

Ex.No.3: Programs using Java Script – Part I

- 3.a. Write a JavaScript program to prompt the user for the radius and call function Sphere_Volume to calculate and display the volume of the sphere. Also invoke the function Circle_Area to calculate and display the area of the circle. The user should input the radius through an XHTML text field in a form and click an XHTML button to initiate the calculation.
- 3.b. Write a function Compute_Distance that calculates the distance between two points (x1, y1) and (x2, y2). All numbers and return values should be floating-point values. Incorporate this function into a Java script that enables the user to enter the Coordinates of the points through an XHTML form.

- 3.c. Write a function Integer_Power(base, exponent) that returns the value of
base^{exponent}

Assume that exponent and base are integers. Function Integer_Power should use a for or while statement to control the calculation. Do not use any math library functions. Incorporate this function into a Java script that reads integer values from an XHTML form for base and exponent and performs the calculation with the Integer_Power function. The XHTML form should consist of two text fields and a button to initiate the calculation. The user should interact with the program by typing numbers in both text fields then clicking the button.

- 3.d.
- a) Write a function that determines whether a number is prime or Not.
 - b) Use this function in a Java script that determines and prints all the prime numbers between 1 and 1000. How many of these 1000 numbers do you really have to test before being sure that you have found all the primes? Display the results in a <textarea>.
 - c) Initially, you might think that $n/2$ is the upper limit for which you must test to see whether a number is prime, but you only need go as high as the square root of n . Why? Rewrite the program, and run it both ways. Estimate the performance improvement.
- 3.e. Write a function that determines whether a number is Armstrong or Not. Use this function in a Java script that determines and prints all the Armstrong numbers between 100 and 5000.

