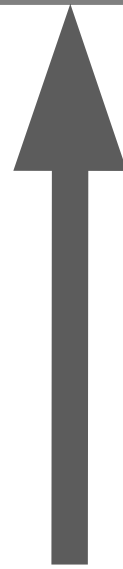


Minimum Absolute Difference in an Array - Test Case 1

3	-7	0
---	----	---

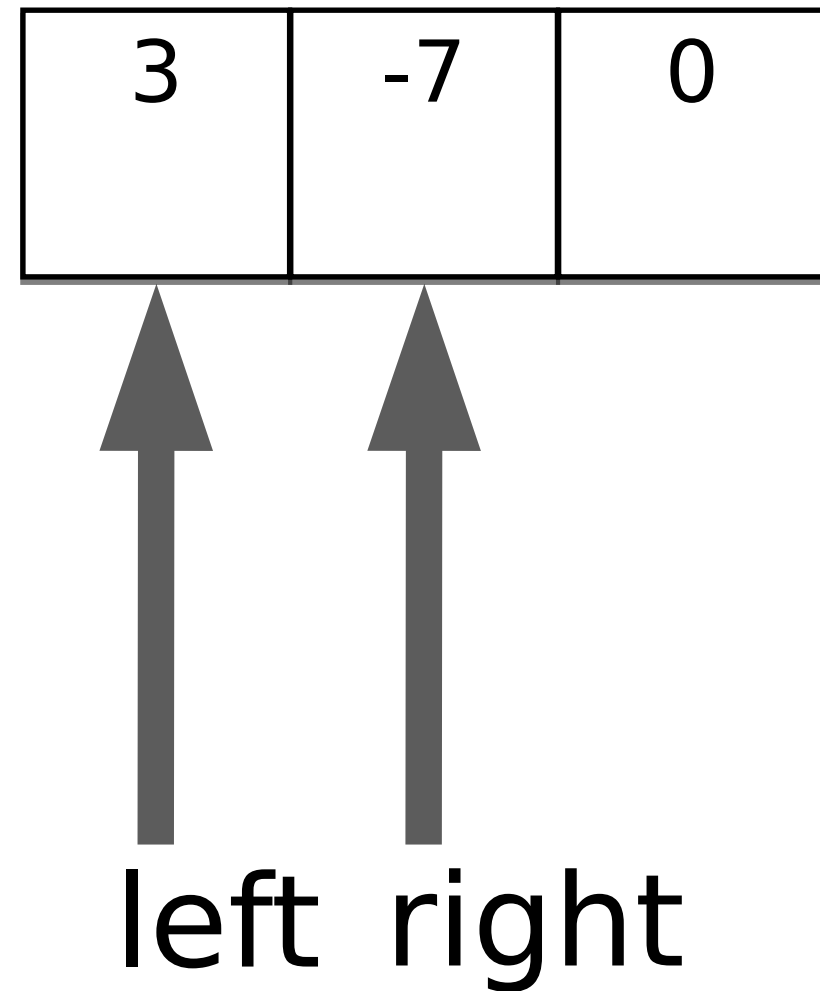


left



right

Minimum Absolute Difference in an Array - Test Case 1

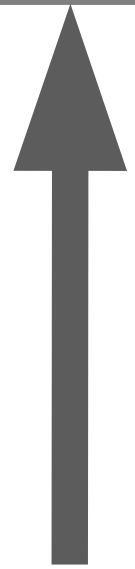


Template : - Base structure of Same direction pointer template

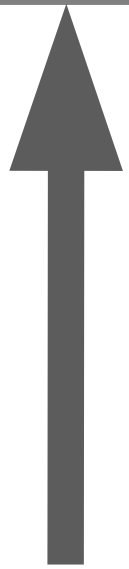
To get the minimum difference we will use here Same direction pointers template with sorted array

Minimum Absolute Difference in an Array - Test Case 1

-7	0	3
----	---	---



left

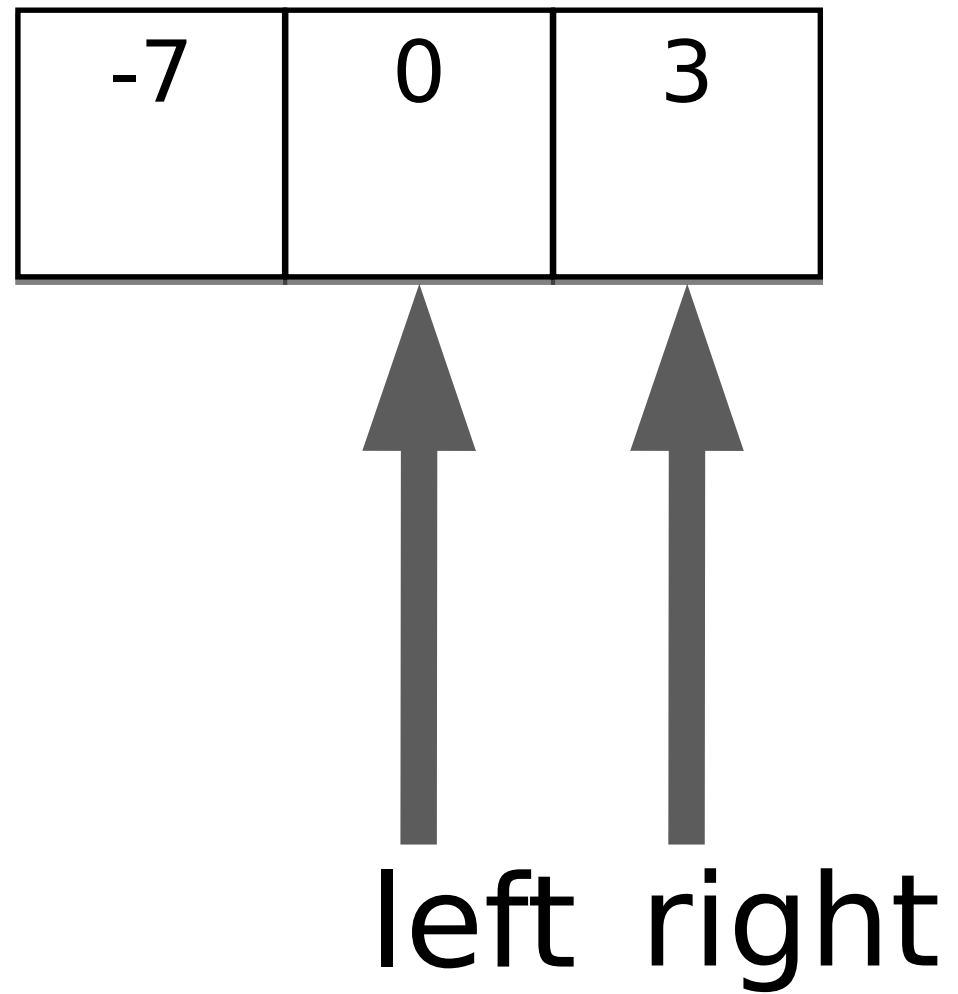


right

$$0 - (-7) = 7 = \text{currentDiff}$$
$$\text{diff} = 7$$

Output =
min[7]

Minimum Absolute Difference in an Array - Test Case 1



$$3 - 0 = 3 = \text{currentDiff}$$

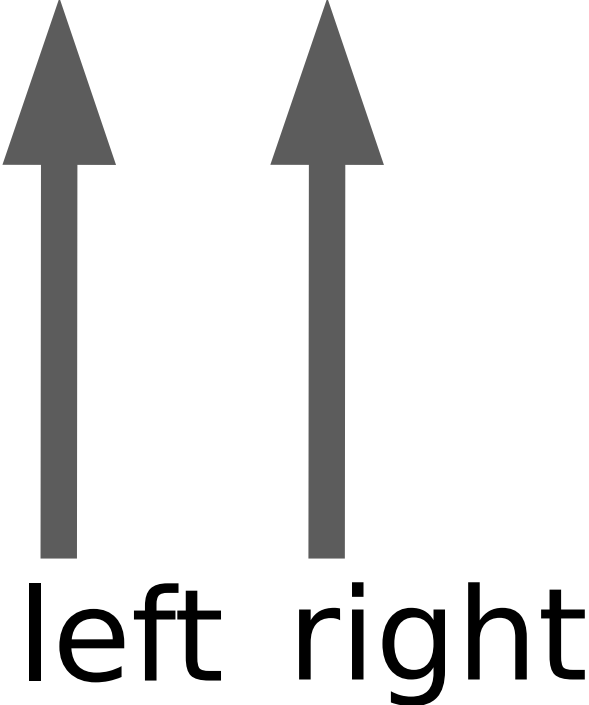
$$\text{diff} = 3$$

$$\begin{aligned} \text{Output} &= \\ \text{min}[7, 3] \\ &= 3 \end{aligned}$$

Minimum Absolute Difference in an Array - Test Case 2

-59	-36	-13	1	-53	-92	-2	-96	-54	75
-----	-----	-----	---	-----	-----	----	-----	-----	----

Sort the array



Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left



right

$-92 - (-96) = 4 =$
currentDiff
diff =
4
Output = min[4]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left

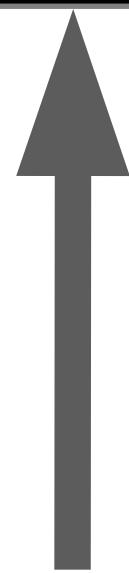


right

$-59 - (-92) = 33 =$
currentDiff
diff =
33
Output = min[4,
33]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left



right

$-54 - (-59) = 5 =$
currentDiff
diff =
5
Output = min[4,
33, 5]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left

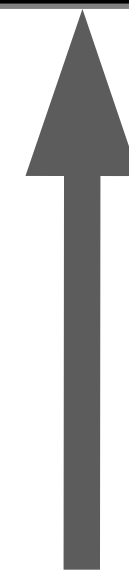


right

$-53 - (-54) = 1 =$
currentDiff
diff =
1
Output = min[4,
33, 5, 1]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left



right

$-36 - (-53) = 17 =$
currentDiff
diff =
17
Output = min[4,
33, 5, 1, 17]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left



right

$-13 - (-36) = 23 =$
currentDiff
diff =

23
Output = min[4, 33, 5, 1,
17, 23]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----

↑ ↑
left right

$-2 - (-13) = 11 =$
currentDiff
diff =

23
Output = min[4, 33, 5, 1,
17, 23, 11]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----



left



right

$1 - (-2) = 3 =$
currentDiff
diff =

3
Output = min[4, 33, 5, 1,
17, 23, 11, 3]

Minimum Absolute Difference in an Array - Test Case 2

-96	-92	-59	-54	-53	-36	-13	-2	1	75
-----	-----	-----	-----	-----	-----	-----	----	---	----

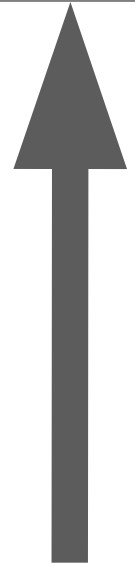
↑ ↑
left right

$75 - 1 = 74 =$
currentDiff
diff =
74
Output = min[4, 33, 5, 1,
17, 23, 11, 3, 74] = 1

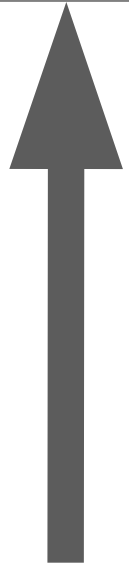
Minimum Absolute Difference in an Array - Test Case 3

1	-3	71	68	17
---	----	----	----	----

Sort the array



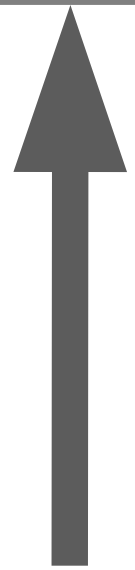
left



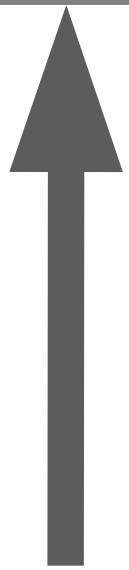
right

Minimum Absolute Difference in an Array - Test Case 3

-3	1	17	68	71
----	---	----	----	----



left



right

$1 - (-3) = 4 =$
currentDiff
diff =

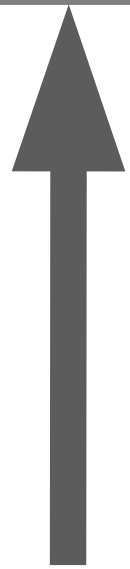
4
Output = min[4]

Minimum Absolute Difference in an Array - Test Case 3

-3	1	17	68	71
----	---	----	----	----



left



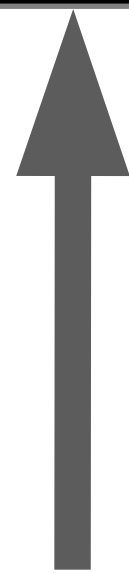
right

$17 - 1 = 16 =$
currentDiff
diff =

16
Output = min[4, 16]

Minimum Absolute Difference in an Array - Test Case 3

-3	1	17	68	71
----	---	----	----	----



left



right

$68 - 17 = 51 =$
currentDiff
diff =

51
Output = min[4, 16, 51]

Minimum Absolute Difference in an Array - Test Case 3

-3	1	17	68	71
----	---	----	----	----



left



right

$$71 - 68 = 3 =$$

currentDiff

diff =

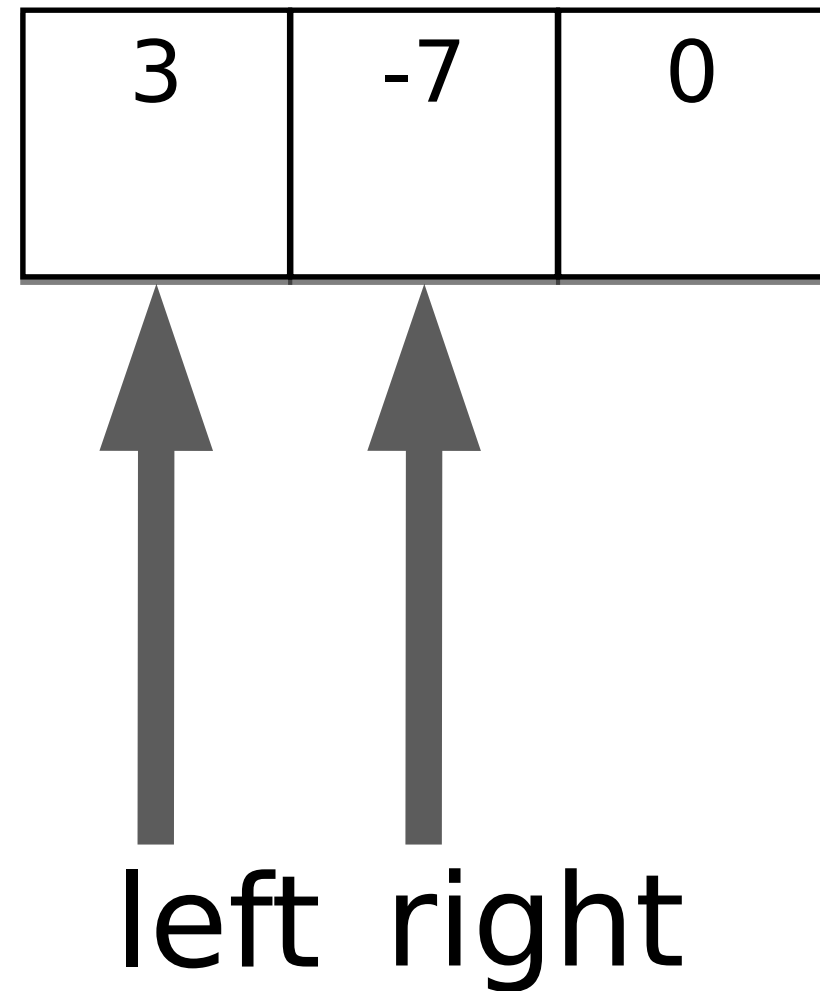
3

Output = min[4, 16, 51, 3]

= 3

Dynamic Parameters

Step 1 :- Template Implementation

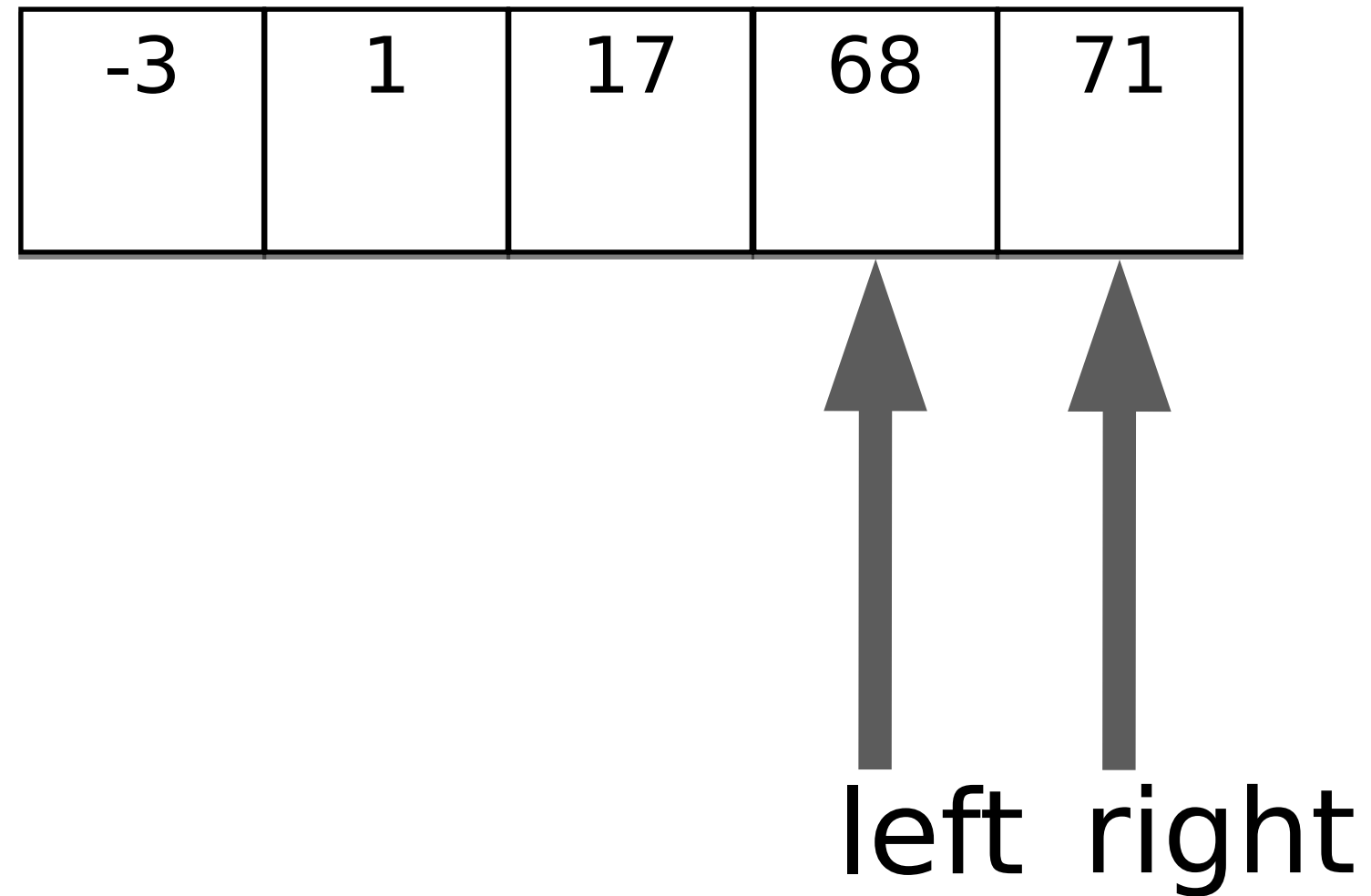


Template : - Base structure of Same direction pointer template

```
sort(arr)
```

To get the minimum difference we will use here Same direction pointers template with sorted array

Step 2 :- I/O parameters



$$71 - 68 = 3 =$$

currentDiff

diff =

3

Output = min[4, 16, 51, 3]

= 3

Output = min[diff] = Minimum Absolute Difference