

Subarray \rightarrow subset, seq, cont

$10, 20, 30, 40 \dots$

$10 \quad 0 \text{ to } 0$
 $10, 20 \quad 0 \text{ to } 1$
 $10, 20, 30 \quad 0 \text{ to } 2$
 $10, 20, 30, 40 \quad 0 \text{ to } 3$
 $n + n - 1 + n - 2 + \dots + 1 = \frac{n \cdot (n + 1)}{2}$

$\{10, 20, 30, 40, 50\}$

$s \rightarrow 0 \quad e \rightarrow 0 \text{ to } 3$
 $s \rightarrow 1 \quad e \rightarrow 1 \text{ to } 3$
 $s \rightarrow 2 \quad e \rightarrow 2 \text{ to } 3$
 $s \rightarrow 3 \quad e \rightarrow 3 \text{ to } 3$

$s \rightarrow 0 \text{ to } 3$
 $e \rightarrow s \text{ to } 3$

```

int[] arr = {10, 20, 30, 40};
int s = 0;
while (s < arr.length) {
    int e = s;
    while (e < arr.length) {
        System.out.println(s + " " + e);
        e++;
    }
    s++;
}
    
```

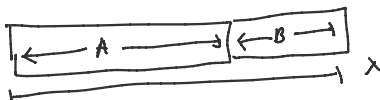
$s = 0$
 $e = 0$
 $while (e < arr.length)$
 $0, 0 \quad 0, 1 \quad 0, 2 \quad 0, 3$

$s = 1$
 $e = 1$
 $while (e < arr.length)$
 $1, 1 \quad 1, 2 \quad 1, 3$
 $s = 2$
 $e = 2$
 $while (e < arr.length)$
 $2, 2 \quad 2, 3$

$s = 3$
 $e = 3$
 $while (e < arr.length)$
 $3, 3$

$e = 0$
 10
 $10, 20$
 $10, 20, 30$
 $10, 20, 30, 40$
 $10, 20, 30, 40, 50$
 $s = 1, e = 2 \quad 20, 30 = 50$
 $s = 1, e = 3 \quad 20, 30, 40 = 90$
 $s = 2, e = 3 \quad 30, 40 = 70$
 $30, 40$
 40

$\{20, 30, 40, \dots\}$



$i) \text{ Sum} < 0 \quad \dots \quad \frac{(A) + B}{2} < B$

1) $sum < 0$
 $e \rightarrow break$ // 2) $s < 0$
 $s \rightarrow e+1$

$\{10, -5, 2, -6, 50, -60, 5, -1, 40, -2, 40\}$

$\{10\} = 10$
 $\{10, -5\} = 5$
 $\{10, -5, 2\} = 7$
 $\{10, -5, 2, -6\} = 1$
 $\{10, -5, 2, -6, 50\} = 51$
 $\{10, -5, 2, -6, 50, -60\} = -9$

$\{-5\} \Rightarrow -5$
 $\{2\} \Rightarrow 2$
 $\{2, -6\} \Rightarrow -4$
 $\{50\} \Rightarrow 50$
 $\{50, -60\} \Rightarrow -10$

$\{-10\}$
 $\{5\}$

$\{10, -2, 8, -1, 6, 4, -2, -99\}$

10
 $10, -2$
 $10, -2, 8$
 $10, -2, 8, -1$
 $10, -2, 8, -1, 6$
 $10, -2, 8, -1, 6, 4$

$10, -2, 8, -1, 6, 4, -2$
 $10, -2, 8, -1, 6, 4, -2, -99$

$8, -1, 6, 4, -2$
 $8, -1, 6, 4, -2, -99$

$\{10, -5, 2, -6, 50, -60, 5, -1, 40, -2, 40\}$

```
public static int MaxSubarraySum(int[] arr) {
    int sum = 0;
    int ans = 0;
    for (int i = 0; i < arr.length; i++) {
        sum = sum + arr[i];
        if (sum < 0) {
            sum = 0;
        }
        if (ans < sum) {
            ans = sum;
        }
    }
    return ans;
}
```

Math.max(a, b)

ans = 70 ~~51~~ 82

$\{10, -5, 2, -6, 50, -60, 5, -1, 40, -2, 40\}$

$sum = 0$
 $sum = 5$
 $sum = 7$
 $sum = 1$
 $sum = 51$
 $sum = -9$

$sum = 5$
 $sum = 4$
 $sum = 44$
 $sum = 2$
 $sum = 82$