

# Assignment Problems

1. Initialize the three variables a, b, c and d with 5, 10, "I am a" and "Developer" so that output should look like.  
**Output - 15**     "I am a Developer"
2. Initialize two variables with numbers (it should accept all types of numbers) and perform all arithmetic operations between them.
3. Perform all arithmetic operations in the above problem using different functions in which function should take two parameters and return the output.
4. Perform all arithmetic operations in the above problem using one function so it should be the 3rd parameter as an operation you want to perform.  
**Example -** function mathOperation(a,b,operation){ // Your Code }
5. Consider this sentence - "It was really \_\_\_\_, and we \_\_\_\_ ourselves \_\_\_\_". This sentence has three missing pieces- an adjective, a verb and an adverb, and we can add words of our choice to complete it. Your task is to add your choice words in between the strings.  
**Hint -** Use String Concatenation
6. Take a number and check whether it is even or odd using a function.
7. Replace if-else with switch statements in this code .

```
1  function chainToSwitch(val) {
2      var answer = "";
3      // Only change code below this line
4
5      if (val === "bob") {
6          answer = "Marley";
7      } else if (val === 42) {
8          answer = "The Answer";
9      } else if (val === 1) {
10         answer = "There is no #1";
11     } else if (val === 99) {
12         answer = "Missed me by this much!";
13     } else if (val === 7) {
14         answer = "Ate Nine";
15     }
16
17     // Only change code above this line
18     return answer;
19 }
20
21 chainToSwitch(7);
```

8. Make an array and it should contain all data types and print all values in the console.

9. Make this pattern and print it in the console. Write a function which takes 'n' as a parameter and print the pattern.

Here in the below example n = 5.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

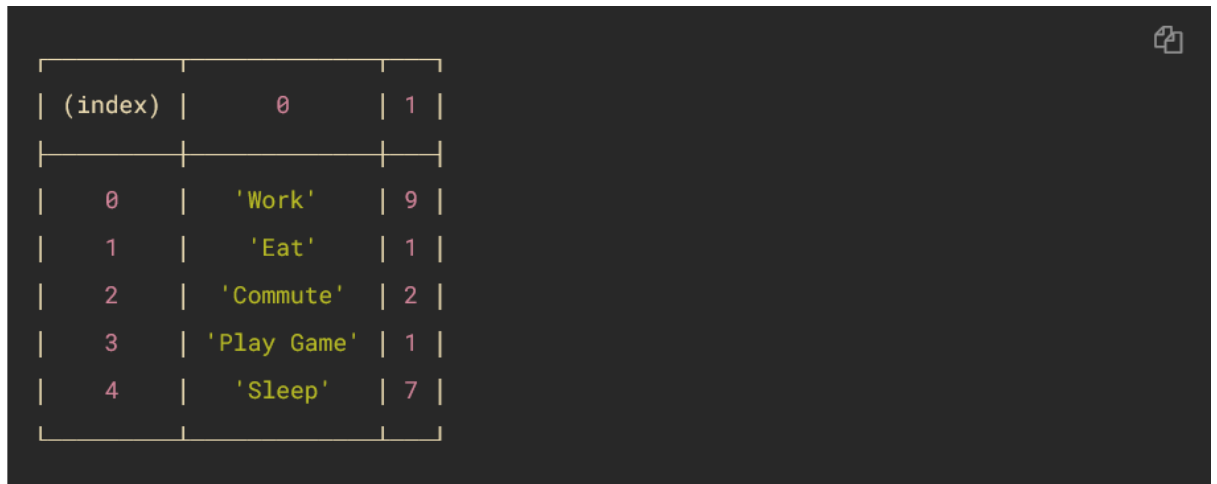
10. Create an array of Strings and print the value in the console in a reverse order.
11. Create a nested array which means array of arrays. (Arrays contain various arrays).

```
let activities = [];
```

The following example defines a two-dimensional array named `activities` :

```
let activities = [
  ['Work', 9],
  ['Eat', 1],
  ['Commute', 2],
  ['Play Game', 1],
  ['Sleep', 7]
];
```

Console this output using a loop.



(index)	0	1
0	'Work'	9
1	'Eat'	1
2	'Commute'	2
3	'Play Game'	1
4	'Sleep'	7

12. Write a function `queue` which takes an array (`arr`) and a number (`item`) as arguments. Add the number to the end of the array, then remove the first element of the array. The `queue` function should then return the element that was removed.

**Hint - Use Array Functions**

```

1  function queue(arr, item) {
2    // Only change code below this line
3
4    return item;
5    // Only change code above this line
6
7  }
8
9
10 // Setup
11 var testArr = [1,2,3,4,5];
12
13 // Display code
14 console.log("Before: " + JSON.stringify(testArr));
15 console.log(queue(testArr, 6));
16 console.log("After: " + JSON.stringify(testArr));

```

13. Create an array of numbers and pass this array to a function named `sumOfArrayElem()` and this function should return the sum of all elements in the array.

**Hint -** `function sumOfArrayElem(yourArray) { // Your Code }`

**Input -** [2,3,7,9,4,5]

**Output -** 30

14. Write the above sumOfArrayElem and calculate the sum of array elements using recursion, and also find the product of all elements in the array.

**Hint -** <https://www.programiz.com/javascript/recursion>

15. Write a program that takes an integer Array of N elements and prints sum of even numbers and sum of odd numbers within the Array.

Input Array: [2,1,4, 5, 3, 13, 11, 6]

Output: Sum of Evens = 2+ 4 + 6 = 12

Sum of Odds = 1 + 5 + 3 + 13 + 11 = 33

16. Write a program that prints a multiplication table for numbers up to 12.
17. Write a function that returns the largest element in a list of Integers.  
**Input** - [2,1,4, 5, 3, 13, 11, 6]      **Output** - 13
18. Write a program that checks if a given number N is a prime number or not.
19. Write a program that prints all prime numbers up to a given number N.  
**Input** - 10  
**Output** - 2, 3, 5, 7
20. Write a program that prints the next 20 leap years, write 3 different programs each using For loop, while loop.
21. Write a program that prints the numbers from 1 to 100 and for multiples of '3' print "Fizz" instead of the number and for the multiples of '5' print "Buzz". (Make a simple program and then make an optimized one).

```
1, 2, Fizz, 4, Buzz, Fizz, 7, 8, Fizz, Buzz, 11, Fizz, 13, 14,  
Fizz Buzz, 16, 17, Fizz, 19, Buzz, Fizz, 22, 23, Fizz, Buzz, 26,  
Fizz, 28, 29, Fizz Buzz, 31, 32, Fizz, 34, Buzz, Fizz, ...
```

22. Make a program of factorial using loop as well as using recursion also.

23. Make a program which will find GCD of a given number.

24. Make a program which uses 'n' as an input and compute the first 'n' Fibonacci Numbers.

**Input -** 10

**Output-** 0,1,1,2,3,5,8,13,21,34

Fibonacci Numbers is a series of numbers in which the next number will be the sum of previous two numbers.

25. Given an array of integers, calculate the ratios of its elements that are *positive*, *negative*, and *zero*. Print the decimal value of each fraction on a new line. The function should not return a value.

**Input -** arr = [-4, 3, -9, 0, 4, 1]

**Output -** Ratio of +ve numbers = 0.500000

Ratio of -ve numbers = 0.333333

Ratio of zeros present in array = 0.166667

26. Given an array of integers which takes as an input and your program should return the 2nd largest element.

27. Given an array of integers as an input and shift that array to left by one position.

**Input -** [1, 2, 3, 4, 5]

**Output -** [2, 3, 4, 5, 1]

28. Count the number of vowels and consonants in the string.

29. Check whether a number is a palindrome or not.

**Input -** 34543 **Output -** yes, it is a palindrome

30. Check whether a number is an armstrong number or not.

**Input -** 153

**Output -** Yes

**Explanation -**  $1*1*1 + 5*5*5 + 3*3*3 = 153$

31. Write a program consisting of a function which takes an array and an element as parameters and search that element in the array.

**Input** - [2,3,4,5,1] 5

**Output** - Yes, 5 is present in array

**Hint** - function searchElement(arr, n){ // Your Code }

32. Write a program that sorts an array of numbers.

**Input** - [4,2,1,3,5]

**Output** - [1,2,3,4,5]

33. Write a program that takes two arrays of numbers and merge them into a single array.

**Input** - [2,3,4,5,1] [6,9,8,7,10]

**Output** - [2,3,4,5,1,6,9,8,7,10]

34. Implement enqueue and dequeue using only two stacks

*Enqueue* means to add an element, *dequeue* to remove an element.

35. Find the intersection of two sorted arrays. **OR in other words,** Given 2 sorted arrays, find all the elements which occur in both the arrays.

**Input** - [3,4,5,7,8,11,13] [2,3,4,5,8,10] **Output** - [3,5,4]

36. Find the union of two sorted arrays. **OR** Given two sorted arrays and merge them like the repeated element in both arrays should be printed only once in the output array.

**Input** - [3,4,5,7,8,11,13] [2,3,4,5,8,10] **Output** - [2,3,4,5,7,8,10,11,13]

### 37. Mutation Problem -

Return true if the string in the first element of the array contains all of the letters of the string in the second element of the array.

For example, ["hello", "Hello"], should return true because all of the letters in the second string are present in the first, ignoring the case.

The arguments ["hello", "hey"] should return false because the string "hello" does not contain a "y".

Lastly, ["Alien", "line"], should return true because all of the letters in "line" are present in "Alien".

38. Make a program that takes 3 numbers as an input and check whether it is a Pythagorean Triplet or not.

A Pythagorean triplet is a set of three natural numbers,  $a < b < c$ , for which,

$$a^2 + b^2 = c^2$$

For example,  $3^2 + 4^2 = 9 + 16 = 25 = 5^2$ .