{10, 20, 30, 40, 50} ⇒ {50, 40, 30, 20, 10}

0 1 2 3 4

10, 20, 30, 40, 50

50, 40, 30, 20, 10

0 1 2 3 4

0 ↔ n-1
1 ↔ n-2
2 ↔ n-3
i ↔ n-i-1
n-3 ↔ n-(n-3)-1 = 2
n-2 ↔ n-(n-2)-1 = 1
↔ n-(n-1)-1 = 0

odd length 5 < 5/2 ✓

even length 4 < 4/2 = 2

10, 20, 30, 40, 50

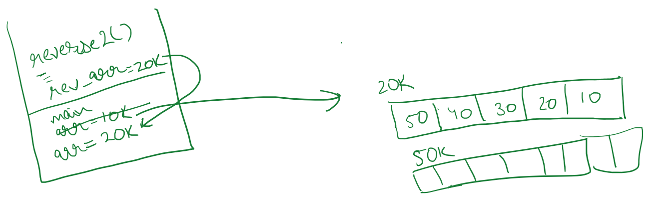
l < r

r ≥ 0

10, 20, 30, 40, 50, 60

10, 50, 40, 30, 20, 60

Heap



Rotate An Array

r=0 10, 20, 30, 40, 50

r=1 50, 10, 20, 30, 40

r=2 40, 50, 10, 20, 30

r=3 30, 40, 50, 10, 20

r=4 20, 30, 40, 50, 10

r=5 10, 20, 30, 40, 50

r=6 50, 10, 20, 30, 40

r=7 40, 50, 10, 20, 30

r=8 30, 40, 50, 10, 20

for {
arr[i+1] = arr[i]
}
arr[0] = last

last = 50

i=0 arr[1] = arr[0] | i=1 arr[2] = arr[1]

i=2 arr[3] = arr[2] | i=3 arr[4] = arr[3]

i=4 X

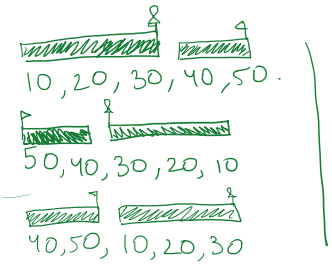
50, 10, 10, 10, 10

```
public static void rotate(int[] arr) {
        int last = arr[arr.length - 1];
        for (int i = 0; i <= arr.length - 2; i++) {
            arr[i + 1] = arr[i];
        }
        arr[0] = last;
    }
```

last = 50

50, 10, 20, 30, 40

rot = 2



40, 50, 10, 20, 30

rot = 4

10, 20, 30, 40 50, 60 → r

60, 10, 20, 30, 40, 50 (r=2)

0, 1, 2, 3

60, 50, 40, 30, 20, 10 (0, 1, 2, 3, 4, 5)

50, 60, 10, 20, 30, 40 (r=3)

Steps (s.p, e.p)

1) rev (arr, 0, n-1) → Last valo ko aage bhejo
2) rev (arr, 0, rot-1) → Last valo ka order sahi
3) rev (arr, rot, n-1) → Start valo ka order sahi

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Subarray → Tukda? → Contig

{10, 20, 30, 40, 50}

10
10, 20
10, 20, 30 : 60
10, 20, 30, 40
10, 20, 30, 40, 50

20
20, 30
20, 30, 40
20, 30, 40, 50

30
30, 40
30, 40, 50

40
40, 50

50

Total number of Subarrays? = $n + n-1 + n-2 + \dots + 3 + 2 + 1$
$= \frac{n * (n+1)}{2}$

1) Print All Subarrays?
2) Sum of All Subarrays?
3) Max Sum of Subarray?

10, 20, -30, -4000, 50

max = ~~0~~ 30 50

10 : 10
10 20 : 30
10 20 -30 : 0
10 20 -30 -4000 : -4000
10 20 -30 -4000 50 : -3950

-30 : -30
-30 -4000 : -4030
-30 -4000 50 : -3980

-4000 : -4000
-4000 50 : -3950

50 : 50

20 : 20
20 -30 : -10
20 -30 -4000 : -4010
20 -30 -4000 50 : -3960

0
s=0 e=0
10 : 10
s=0 e=1
10 20 : 30
s=0 e=2
10 20 30 : 60

100 × 100 + 1

101