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/* Assignment Project 3:
Level 3 ----------------------*/


// 1) JavaScript Program to calculate number of days between 2 Dates.


/* let date1= new Date("07/15/2015");
let date2= new Date("11/28/2015");

let diff= date2.getTime()-date1.getTime();

let msInDay = (1000*3600*24);

let no_of_days = diff/msInDay;

console.log(no_of_days); */




// 2) JavaScript Program to find the missing number in a given integer
array of 1 to 100.


/* let arr = [3,5,6,8]

let data = new Array();

for (let i= 1; i<=10; i++) {
  if (arr.indexOf(i) == -1) {
    data.push(i);
  }
}
console.log(data); */




// 3) JavaScript program to reverse the string using recursion.


/* function revstr(s){
  if (s==""){
    return "";
  }
  else{
    return revstr(s.substr(1)) + s.charAt(0);
  }
}

string=prompt("enter the string: ");
console.log(revstr(string)) */
```

```javascript
// 4) JavaScript program to create an object Student with 3 keys (name,
id, city) and give them values.
// Write the code to perform the following actions:
// i. Check if the key "name" exists in the object
// ii. Change the value of the key


/* let student={
  name:"sparta",
  id: 35,
  city: "bangalore"
};

console.log(student);
console.log(student.hasOwnProperty("name"));
student.name="tim"
console.log(student); */




// 5) JavaScript program to find the cumulative sum of an array.
// 1. Initial Array: [1, 2, 3, 4]
// 2. Cumulative Sum: [1, 3, 6, 10]
// 3. Explanation: [1, (1+2), (1+2+3), (1+2+3+4)]


/* const cumulativeSum = (sum => value => sum += value)(0);

console.log([5, 10, 3, 2].map(cumulativeSum)); */




// 6) Javascript program to sort an array using the following techniques:
// i. Linear Sort
// ii. Quick Sort
// iii. Bubble Sort


// linear sort


/* let arr=[5,3,0,1,2];

for(let i=1; i<=arr.length; i++){
   let j = i;

   while( arr[j]>=0 && arr[j-1]>arr[j]){

    [arr[j-1],arr[j]] = [arr[j],arr[j-1]]
    j--;
    }
}
console.log(arr); */
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// bubble sort

/* let arr=[5,3,0,1,2];

for(let i=arr.length; i>0; i--){
 for(let j=0; j<i; j++){

  if(arr[j]>arr[j+1]){
    [arr[j],arr[j+1]] = [arr[j+1],arr[j]]
  }
 }
}
console.log(arr); */



// quick sort

var items = [5,3,7,6,2,9];
function swap(items, leftIndex, rightIndex){
    var temp = items[leftIndex];
    items[leftIndex] = items[rightIndex];
    items[rightIndex] = temp;
}
function partition(items, left, right) {
    var pivot   = items[Math.floor((right + left) / 2)], //middle element
        i       = left, //left pointer
        j       = right; //right pointer
    while (i <= j) {
        while (items[i] < pivot) {
            i++;
        }
        while (items[j] > pivot) {
            j--;
        }
        if (i <= j) {
            swap(items, i, j); //sawpping two elements
            i++;
            j--;
        }
    }
    return i;
}

function quickSort(items, left, right) {
    var index;
    if (items.length > 1) {
        index = partition(items, left, right); //index returned from
partition
        if (left < index - 1) { //more elements on the left side of the
pivot
            quickSort(items, left, index - 1);
        }
        if (index < right) { //more elements on the right side of the
pivot
            quickSort(items, index, right);
        }
    }
    return items;
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}
// first call to quick sort
var sortedArray = quickSort(items, 0, items.length - 1);
console.log(sortedArray); //prints [2,3,5,6,7,9]
```