

programs in anonymous function & IIFE

1. Print odd numbers in an array (anonymous function)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```

1 var array = [1, 2, 3, 4, 5, 6, 7, 8, 9];
2
3 (function(array) {
4   for (var i = 0; i < array.length; i++) {
5     if (array[i] % 2 !== 0) {
6       console.log(array[i]);
7     }
8   }
9 })(array);

```

Print output (drag lower right corner to resize)

```

1
3
5
7
9

```

Frames Objects

Global frame array

array

0 1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9

Done running (37 steps)

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Move and hide objects

1.1 Print odd numbers in an array (IIFE)

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JavaScript ES6
[known limitations](#)

```

1 var arr=[1,2,3,4,5,6,7,8,9,];
2 (function(arr){
3   for(var i = 0 ; i< arr.length ; i++){
4     if(arr[i]%2!=0){
5       console.log(arr[i])
6     }
7   }
8 })([1,2,3,4,5,6,7,8,9,10])

```

Print output (drag lower right corner to resize)

```

1
3
5
7
9

```

Frames Objects

Global frame arr

arr

0 1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9

Done running (37 steps)

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2. Convert all the strings to title caps in a string array (anonymous function)

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JavaScript ES6
[known limitations](#)

```

1 var str = "my name is vishnu learning mern from guvi";
2 var sentence = function(str) {
3   str = str.toLowerCase().split(' ');
4   for (var i = 0; i < str.length; i++) {
5     str[i] = str[i].charAt(0).toUpperCase() + str[i].slice(1);
6   }
7   return str.join(' ');
8 }
9
10 console.log(sentence(str));

```

Print output (drag lower right corner to resize)

```

My Name Is Vishnu Learning Mern From Guvi

```

Frames Objects

Global frame

str "my name is vishnu learning mern from guvi"

sentence

2.1 Convert all the strings to title caps in a string array (IIFE)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```

1 var str = "my name is vishnu learning mern from guvi";
2
3 var sentence = (function(str) {
4   str = str.toLowerCase().split(' ');
5   for (var i = 0; i < str.length; i++) {
6     str[i] = str[i].charAt(0).toUpperCase() + str[i].slice(1);
7   }
8   return str.join(' ');
9 })(str);
10
11 console.log(sentence);

```

Print output (drag lower right corner to resize)

My Name Is Vishnu Learning Mern From Guvi

Frames

Global frame

str "my name is vishnu learning mern from guvi"
sentence "My Name Is Vishnu Learning Mern From Guvi"

Objects

⇒ line that just executed
→ next line to execute

[Edit this code](#)

3. Sum of all numbers in an array (anonymous function)

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JavaScript ES6
[known limitations](#)

```

1 var numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9];
2 var sum = 0;
3 var calculateSum = function(array) {
4   for (var i = 0; i < array.length; i++) {
5     sum = sum + array[i];
6   }
7   return sum;
8 }
9
10 var result = calculateSum(numbers);
11 console.log(result);

```

Print output (drag lower right corner to resize)

45

Frames

Global frame

numbers
sum 45
calculateSum
result 45

Objects

array

0	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	

function (array) {
 for (var i = 0; i < array.length; i++) {
 sum = sum + array[i];
 }
 return sum;
}

⇒ line that just executed
→ next line to execute

[Edit this code](#)

3.1 Sum of all numbers in an array (IIFE)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```

1 var numbers=[1,2,3,4,5,6,7,8,9,10];
2 var sum=0;
3 (function (numbers)
4 {
5   for(let i=0; i<numbers.length; i++)
6   {
7     sum=sum+numbers[i];
8   }
9   return sum;
10 })(numbers);

```

Print output (drag lower right corner to resize)

55

Frames

Global frame

numbers
sum 55

Objects

array

0	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	

⇒ line that just executed
→ next line to execute

[Edit this code](#)

4. Return all the prime numbers in an array (anonymous function)

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JavaScript ES6
[known limitations](#)

```

1 var number = [2, 3, 4, 5, 6, 7, 8, 9, 10];
2
3 (function(number) {
4   number = number.filter((number) => {
5     for (var i = 2; i <= Math.sqrt(number); i++) {
6       if (number % i === 0) return false;
7     }
8     return true;
9   });
10  console.log(number);
11 })(number);

```

Print output (drag lower right corner to resize)
[2, 3, 5, 7]

Frames: Global frame, number
Objects: array (2, 3, 4, 5, 6, 7, 8, 9, 10)

Done running (55 steps)

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4.1 Return all the prime numbers in an array (IIFE)

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JavaScript ES6
[known limitations](#)

```

1 var numbers = [2, 3, 4, 5, 6, 7, 8, 9, 10];
2
3 (function(numbers) {
4   numbers = numbers.filter((number) => {
5     for (var i = 2; i <= Math.sqrt(number); i++) {
6       if (number % i === 0) return false;
7     }
8     return true;
9   });
10  console.log(numbers);
11 })(numbers);

```

Print output (drag lower right corner to resize)
[2, 3, 5, 7]

Frames: Global frame, numbers
Objects: array (2, 3, 4, 5, 6, 7, 8, 9, 10)

Done running (55 steps)

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5 Return all the palindromes in an array (anonymous function)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

Write code in [JavaScript ES6](#)

```

1 let numbers = [28, 121, 1331, 454, 123];
2
3 let isPalindrome = function(num) {
4   let str = "" + num;
5   let len = str.length;
6   for (let i = 0; i < parseInt(len / 2, 10); i++) {
7     if (str[i] != str[len - 1 - i])
8       return false;
9   }
10  return true;
11 };
12
13 let isPalindromeArray = function(arr, n) {
14   // Traversing each element of the array
15   // and check if it is palindrome or not
16   for (let i = 0; i < n; i++) {
17     let ans = isPalindrome(arr[i]);
18     if (ans == false)
19       return false;
20   }
21   return true;
22 };
23
24 console.log(isPalindromeArray(numbers, numbers.length));

```

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[hide exited frames \[default\]](#) [inline primitives, don't nest objects \[default\]](#) [draw pointers as arrows \[default\]](#)

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5.1 Return all the palindromes in an array (IIFE)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

Write code in JavaScript ES6

```

1 var numbers = [1,2,3,4,5];
2 let result = (function(arr, n) {
3   function isPalindrome(num) {
4     let str = "" + num;
5     let len = str.length;
6     for (let i = 0; i < parseInt(len / 2, 10); i++) {
7       if (str[i] !== str[len - 1 - i]) {
8         return false;
9       }
10    }
11    return true;
12  }
13  // Traversing each element of the array and check if it is palindrome or not
14  for (let i = 0; i < n; i++) {
15    let ans = isPalindrome(arr[i]);
16    if (ans === false) {
17      return false;
18    }
19  }
20  return true;
21 })([1, 2, 3], 3);
22
23 console.log(result);

```

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hide exited frames [default] inline primitives, don't nest objects [default] draw pointers as arrows [default]

[Show code examples](#)

6 Return median of two sorted arrays of the same size. (Anonymous function)

main.js Run Output


```

1 var sortedArrays = function(nums1, nums2) {
2   let s1 = nums1.length;
3   let s2 = nums2.length;
4   let index = s1 + s2;
5   if (s1 == 0) {
6     if (s2 % 2 == 1) {
7       return nums2[Math.floor(index / 2)];
8     } else {
9       return (nums2[Math.floor(index / 2) - 1] + nums2[Math.floor(index / 2)]) / 2;
10    }
11  }
12  for (let i = 0; i < index / 2 + 1; i++) {
13    nums1.push(nums2[i]);
14  }
15  nums1.sort((a, b) => a - b);
16  if (index % 2 == 1) {
17    return nums1[Math.floor(index / 2)];
18  } else {
19    return (nums1[Math.floor(index / 2) - 1] + nums1[Math.floor(index / 2)]) / 2;
20  }
21 };
22 const nums1 = [1, 3];
23 const nums2 = [2];
24 console.log(sortedArrays(nums1, nums2));
25

```

node /tmp/SOV2SXQYpB.js
2

6.1 Return median of two sorted arrays of the same size. (IIFE)



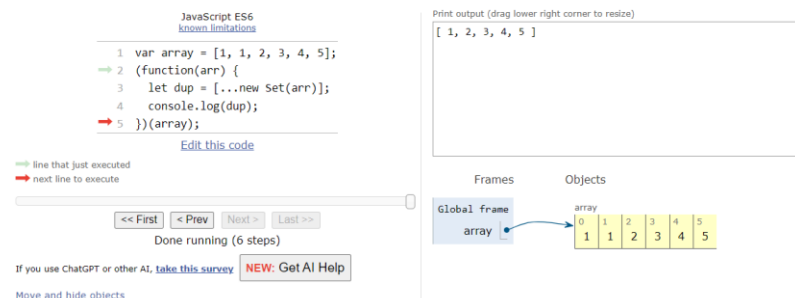
```
main.js
1 let nums1 = [1, 3];
2 let nums2 = [2, 4];
3 let result = (function(nums1, nums2) {
4   let s1 = nums1.length;
5   let s2 = nums2.length;
6   let index = s1 + s2;
7   if (s1 == 0) {
8     if (s2 % 2 == 1) {
9       return nums2[Math.floor(index / 2)];
10    } else {
11      return (nums2[Math.floor(index / 2) - 1] + nums2[Math.floor(index / 2)]) / 2;
12    }
13  }
14  for (let i = 0; i < index / 2 + 1; i++) {
15    nums1.push(nums2[i]);
16  }
17  nums1.sort((a, b) => a - b);
18  console.log(nums1);
19
20  if (index % 2 == 1) {
21    return nums1[Math.floor(index / 2)];
22  } else {
23    return (nums1[Math.floor(index / 2) - 1] + nums1[Math.floor(index / 2)]) / 2;
24  }
25 })(nums1, nums2);
26
27 console.log(result);
```

Output

```
node /tmp/SOV25XQypB.js
[ 1, 2, 3, 4, undefined ]
2.5
```

7 Remove duplicates from an array (anonymous function)

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```
JavaScript ES6
known limitations
1 var array = [1, 1, 2, 3, 4, 5];
2 (function(arr) {
3   let dup = [...new Set(arr)];
4   console.log(dup);
5 })(array);
```

Print output (drag lower right corner to resize)

```
[ 1, 2, 3, 4, 5 ]
```

Frames

Global frame

array

Objects

array

array

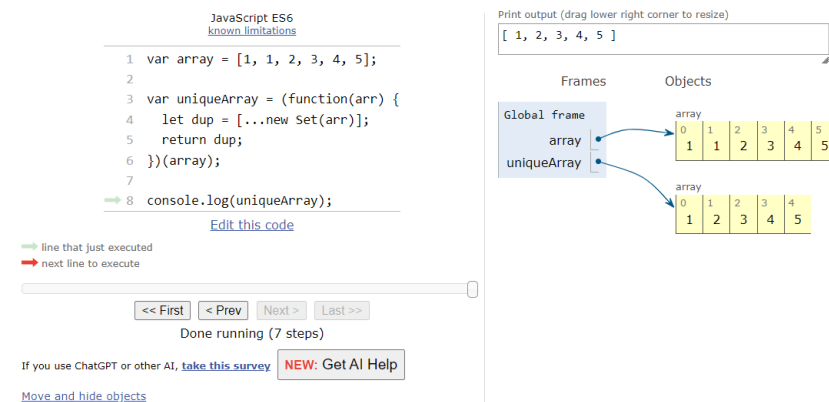
Done running (6 steps)

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7.1 Remove duplicates from an array (IIFE)

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```
JavaScript ES6
known limitations
1 var array = [1, 1, 2, 3, 4, 5];
2
3 var uniqueArray = (function(arr) {
4   let dup = [...new Set(arr)];
5   return dup;
6 })(array);
7
8 console.log(uniqueArray);
```

Print output (drag lower right corner to resize)

```
[ 1, 2, 3, 4, 5 ]
```

Frames

Global frame

array

uniqueArray

Objects

array

array

Done running (7 steps)

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8 Rotate an array by k times (anonymous function)

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JavaScript ES6
[known limitations](#)

```
1 (function(a, n, k) {  
2   k = k % n;  
3  
4   for (let i = 0; i < n; i++) {  
5     if (i < k) {  
6       console.log(a[n + i - k] + " ");  
7     }  
8     else {  
9       console.log(a[i - k] + " ");  
10    }  
11  }  
12 })([1, 2, 3, 4, 5], 5, 2);
```

Print output (drag lower right corner to resize)

```
4  
5  
1  
2  
3
```

Frames Objects

Done running (25 steps)

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8.1 Rotate an array by k times (IIFE)

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```
1 var Array = [1, 2, 3, 4, 5];  
2 var N = Array.length;  
3 var K = 2;  
4  
5 (function(a, n, k) {  
6   k = k % n;  
7  
8   for (let i = 0; i < n; i++) {  
9     if (i < k) {  
10      console.log(a[n + i - k] + " ");  
11    } else {  
12      console.log(a[i - k] + " ");  
13    }  
14  }  
15 })(Array, N, K);
```

Print output (drag lower right corner to resize)

```
4  
5  
1  
2  
3
```

Frames Objects

Global frame
N 5
K 2
Array

array
0 1 2 3 4
1 2 3 4 5

Done running (28 steps)

Arrow functions.

1. print odd numbers in array

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JavaScript ES6
[known limitations](#)

```

1 var array = [1, 2, 3, 4, 5, 6, 7, 8, 9];
2 var oddNumbers = (array) => {
3   for (var i = 0; i < array.length; i++) {
4     if (array[i] % 2 !== 0) {
5       console.log(array[i]);
6     }
7   }
8 }
9
=> 10 oddNumbers(array);

```

[Edit this code](#)

==> line that just executed
=> next line to execute

Done running (38 steps)

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Print output (drag lower right corner to resize)

```

1
3
5
7
9

```

Frames

Global frame

array

oddNumbers

Objects

array

0	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	

```

(array) => {
  for (var i = 0; i < array.length; i++) {
    if (array[i] % 2 !== 0) {
      console.log(array[i]);
    }
  }
}

```

2 Convert all the strings to title caps in a string array

JavaScript ES6
[known limitations](#)

```

1 var array = [1, 2, 3, 4, 5, 6, 7, 8, 9];
2
=> 3 (function(array) {
4   for (var i = 0; i < array.length; i++) {
5     if (array[i] % 2 !== 0) {
6       console.log(array[i]);
7     }
8   }
9 })(array);

```

[Edit this code](#)

==> line that just executed
=> next line to execute

Done running (37 steps)

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Print output (drag lower right corner to resize)

```

1
3
5
7
9

```

Frames

Global frame

array

Objects

array

0	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	

3. Sum of all numbers in an array

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```

1 var str = "my name is vishnu am learning mern from guvi";
2
3 var result = (function(str) {
4   str = str.toLowerCase().split(' ');
5   for (var i = 0; i < str.length; i++) {
6     str[i] = str[i].charAt(0).toUpperCase() + str[i].slice(1);
7   }
8   return str.join(' ');
9 })(str);
10
=> 11 console.log(result);

```

[Edit this code](#)

==> line that just executed
=> next line to execute

Done running (35 steps)

Print output (drag lower right corner to resize)

```

My Name Is Vishnu Am Learning Mern From Guvi

```

Frames

Global frame

str

result

Objects

str

result

4. Return all the prime numbers in an array

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JavaScript ES6
[known limitations](#)

```
1 var numbers = [2, 3, 4, 5, 6, 7, 8, 9, 10];
2
3 (function(numbers) {
4   numbers = numbers.filter((number) => {
5     for (var i = 2; i <= Math.sqrt(number); i++) {
6       if (number % i === 0) return false;
7     }
8     return true;
9   });
10  console.log(numbers);
11 })(numbers);
```

[Edit this code](#)

⇒ line that just executed
→ next line to execute

Done running (55 steps)

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Print output (drag lower right corner to resize)

```
[ 2, 3, 5, 7 ]
```

Frames Objects

Global frame

numbers

array

0	1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10		

5. Return all the palindromes in an array

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

JavaScript ES6
[known limitations](#)

```
1 let n = 28;
2
3 function isPalindrome(N) {
4   let str = "" + N;
5   let len = str.length;
6   for (let i = 0; i < parseInt(len / 2, 10); i++) {
7     if (str[i] != str[len - 1 - i]) {
8       return false;
9     }
10    return true;
11  }
12
13 console.log(isPalindrome(n));
```

[Edit this code](#)

⇒ line that just executed
→ next line to execute

Done running (10 steps)

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Print output (drag lower right corner to resize)

```
false
```

Frames Objects

Global frame

isPalindrome

n 28

function isPalindrome(N) {
 let str = "" + N;
 let len = str.length;
 for (let i = 0; i < parseInt(len / 2, 10); i++) {
 if (str[i] != str[len - 1 - i])
 return false;
 }
 return true;
}