Lab	Type	Practical
Unit : I – Java Script		
1	**A.** **A.** **A.** **B.** **A.** **B.**	1. WAP in JavaScript to make simple calculator using popup box. 2. WAP in JavaScript to check whether the given no. is prime or not. 3. WAP in JavaScript to find the factorial of given number. 4. WAP in JavaScript to print the Fibonacci series of a number. 5. WAP in JavaScript to check whether the given number is palindrome or not. 6. WAP in JavaScript to check whether the given number is Armstrong or not.
2	**A.** **A.** **A.** **A.** **A.** **B.** **B.**	1. WAP in JavaScript to print the factors of given number. 2. WAP in JavaScript to prime number between the given range of number. 3. WAP to display given patterns using JavaScript. 4. WAP in JavaScript to print the GCD of two number. 5. Write a JavaScript to take 2-digit number and then separate these 2 digits, then multiply first digit by itself for second digit times. (For example, 23 should be separated as 2 and 3. 2 should multiply with itself 3 times). 6. Write an HTML page with JavaScript that takes a number from popup box in the range 0-999 and display it in words. If the number is out of range, it should show "out of range" and if it is not a number ,it should show "not a number" message in the result box. 7. Write an HTML file with JavaScript that finds position of first occurrence of vowel "a", last occurrence of vowel "a" in a given word and returns the string between them. For example, ajanta- then script would return first occurrence of "a"-that is position 1 and last occurrence-6 and string between them is "jant".
3	**A.** **A.** **B.** **B.** **A.**	1. Demonstrate the use of array to find maximum number. 2. WAP to read an array from the user and sort them in ascending order. 3. WAP to read an array from the user and sort them using bubble sort. 4. WAP to read an array form the user and sort them using quick sort. 5. Write a JavaScript that uses a loop that searches a word in sentence held in an array, returning the index of the word.

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4	A.	1. WAP to display Faculties stored in array.
	A.	2. Demonstrate different array functions like push, pop, shift, unshift, splice, sort etc...
	B.	3. WAP to display students stored in array.
	B.	4. WAP to display products stored in array.
5	A.	1. WAP to create a basic graphical Calculator using HTML and JavaScript.
	A.	2. WAP to create a static login page using HTML and JavaScript.
	B.	3. WAP to create a scientific graphical calculator using HTML and JavaScript.
	B.	4. Write a JavaScript program to validate user data given from the HTML form
		1) username must be of minimum 8 characters
		2) password must contain at least 1 digit and 1 special character and should be between 8-12 characters
		3) password and repeat password must be same
		4) age must be greater than 18 (calculate from date of birth)
		5) enrollment must be of 11 digits
		6) email validation

6	A.	1. WAP to change background color on click of button.
	A.	2. WAP to recognize which mouse event is fired.
	A.	3. WAP to recognize which keyboard event is fired.
	A.	4. WAP to recognize which form event is fired.
	A.	5. WAP to demonstrate change in properties of HTML element using JavaScript.
	B.	6. WAP to prepare student registration form and validate it using JavaScript.
		7. WAP to perform CRUD operation on Array using HTML and JavaScript.
	B.	8. Write a JavaScript that handles following mouse events. Add necessary elements.
		If the mouse is over the heading should turn yellow and if the mouse goes out of the heading it should turn black.
		If findtime button is clicked show time and date information.
		If button named "red" is clicked, background should change to red and If button named "green" is clicked, background should change to green.
	B.	9. Write a JavaScript that handles following mouse events. Add necessary elements.
		JavaScript gives the key code for the key pressed.
		If the key pressed is "a","e","i","o","u", the script should announce that vowel is pressed.
		When the key is released background should change to blue.

7	A.	1. WAP to demonstrate callbacks in JavaScript.
	A.	2. Demonstrate the difference between let and var.
	A.	3. Demonstrate the default parameter while using a function.
	A.	4. Demonstrate the spread operator.
	A.	5. Demonstrate the 'for of' loop.
	A.	6. Demonstrate the Array and Object Destructuring.
	A.	7. Demonstrate the Arrow functions.
	A.	8. Demonstrate how to create a class in Java Script.
	B.	9. Create a Snake game using Java script.
	B.	10. Write JavaScript that handles following mouse event. - If mouse left button pressed on browser, it displayed message "Left Clicked". - If mouse right button pressed on browser, it displayed message "Right Clicked".
	B.	11. Write a JavaScript having a list of checkbox and by clicking on checkbox, it should show list of selected value in comma separated format. (e.g. list of roll number as checkbox value, and display selected roll number in comma separated format)

Unit : II – Angular

8	A.	1. Setting up react environment.
	A.	2. Hello world webapp using ReactJS.
	A.	3. Demonstrate the use of JSX.
	B.	4. WAP to create a simple class component in ReactJS.
	A.	5. WAP to create a simple function component in ReactJS.

9	A.	1. Create a function component in separate file and link with App.js
	A.	2. Demonstrate the ReactJS props.
	A.	3. Demonstrate the Event Handling in ReactJS.
	B.	4. WAP in ReactJS to display the element if it has attribute called isDisplay to be true (using conditional rendering).

10	A.	1. Demonstrate the use of map method in ReactJS to display array.
	A.	2. Display Faculties stored in array using ReactJS.
	A.	3. Display Students stored in array using ReactJS.
	B.	4. Display Products stored in array using ReactJS.

11	A. A.	1. Implement Routing in ReactJS. 2. Develop basic website using 5 different component (pages) and implement Routing in it. (i.e. About, Contact etc...).
12	A. A. A. B.	1. Demonstrate useState hook in ReactJS. 2. Demonstrate useEffect hook in ReactJS. 3. WAP to create a simple calculator using ReactJS. 4. WAP to do CRUD operation on array using ReactJS.
13	A. A.	1. Create a MockAPI online with following fields. • FacultyID • FacultyName • FacultyExp • FacultyImage 2. Perform CRUD operation on MockAPI using ReactJS.
14	A.	1. Implement CRUD operation on different MockAPIs. (minimum 2 APIs)
Unit : III – NodeJS		
15	A. A. A. B. B.	1. Demonstrate the use of Node Package Manage (NPM). 2. Demonstrate "path" core module in NodeJS. 3. Demonstrate "fs" core module in NodeJS. 4. Demonstrate "child_process" core module in NodeJS. 5. Demonstrate the use of EventEmmiter in NodeJS.
16	A. A.	1. Create a hello world webapp using "http" core module in NodeJS. 2. Create a webapp with 5 pages like about, contact etc.. using "http" core module in NodeJS.
17	A. A.	1. 1. Create a hello world webapp using ExpressJS. 2. Create a webapp with 5 pages like about, contact etc.. using ExpressJS.
18	A. A. A. B.	1. Demonstrate the use of middleware in Express. 2. Demonstrate the use of static middleware in Express. 3. Install MongoDB and MongoDBCompass 4. Setup documents in MongoDB.

19	A. A. A.	1. Install Mongoose library using NPM. 2. Demonstrate the use mongoose functions. 3. Create a Database using MongoDBCompass for faculty, student and products
20 21	A.	1. Create a restful CRUD API using NodeJS, Express and MongoDB for faculty, student and products.

Unit : IV – Angular

22	A. A. A. B.	1. Setup Environment for Angular. 2. Create first project in Angular. 3. Hello world webapp using Angular. 4. Demonstrate how to create component in Angular.
23	A. A. A. A. A. A.	1. Demonstrate basic routing in Angular. 2. Demonstrate the routing parameters in Angular. 3. Demonstrate the Interpolation. 4. Demonstrate the Property Binding. 5. Demonstrate the Event Binding. 6. Demonstrate Two-way Data Binding.
24	A. A. A. A.	1. Demonstrate built-in attribute directives in Angular. 2. Demonstrate built-in structural directives in Angular. 3. Demonstrate Observable in Angular. 4. Demonstrate Dependency Injection in Angular.
25	A. A.	1. Demonstrate Template Driven forms in Angular. 2. Create webapp using Angular to perform CRUD operation on Array.

26	A.
	
	A.
		1. Create a MockAPI online with following fields.
		   • FacultyID
		   • FacultyName
		   • FacultyExp
		   • FacultyImage
		2. Perform CRUD operation on MockAPI using Angular.

27	A.	1. Implement CRUD operation on different MockAPIs. (minimum 2 APIs)

28	A.	1. Develop mini project using NodeJS and ReactJS.
29	A.	2. Develop mini project using NodeJS and Angular.
30		