

Problem Domain

Write a function that takes
in an array and a value
and inserts the value into
the middle of the array

Inputs : array , value
Output : a new array with
the new value in the middle

Algorithms

- Determine the middle of the input array
- Iterate through the first half of the input array
 - + add each element to the new array
- Add valid value to the new array
- Iterate through the second half of the input array
 - + add each element to the new array

Return new array!

Edge Cases

- Receive an empty array & a valid value
- A valid array , invalid value (carrying return)
- An empty array , invalid value (carrying return)

Visualization

Even:
Input: [2, 4, 6, 8] , 5

Output: [2, 4, 5, 6, 8]

Odd:
Input: [4, 8, 15, 23, 42] , 16
Output: [4, 8, 15, 16, 23, 42]

Big O

Time = $O(N)$
Space = $O(1)$

Data

Validation

Original arr = input()
empty_val = input()
arr = arr[:]
middle_pos = int(len(arr) / 2)
middle_val = arr[middle_pos]

for i in range(middle_pos + 1):
 arr[i] = arr[i] + 1

for i in range(middle_pos + 1, len(arr)): # from middle_pos + 1 to end of array
 arr[i] = arr[i] - 1

if arr[0] == 0:
 print("Error! Invalid Input")
else:
 print(arr)

Pseudo Code

function insertMiddle(
 arr : array, val : number
): array {
 let mid = Math.floor(arr.length / 2);
 let arr1 = arr.slice(0, mid);
 let arr2 = arr.slice(mid + 1, arr.length);
 arr1.push(val);
 return arr1.concat(arr2);
}

Code

```
function insertMiddle(arr, val) {
    let mid = Math.floor(arr.length / 2);
    let arr1 = arr.slice(0, mid);
    let arr2 = arr.slice(mid + 1, arr.length);
    arr1.push(val);
    return arr1.concat(arr2);
}

let arr = [1, 2, 3, 4];
let val = 5;
let newArr = insertMiddle(arr, val);
console.log(newArr);

```