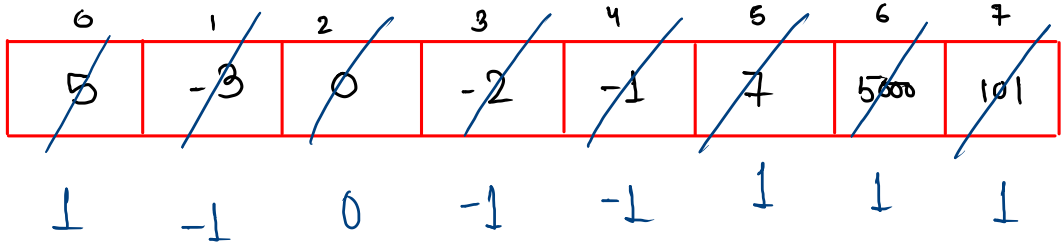
Check Characterstic

arr =



psudo code

1) input array
2) traverse in array from start to end
   2.1) check if current value > 0
      2.1.1) update current value with +1
   2.2) check if current value == 0
      2.2.1) update current value with 0
   2.3) check if current value < 0
      2.3.1) update current value with -1

Code

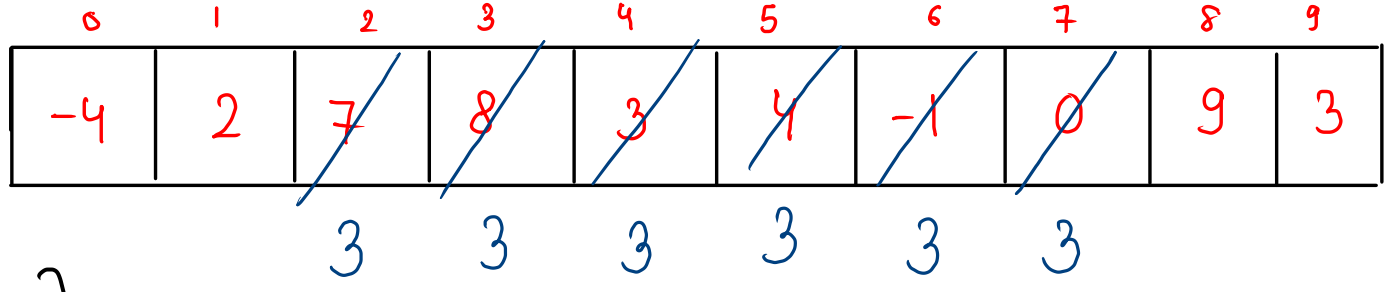
```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int[] arr = new int[n];
    for (int i = 0; i < n; i++) {
        arr[i] = scn.nextInt();
    }

    int[] ans = updateArray(arr, n);
    for (int i = 0; i < n; i++) {
        System.out.print(ans[i] + " ");
    }
}
public static int[] updateArray(int[] arr, int n) {
    for (int i = 0; i < n; i++) {
        if ( arr[i] > 0 ) {
            arr[i] = 1;
        } else if ( arr[i] == 0 ) {
            arr[i] = 0;
        } else {
            arr[i] = -1;
        }
    }
    return arr;
}
```

Update query 1

$n = 10$

arr =



left = 2

right = 7

x = 3

psudo code

1) input array
2) intput left and right index
3) input x
4) traverse in array from left index to right index
   4.1) update the corrent value with x
5) return array

Code

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int[] arr = new int[n];
    for (int i = 0; i < n; i++) {
        arr[i] = scn.nextInt();
    }
    int left = scn.nextInt();
    int right = scn.nextInt();
    int x = scn.nextInt();

    int[] ans = updateQuery(arr, n, left, right, x);
    for (int i = 0; i < n; i++) {
        System.out.print(ans[i] + " ");
    }
}
public static int[] updateQuery(int[] arr, int n, int left, int right, int x) {
    for (int i = left; i <= right; i++) {
        arr[i] = x;
    }
    return arr;
}
```

Add One (Imp)

arr =

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

Ex 1

$i = 8$, $arr[i] = 5 + 1$

$= 6$

break

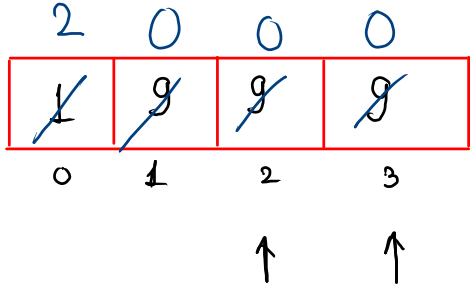
Observation :-

Case I { 0, 1, 2, 3, 4, 5, 6, 7, 8 } ⇒ add 1 in that index & break

Case II { 9 } ⇒ arr[i] = 0

Ex 2

arr =



i = 3, arr[3] = 0

i = 2, arr[2] = 0

i = 1, arr[1] = 0

i = 0, arr[0] = arr[0] + 1
break;

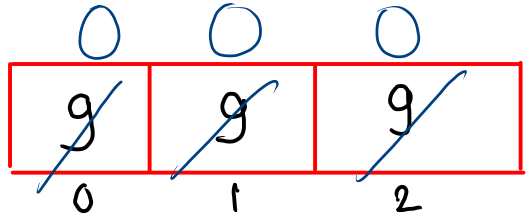
psudo code

1) traverse from right to left

1.1) if curr val is in range 0 to 8
then add 1 in curr val. &
break

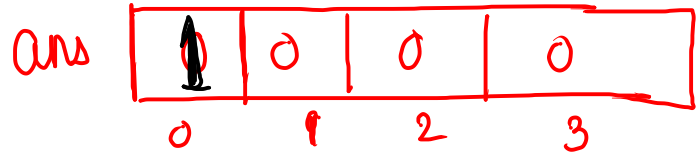
1.2) else if curr. val == 9
then update curr. val = 0

Ex3

arr = 

n = 3

ans = 4



i = 2, arr[2] = 0

i = 1, arr[1] = 0

i = 0, arr[0] = 0

i = -1 loop end

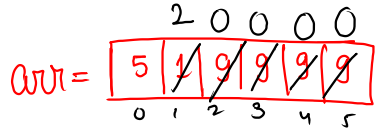
Note:- if array traversal is completed that means all are 9

Code

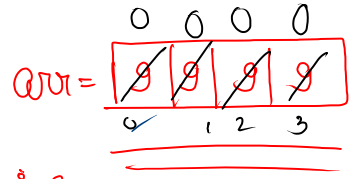
```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int[] arr = new int[n];
    for (int i = 0; i < n; i++) {
        arr[i] = scn.nextInt();
    }
    int[] ans = addOne(arr, n);
    for (int i = 0; i < ans.length; i++) {
        System.out.print(ans[i] + " ");
    }
}
public static int[] addOne(int[] arr, int n) {
    for (int i = n - 1; i >= 0; i--) {
        if ( arr[i] == 9 ) {
            arr[i] = 0;
        } else {
            arr[i] = arr[i] + 1;
            return arr;
        }
    }
    int[] ans = new int[n + 1];
    ans[0] = 1;
    return ans;
}
```

a

b



i=5, a
i=4, a
i=3, a
i=2, a
i=1, b



i=3,
i=2,
i=1
i=0
i=-1