the area of ev4 or the span. In Mozilla before 1.3, the event even fires when the mouse enters the area of a text!

The reason for this is of course event bubbling. The user causes a mouseover event on ev4. There is no onmouseover event handler on this element, but there is one on ev3. As soon as the event has bubbled up to this element, the event handler is executed.

6. **Mouseenter and mouseleave:**

Microsoft has another solution. It has created two new events mouseenter and mouseleave. They are almost the same as mouseover and mouseout except that they don't react to event bubbling. Therefore they see the entire HTML element they're registered to as one solid block and don't react to mouseovers and –outs taking place inside the block.

Key Events:

- **Key Event are used to capture the interaction made by the user by using key.**

Attribute	Value	Description
onkeydown	*script*	Fires when a user is pressing a key
onkeypress	*script*	Fires when a user presses a key
onkeyup	*script*	Fires when a user releases a key

1. **The Keydown Event (onkeydown):**

The keydown event occurs when the user presses down a key on the keyboard. You can

handle the keydown event with the onkeydown event handler.

2. **The Keyup Event (onkeyup):**

The keyup event occurs when the user releases a key on the keyboard. You

can handle the keyup event with the onkeyup event handler.

3. **The Keypress Event (onkeypress):**

The keypress event occurs when a user presses down a key on the keyboard that has a character value associated with it. For example, keys like Ctrl, Shift, Alt, Esc, Arrow keys, etc. will not generate a keypress event, but will generate a keydown and keyup event.

Conclusion: We understand that how to create a webpage using form events.

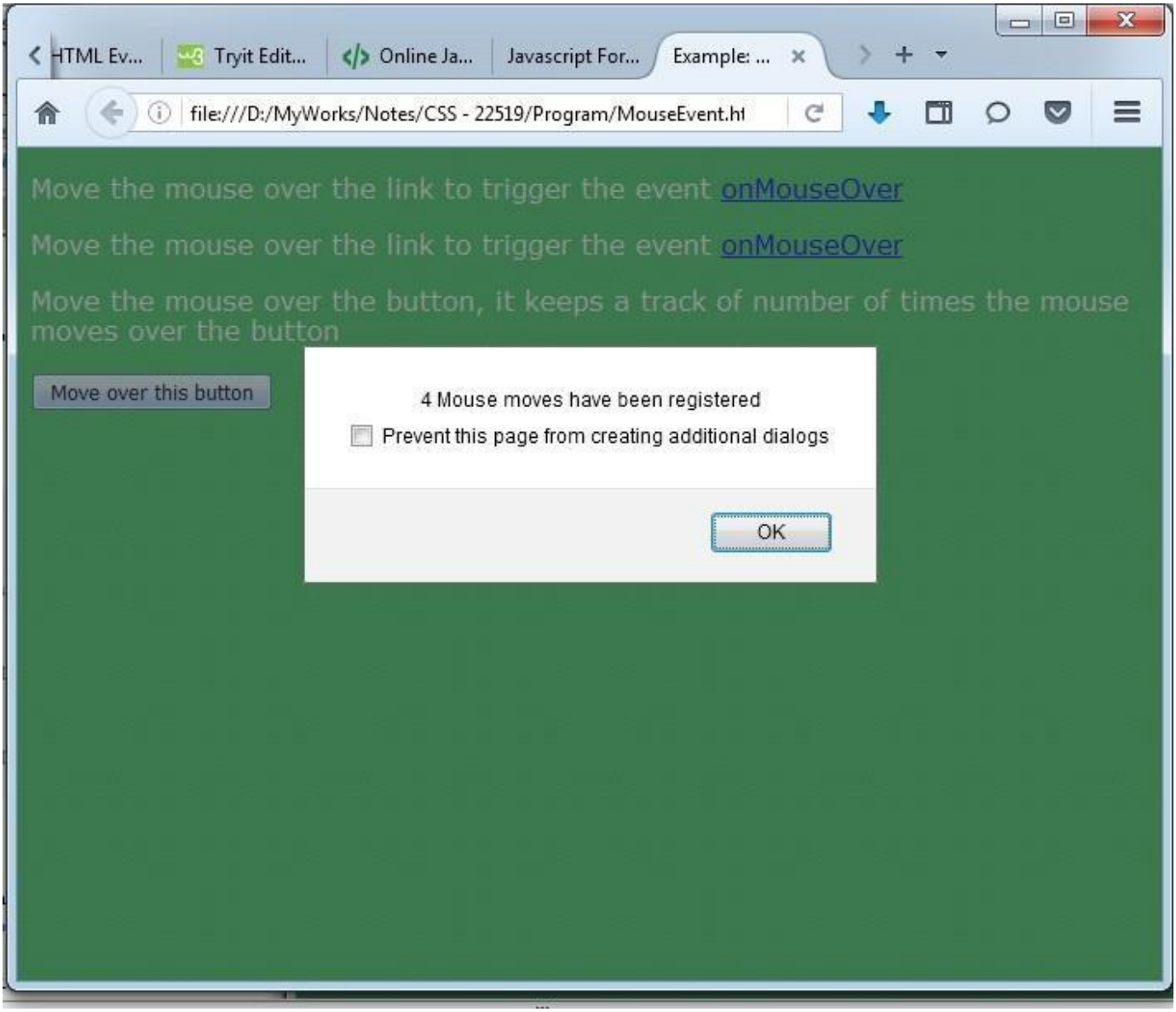
JavaScript on mouse event handler.

```
<!DOCTYPE HTML>
<html>
<head>
 <title>Example: Working with Mouse events</title>
  <style>
   body{font-family:Verdana; background:#44c767;
    color:#fff;}
  </style>
<script>
 var count = 0; function
 tracker(){ count++;
  alert(count + " Mouse moves have been registered");
  }
 function popup1() {
  alert("Event Registered : onMouseOver");
 }
 function popup2() {
  alert("Event Registered : onMouseOut");
 }
</script>
</head>
 <body>
  <p>Move the mouse over the link to trigger the event
   <a href="#" onmouseover="popup1()"> onMouseOver</a></p>

 <p>Move the mouse over the link to trigger the event
   <a href="#" onmouseout="popup2()"> onMouseOver</a></p>

  <p>Move the mouse over the button, it keeps a track of number of
   times the mouse moves over the button</p>
  <button onmouseover="tracker()">Move over this button </button>
</body>
</html>
```

********** OUTPUT **********

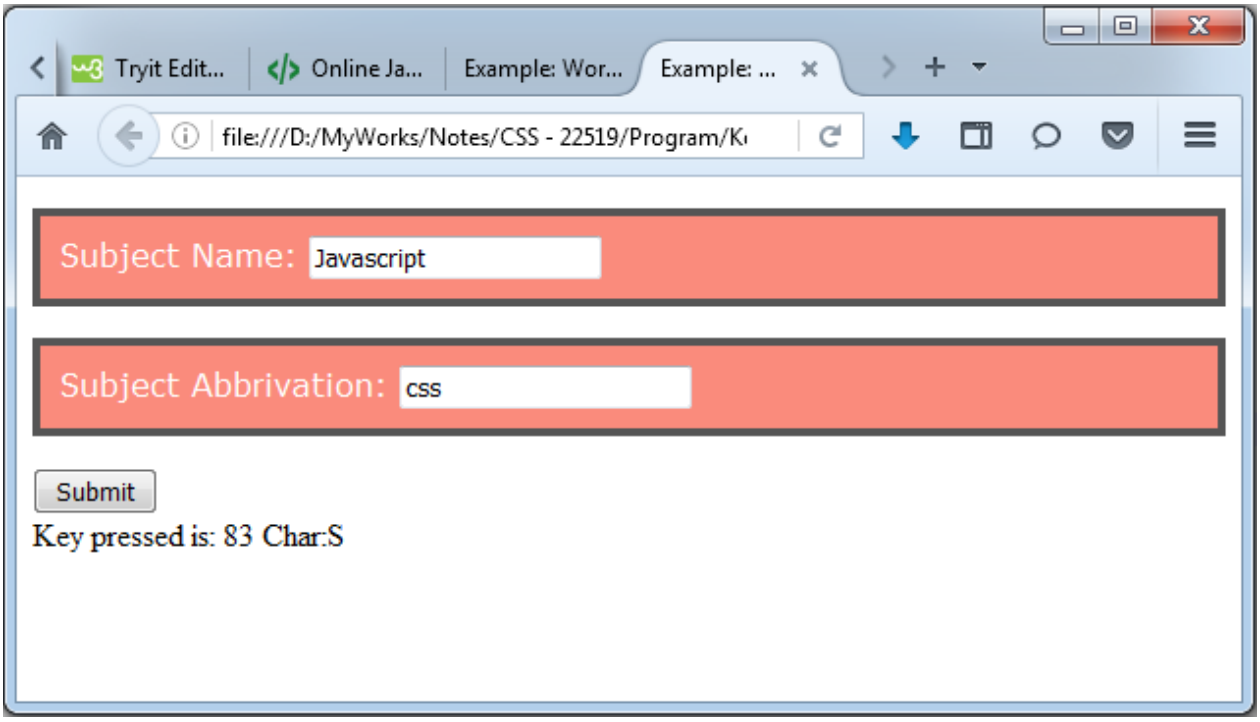

HTML Ev...
Tryit Edit...
Online Ja...
Javascript For...
Example: ...
file:///D:/MyWorks/Notes/CSS - 22519/Program/MouseEvent.ht
Move the mouse over the link to trigger the event onMouseOver
Move the mouse over the link to trigger the event onMouseOver
Move the mouse over the button, it keeps a track of number of times the mouse moves over the button
Move over this button
4 Mouse moves have been registered
Prevent this page from creating additional dialogs
OK

JavaScript on Key event handler.

```
<!DOCTYPE HTML>
 <html>
 <head>
  <title>Example: Working with form Events</title>
  <style    type="text/css">
   p{font-family:Verdana;
   background:#FA8B7C;
   color:#fff;
     padding:10px; border:4px solid #555;}
  </style>
 </head>
  <body>
<form>
 <p>
  <label for="name"> Subject Name:
    <input autofocus id="name" name="name" /></label>
 </p>
 <p>
  <label for="nick"> Subject Abbrivation:
    <input id="nick" name="nick" /></label>
 </p>
    <button type="submit">Submit</button>
   </form>
    <span id="output"></span>
     </body>
  <script>
var items = document.getElementsByTagName("input"); for
 (var i=0; i < items.length; i++){
  items[i].onkeyup = keyboardEventHandler;
 }

function keyboardEventHandler(e){
document.getElementById("output").innerHTML = "Key pressed is: " +
e.keyCode + " Char:" + String.fromCharCode(e.keyCode);
}
</script>
</html>
```

********** OUTPUT **********



VI. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

VII. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

VIII. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain mouse events.
2. Explain the difference between onclick and ondblclick Event
3. Explain key events.

XIV. Exercise:-

1. Write a program to design a form and handle any 2 mouse Events.
2. Write a program to design a form and handle any 2 Key Events.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. Formhttps://www.w3schools.com/js/js_formevents.asp
2. https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/FormEvents

XVI. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total (50)**	

Practical No.9: Develop a webpage using Intrinsic Java Function. Intrinsic Function:

- JavaScriprt provides some special set of built in function known sa Intrinsic function.

- The JavaScript provides the intrinsic function for Submit & Reset Button. It can be used while submitting the form or resetting the form fields.
- The submit() method of the form object can be used to send the form to the server in exactly same way as if the user has pressed the submit button.

Disabling Elements:

- JavaScript allows writing function to disable& enable elements on form.

- If disabled property of particular form element is set to true then user cannot edit that element. Similarly, on setting property to false we can edit the field.
- An element can be disabled in HTML by setting property to true & enabled again by setting disabled= false.

Read Only Elements:

- Some time we need to set some value to a field which user should not change.

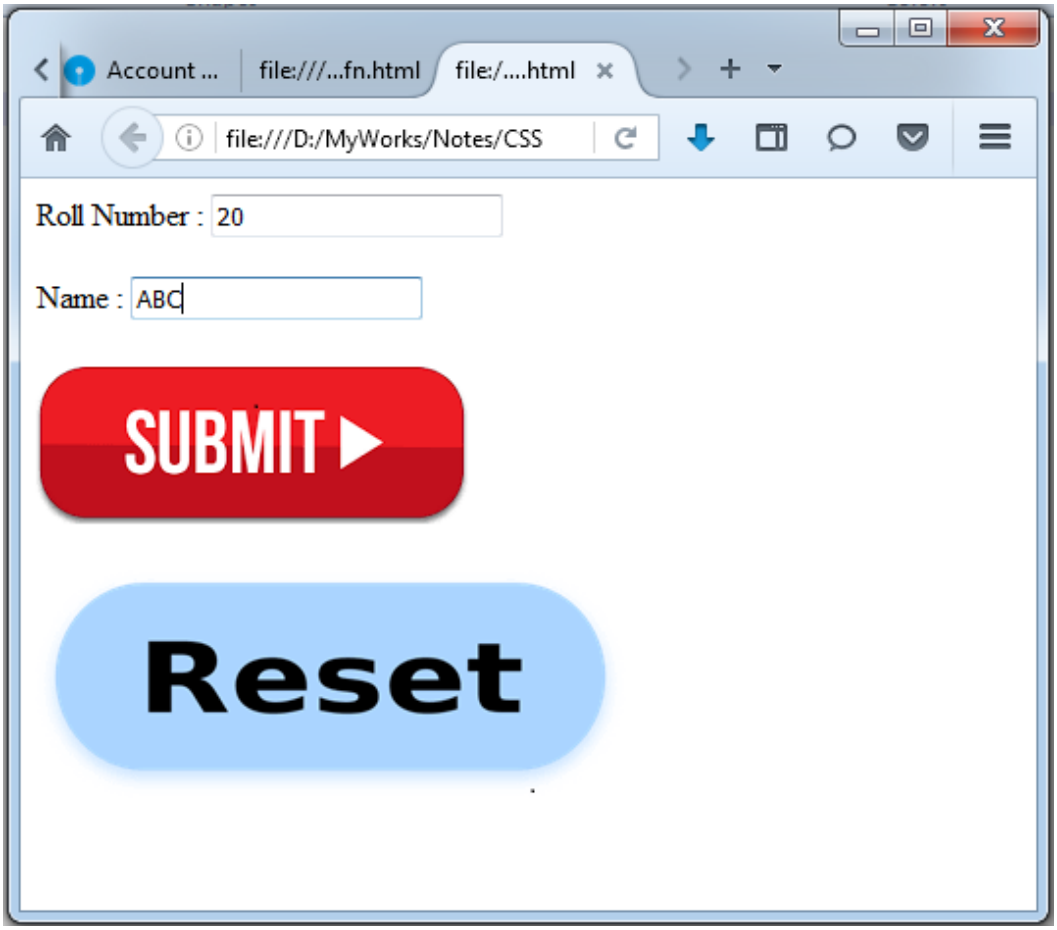
- To restrict user form changing the value of particular field we make the element readonly by setting readonly= true.

Conclusion: We understand that how to create a webpage using intrinsic function.

JavaScript Intrinsic function.

```
<html>
 <body>
  <form name="myform">
     Roll Number : <input type= "text" name="roll"/><br><br/> Name :
     <input type= "text" name="name"/><br><br/>
     <img src= "Submit.png" onclick
="javascript:document.forms.myforms.submit()"/><br><br/>
     <img src= "Reset.png" onclick
="javascript:document.forms.myforms.submit()"/><br><br/>
  </form>
</body>
</html>
```

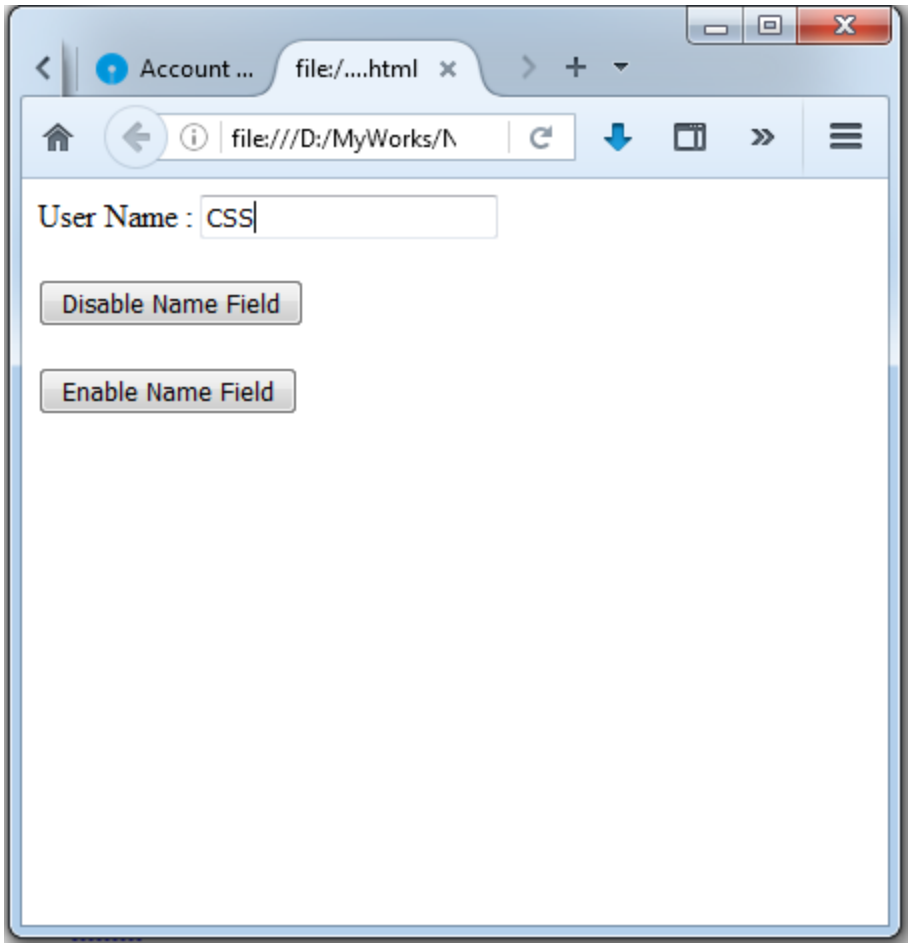
********** OUTPUT **********



JavaScript on Disabling Elements.

```
<html>
<script language="JavaScript"> function
Disable()
{
  documents.forms.myform.name.disabled= true;
}
function Enable()
{
  documents.forms.myform.name.disabled=false;
}
</script>
<form name="myform">
        User Name : <input type= "text" name="name"/><br><br/>
        <input type= "button" value="Disable Name Field" onclick="Disable()"/><br><br/>
        <input type= "button" value="Enable Name Field"
        onclick="Enable()"/><br><br/>
</form>
</body>
</html>
```

********** OUTPUT **********

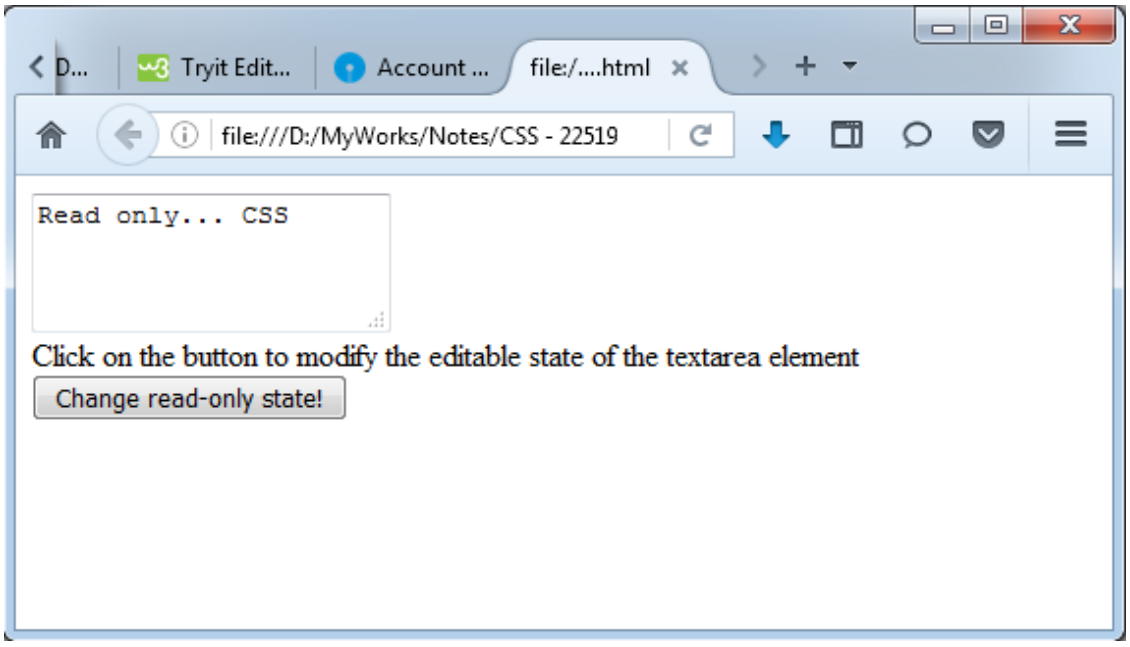


JavaScript Read Only Elements.

```
<html>
<head>
   <script type="text/javascript">
      function
      ToggleReadOnlyState () {
         var textarea = document.getElementById ("myText");
         textarea.readOnly = !textarea.readOnly;
      }
   </script>
</head>
<body>
   <textarea id="myText" rows="3" readonly="readonly">Change this
   text!</textarea>

   <br />
   Click on the button to modify the editable state of the textarea element
   <br />
   <button onclick="ToggleReadOnlyState ();">Change read-only state!</button>
</body>
</html>
```

********** OUTPUT **********



VI. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

VII. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

VIII. Resources Used

Sr.No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain intrinsic functions
2. Explain disabling of right mouse click with Example

Blank Pages to Write

Blank Pages to Write

XIV. References/Suggestions for further reading:-

1. Formhttps://www.w3schools.com/js/js_intrinsic.asp
2. https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Functions

XV. Assessment Scheme:-

Performance Indicators		Weightage
Process Related (35 Marks)		**70%**
1.	Logic Formation	30%
2.	Debugging ability	30%
3.	Following ethical practices	10%
Product Related (15 Marks)		**30%**
4.	Expected Output	10%
5.	Timely Submission	10%
6.	Answer to sample questions	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Process Related (15)**	**Total (50)**	

Practical No. 10: Develop a webpage for creating session and persistent cookies.

I. Practical Significance

Cookies are data, stored in small text files, on your computer. Cookies remember information about the user. When a browser requests a web page from a server, cookies belonging to the page are added to the request. This way the server gets the necessary data to "remember" information about users.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop a webpage for creating session and persistent cookies'**.

IV. Relevant Course Outcome(s)

Create event based web forms using Java script.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. Cookies

- Cookies are data, stored in small text files, on the computer.
- Cookies remember information about the user like when a user visits a web page, his/her name can be stored in a cookie, Next time the user visits the page, the cookie "remembers" his/her name.

B. Contents of Cookie

Cookies are a plain text data record of 5 variable-length fields −

- Expires − The date the cookie will expire. If this is blank, the cookie will expire when the visitor quits the browser.
- Domain − The domain name of your site.
- Path − The path to the directory or web page that set the cookie. This may be blank if you want to retrieve the cookie from any directory or page.

- Secure − If this field contains the word "secure", then the cookie may only be retrieved with a secure server. If this field is blank, no such restriction exists.
- Name=Value − Cookies are set and retrieved in the form of key-value pairs

C. CREATING A COOKIE

- JavaScript can create, read, and delete cookies with the document.cookie property.
  Eg : document.cookie = "username=John Doe";
- You can also add an expiry date (in UTC time). By default, the cookie is deleted when the browser is closed:
  Eg : document.cookie = "username=John Doe; expires=Thu, 18 Dec 2013 12:00:00 UTC";
- With a path parameter, you can tell the browser what path the cookie belongs to. By default, the cookie belongs to the current page.
  Eg : document.cookie = "username=John Doe; expires=Thu, 18 Dec 2013 12:00:00 UTC; path=/";

D. READING A COOKIE

- Reading a cookie is just as simple as writing one, because the value of the document.cookie object is the cookie.
- Use this string whenever you want to access the cookie.
- The document.cookie string will keep a list of name=value pairs separated by semicolons, where name is the name of a cookie and value is its string value.

E. DELETING A COOKIE

- Sometimes you will want to delete a cookie.
- To do this, you just need to set the expiry date to a time in the past.

F. TYPES OF COOKIE

- There are 2 types of Cookies available
  1. Session Cookies: They are the cookies which do not have an expiry date. They are deleted when the browser window is closed
  2. Persistent Cookies : They are the cookies which have an expiry date and are deleted on the date set.

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain the types of Cookies.
2. Write a function to delete a cookie.

XIV. Exercise:-

1. Write a program to create a session cookie and display content of Cookie.
2. Write a JavaScript that creates persistent cookie.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/js/js_cookies.asp

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Product Related (15)**	**Total(50)**	

Practical No. 11. Develop a webpage for placing the window on screen and working with child window.

I. Practical Significance

Windows play an important role in websites. Many a times it is required to open and display anew window for displaying details or for doing some additional work. We can open a small window known as child window by clicking a button or a link or a image of a main window.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team memberin diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with thetechnological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop a webpage for placing the window on screen and working with child window'**.

IV. Relevant Course Outcome(s)

Use Java script for handling cookies.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. <u>Window</u>

- We can open a small window known as child window by clicking a button or a link or a image of a main window. We can control the width, height and location (alignment from top left corner of the screen) of the small window from the main window.
- Here we can control the status bar, tool bar and resize the child window from the main window. By changing the value of status to 1 from 0 (status=1;) we can display the status bar for the child window. Same way by making the toolbar=1; we can display the tool bars for the small window.
- We can change the value of left to position the window horizontally. If we make the value of left to 0 like left=0; to align the window to left edge of the screen. Same way by making the top=0; we can place the window at the top of the screen.
  It is possible to open a new browser window from a currently running JavaScript. One can determine the size, location of this window, toolbar, scroll bar or any other style that normally the browser windows have.
- Once the new browser window is set up, it is possible to change the contents within that

window dynamically.

B. Opening a Window

- It is possible to open a new window from a JavaScript by simply clicking a button.
- For that purpose the window object is used. This window object has various useful properties & methods.
- To open a new windows we use open() method of window object.
  Syntax: window.open(url, name, style);
  url: An URL to load into the new window.
  Name: A name of the new window. Each window has a window.name, and here we can specify which window to use for the popup. If there's already a window with such name the given URL opens in it, otherwise a new window is opened.
  style: The style of window includes various parameters such as menubar, toolbar, location, status, resizable, scrollbars, height & width of window

C. The Arguments:

- You have a number of options for the third argument. When you define any of them, the remaining Boolean values (which can be true/false or yes/no or 1/0) are all set to false/no/0.
- Whichever you choose to use, all of your options go into the same quoted string, with commas between the values, and no spaces are allowed between them.
  - Height: Defines the height of the window in pixels. Percentage values don't work.
  - Width: Defines the width. Again, you'll have no joy with percentages.
  - Left: Supported by version 4 browsers and above, this sets how far removed the window appears from the left of the screen. In pixels.
  - Top: Partner to left, this pushes the window off the top of the screen.
  - Resizable:Set to true or false, this may allow the user to resize the window.
  - Scrollbars: Another Boolean value, this adds scrollbars to the new window. If your content may be longer then the dimensions you've specified, make sure this is set to yes.
  - Toolbar: Specifies whether the basic back/forward toolbar should be visible. If there are links to follow in your new page, set this to yes.
  - Menubar: Specifies whether the main toolbar (File, Edit, ...) is shown.
  - Location: Specifies whether the location toolbar (address bar) is shown.
  - Status: Specifies whether the new window can have a status bar. Best set to yes. For security reasons, Mozilla-based browsers always show the status bar.
  - Directories: Specifies whether the directories toolbar is shown (Links toolbar in IE).
  - Fullscreen: Internet Explorer-only Boolean attribute which may open the window in fullscreen. It's annoying — don't use it.
  - Dependent: Netscape 4-only attribute which makes the popup dependent on the status of the main window. If the main window is closed, the popup closes with it.
  - screenX & screen: Old Netscape attributes for defining the window's position on the page. Use left and top in their place.

D. The Methods: Following methods can be used with the window object.

Method	Description
alert()	Displays an alert box with a message and an OK button
atob()	Decodes a base-64 encoded string
blur()	Removes focus from the current window
btoa()	Encodes a string in base-64
clearInterval()	Clears a timer set with setInterval()
clearTimeout()	Clears a timer set with setTimeout()
close()	Closes the current window
confirm()	Displays a dialog box with a message and an OK and a Cancel button
focus()	Sets focus to the current window
getComputedStyle()	Gets the current computed CSS styles applied to an element
getSelection()	Returns a Selection object representing the range of text selected by the user
matchMedia()	Returns a MediaQueryList object representing the specified CSS media query string
moveBy()	Moves a window relative to its current position
moveTo()	Moves a window to the specified position
open()	Opens a new browser window
print()	Prints the content of the current window
prompt()	Displays a dialog box that prompts the visitor for input
requestAnimationFrame()	Requests the browser to call a function to update an animation before the next repaint
resizeBy()	Resizes the window by the specified pixels
resizeTo()	Resizes the window to the specified width and height
scroll()	Deprecated. This method has been replaced by the scrollTo() method.
scrollBy()	Scrolls the document by the specified number of pixels
scrollTo()	Scrolls the document to the specified coordinates
setInterval()	Calls a function or evaluates an expression at specified intervals (in milliseconds)
setTimeout()	Calls a function or evaluates an expression after a specified number of milliseconds
stop()	Stops the window from loading

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain any 4 methods used with window object along with their syntax.
2. Write a JavaScript to display digital clock in the new window.

XIV. Exercise:-

1. Write a program to design a form to accept height and width and 3 buttons as “Create Window”, “Move Window” and “Resize window”

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/jsref/obj_window.asp
2. https://developer.mozilla.org/en-US/docs/Web/API/Window

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Product Related (15)**	**Total(50)**	

Practical No. 12. Develop a webpage for validation of form fields using regular expression.

I. Practical Significance

A regular expression is an object that describes a pattern of characters. The JavaScript RegExp class represents regular expressions, and both String and RegExp define methods that use regular expressions to perform powerful pattern-matching and search-and-replace functions on text. It has wide use in search and replace applications.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop a webpage for validation of form fields using regular expression'**.

IV. Relevant Course Outcome(s)

Create interactive webpage using regular expressions for validations.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. <u>Regular Expression</u>

- A regular expression is an object that describes a pattern of characters
- Syntax: A regular expression could be defined with the RegExp () constructor, as follows
  var pattern = new RegExp(pattern, attributes);
  var pattern = /pattern/attributes;
  Here is the description of the parameters −
  pattern − A string that specifies the pattern of the regular expression or another regular expression.
  attributes − An optional string containing any of the "g", "i", and "m" attributes that specify global, case-insensitive, and multi-line matches, respectively

B. Language of Regular Expression

- The words of regular expression are called special character. Various special characters that can be used in regular expression along with their meaning are shown in following table:

Special Character	Meaning	Special Character	Meaning
.	Any Character Except Newline	*	0 or more
A	The Character a	+	1 or more
ab	The String ab	?	0 or 1
A| B	A or B	{2}	Exactly 2
a*	0 or more A's	{2,5}	Between 2 & 5
\	Escapes a special character	{2 , }	2 or more
[ab-d]	One character of : a, b, c, d	(...)	Group of pattern
[^ab-d]	One character except : a, b, c, d	^	Start of string
[\b]	Backspace character	$	End of string
\d	One digit	\b	Word boundry
\D	One non digit	\n	Newline
\s	One whitespace	\r	Carriage return
\S	One non whitespace	\t	Tab
\w	One word character	\0	Null character
\W	One non word character		

C. Methods of Regular Expression:

- You have a number of methods that can be used with regular expressions as follows:

Method	Description
exec	Executes a search for a match in its string parameter.
test	Tests for a match in its string parameter.
match	A string method that executes a search for a match in a string. It return an array of information or null on a mismatch
matchAll	A string method that returns an iterator containing all of the matches, including, capturing groups.
search	A string method that test for a match in a string. It returns the index of the match or -1 if the search fails.
replace	A string method that executes a search for a match in a string, & replaces the matched substring with a replacement substring.
split	A string method that uses a regular expression or a fixed string to break a string into an array of substring.

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain regular expressions with its syntax.
2. Explain the different metacharachters and quantifiers that can be used in regular expression.

XIV. Exercise:-

1. Write a program to perform form validation for a registration form using regular expressions
2. Write a JavaScript to count the number of vowels in a given string using regular expression
3. Write a JavaScript to check whether the first letter if the string is capitalized or not

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. http://www.tutorialspark.com/javascript/JavaScript_Regular_Expression_Form_Validation.php
2. http://form.guide/snippets/javascript-form-validation-using-regular-expression.html

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Product Related (15)**	**Total(50)**	

Practical No. 13. Create a webpage with rollover effect.

I. Practical Significance

Rollover is a JavaScript technique used by Web developers to produce an effect in which the appearance of a graphical image changes when the user rolls the mouse pointer over it. Rollover also refers to a button on a Web page that allows interactivity between the user and the Web page.It is mainly used by developers for advertising purpose.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools withan understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with thetechnological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Create a webpage with rollover effect'**.

IV. Relevant Course Outcome(s)

Create interactive webpage using regular expressions for validations.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. <u>Concept of Rollover</u>

- Appears when the user place his or her mouse over the text area and the rollover text changes to "Rollover means a webpage changes when the user moves his or her mouse over an object on the page" when the user moves his or her mouse away from the text area.
- Rollover is a JavaScript technique used by Web developers to produce an effect in which the appearance of a graphical image changes when the user rolls the mouse pointer over it.
- Rollover also refers to a button on a Web page that allows interactivity between the user and the Web page.
- Rollover effect is mainly used in web page designing for advertising purpose. Rollover is triggered when the mouse moves over the primary image, causing the secondary image to appear. The primary image reappears when the mouse is moved away.

B. Creating Rollover

- On many web pages JavaScript rollovers are handled by adding an onmouseover and onmouseout event on image.
  1. onmouseover : event occurs when a mouse pointer comes over an element.
  2. onmouseout – event occurs when a mouse pointer leaves an element

C. Text Rollover:

- Text rollover is a technique in which whenever user rollover the text, Javascript allows to change the page element usually some graphics.

D. Multiple Actions for Rollover:

- Suppose user is rolling the cursor over the text, then instead of simply changing the image we can display more window displaying some features about the item on which mouse is rolling over. This process is called as Multiple Actions For Rollover.
- Duo to this effect visitor gets more information at a glance.
- We can open additional window using function Open(). This function is invoking using the object window.
- The open() method opens a new browser window. The close() window closes the window..

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	Computer System	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	Software	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain what s rollover.
2. Which methods are used for generating the rollover effect. State the syntax

XIV. Exercise:-

1. Write a program to demonstrate the example of image rollover
2. Write a program to demonstrate the example of text rollover
3. Write a program to demonstrate the example of image and text rollover

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/jsref/event_onmouseover.asp
2. http://www.dhtmlgoodies.com/tutorials/javascript-rollovers/

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Product Related (15)**	**Total(50)**	

Practical No. 14. Develop a webpage for implementing Menus.

I. Practical Significance

The Menu element represents a group of commands that a user can perform or activate. Menu may contain multiple choices to select. User can choose one or more menu at a time depending on type of menu. It is an important element to perform navigation.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with thetechnological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency '**Develop a webpage for implementing Menus**'

IV. Relevant Course Outcome(s)

Create Menus and Navigations in Webpage..

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. Menu

- Menus are an important element to provide navigations in WebPages
- It provides quick link for browsing the desired web pages
- Different types of Menus can be implemented depending on the requirements

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B. Types of Menus

- It is possible to open a new window from a JavaScript by simply clicking a button.
    1. Pull down Menu : Also called a drop-down menu, a menu of commands or options that appears when you select an item with a mouse
    2. Floating Menu: The menu which is fixed while scrolling the webpage is called as floating menu. It can be created by setting style position of menu as fixed.
    3. Chain Select Menu: A chain of pull-down menus can be created in which the option selected from the first pull-down menu determines the options that are available in the second pull-down menu. Likewise, the second pull-down menu selection

determines options that are shown in the third pull-down menu.

4. Tab Menu: Tab menus display a one- or two-word description of the menu option within a tab. A more complete description is displayed below the tab bar as the visitor moves the mouse cursor over the tab
5. Popup Menu: A popup menu displays several top-level menu items. A popup menu appears as the visitor moves the mouse cursor over a top-level menu item. The popup menu contains lower-level menu items that are associated with the top-level menu item.
6. Highlighted Menu: A highlighted menu, causes two kinds of highlights to appear around an item on the menu. When the visitor moves the cursor over a menu item, the browser displays a box around the item with a shadow at the bottom of the box. If the visitor selects the item, the highlight shadow appears at the top of the box rather than at the bottom of the box.
7. Folding Tree Menu: The folding tree menu should look familiar, because it is a classic menu used in desktop applications to help you to navigate file folders. The tree consists of one or more closed folders, each of which appears alongside the folder's name. The tree expands when the visitor clicks a closed folder, showing one or more menu options that are associated with the folder.
8. Context Menu :The context menu pops up on the web page when the visitor clicks the right mouse button . The location of the context menu on the screen is determined by the position of the mouse cursor. The mouse cursor sets the position of the upper-left corner of the context menu. Each menu item is automatically highlighted as the visitor scrolls through the menu by moving the mouse cursor. The visitor clicks the name of the item to select that menu option. The context menu is hidden from the screen by clicking the mouse cursor away from the menu. You can link each of these options to another web page or to a bookmark within the web page that contains the tree menu. The tree collapses when the visitor clicks an open folder.
9. Scrollable Menu: If you are tight on space and have many menu items to present to visitors to your web site, the scrollable menu is the solution to your problem. The scrollable menu displays a limited number of menu item across the web page. Although only a few items are shown, you can use as many menu items as your application needs. Two arrowheads appear at both ends of the visible list of menu items. Visitors can simply move the mouse cursor over one of the arrowheads and the browser automatically scrolls the menu in the direction of the arrowhead The visitor can then click the appropriate menu item once it scrolls into view.
10. Side Bar Menu: The side bar menu displays a menu on the side of the web page. Options on this menu can be linked to other web pages or to other menu options.
11. Slide-In Menu/Sliding Menu: The slide-in menu appears as a vertical block that floats on the left side of the web page. It seems to come alive when the visitor moves the mouse cursor over the block.

VIII. Resources required

Sr.No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain any 4 methods types of Menu.
2. State the difference between sidebar menu and sliding menu.

XIV. Exercise:-

1. Write a program to design pull down menu using JavaScript.
2. Write a program to design drop down menu using JavaScript.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/howto/tryit.asp?filename=tryhow_css_js_dropdown
2. https://www.w3schools.com/howto/howto_js_dropdown.asp

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(25 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (15)	**Product Related (10)**	**Total(25)**	

Practical No. 15. Develop a webpage for implementing Status bars and Web Page Protection.

I. Practical Significance

The status bar is located at the bottom of the browser window and is used to display a short message to visitors to your web page. Web page protection plays an important role in securing the data.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with the technological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency **'Develop a webpage for implementing Status bars and Web Page Protection'**

IV. Relevant Course Outcome(s)

Create Menus and Navigations in Webpage.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. <u>Status Bars</u>

- A static message appears when the web page opens and remains on the status bar until the web page is closed.
- The content of the status bar is the value of the window object's status property. To display a message on the status bar, you'll need to assign the message to the status property of the window object.
- The following statement assigns a string to the status property, which appears on the status bar once the browser executes this statement:
- window.status='Welcome to Status Bar. This is Static Message.'

B. Protecting web pages:

- The source code of a web page can be viewed by clicking right mouse button on the webpage.
- Anyone can see the source code of a webpage which is not safe.
- We can hide the code by disabling right mouse click on webpage.
- Hiding source code is nothing but protecting the source code from viewing by other users.

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain security in JavaScript.
2. State the use of status bars

XIV. Exercise:-

1. Write a JavaScript program that creates a scrolling text on the status line of a window.
2. Write a JavaScript program to disable right click of mouse.

Blank Pages to Write

Blank Pages to Write

XV. References/Suggestions for further reading:-

1. https://www.w3schools.com/jsref/prop_win_status.asp
2. https://stackoverflow.com/questions/737022/how-do-i-disable-right-click-on-my-web-page

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(50 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (35)	**Product Related (15)**	**Total(50)**	

Practical No. 16. Develop a webpage for implementing Banner, Slideshow.

I. Practical Significance

The banner advertisement is the hallmark of every commercial web page. It is typically positioned near the top of the web page, and its purpose is to get the visitor's attention. A slideshow is used to cycle through element.

II. Relevant Program Outcomes (POs)

1. **Discipline Knowledge:** Apply Computer Programming knowledge to solve Computer Group related problems.
2. **Experiments and Practice:** Plan to perform experiments and practices to solve Computer Group related problems.
3. **Engineering Tools:** Apply relevant Computer Programming Technologies and Tools with an understanding of the limitations.
4. **Individual and team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams
5. **Life-long learning:** Engage in independent and lifelong learning along with thetechnological changes in CM/IT and allied industry.

III. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry oriented competency '**Develop a webpage for implementing Slideshow, Banner**'

IV. Relevant Course Outcome(s)

Create Menus and Navigations in Webpage.

VI. Relative Affective domain related Outcome(s)

1. Follow ethical practices
2. Demonstrate working as a leader/team member

VII. Minimum Theoretical Background

A. <u>Banner</u>

- They are used for promoting advertisements in WebPages
- Nearly all banner advertisements are in a file format such as a GIF, JPG, TIFF, or other common graphic file formats.
- Some are animated GIFs, which is a series of images contained in one file that rotate automatically on the screen.
- Some are Flash movies that require the visitor to have a browser that includes a Flash plug-in.
- You need to do three things to incorporate a banner advertisement in your web page:
    1. Create several banner advertisements using a graphics tool such as PhotoShop. You'll want to make more than one advertisement so you can rotate them on your web page using a JavaScript.

2. Create an <img> element in your web page with the height and width necessary to display the banner advertisement.
3. Build a JavaScript that loads and displays the banner advertisements in conjunction with the <img> element.

B. <u>Loading and Displaying Banner Advertisements:</u>

- The banners should all be the same size so they look professional as they rotate on your web page.create an image element on your web page using the <img> tag. You'll need to set four attributes of the <img> tag: src, width, height, and name
- Set the src attribute to the file name of the first banner advertisement that you want to display. Set the width and height attributes to the width and height of the banner. Set the name attribute to a unique name for the image element.
- The image element (banner) should be centered in the page using the tag within the <body> tag of your web page.
- The final step is to build the JavaScript that will rotate the banners on your web page. You'll define the JavaScript in the <head> tag of the web page. The JavaScript must do the following:
  1. Load banner advertisements into an array.
  2. Determine whether the browser supports the image object.
  3. Display a banner advertisement.
  4.Pause before displaying the next banner advertisement.

C. <u>SlideShow</u>

- A slide show is a presentation of a series of still images on a projection screen or electronic display device, typically in a prearranged sequence.
- It is generally used for display purpose where a set of images are displayed one after the another. They may be used to convey information to user in pictorial forms

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	**Computer System**	**Operating System:** Windows 7 or higher **Memory:** 2 GB RAM or higher **Processor Speed:** Intel core i3 or higher **Hard Drive:** 500 GB or larger		
2	**Software**	**Notepad++, Chrome**		

IX. Precautions

1. Handle Computer System carefully
2. Start and shutdown system with proper procedure

X. Resources Used

Sr. No.	Name of Resource	Specification
1.	Computer System with broad specifications	
2.	Software	
3.	Any other resource used	

XI Result :

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XII. Conclusion(s)

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XIII. Questions:-

1. Explain the use of banners in websites.
2. How to create a slide show in javascript?

Blank Pages to Write

Blank Pages to Write

XIV. Exercise:-

1. Develop a JavaScript Program to Create Rotating Banner Ads with URL Links.
2. Create a slideshow with the group of four images, also simulate the next and previous transition between slides in your JavaScript.

XV. References/Suggestions for further reading:-

https://javascript-tutor.net/index.php/lesson-28-managing-banner-ads-in-javascript

XVI. Assessment Scheme:-

Performance Indicators		Weightage
1.	Use of relevant tags and attributes	10%
2.	Correctness of Coding	40%
3.	Testing and Debugging of Program	30%
4.	Appearance of Program Output	10%
5.	Submission of Report on time	10%
Total(25 Marks)		**100%**

Marks Obtained			Dated Sign of Teacher
Process Related (15)	**Product Related (10)**	**Total(25)**	