Solve all:

1. Take an array of 10 elements. Split it into middle and store the elements in two dfferent arrays.
E.g.-
An array contains:

58	24	13	15	63	9	8	81	1	78

After spliting :

58	24	13	15	63
9	8	81	1	78

2. Consider an integer array, the number of elements in which is determined by the user. The elements are also taken as input from the user. Write a program to find those pair of elements that has the maximum and minimum difference among all element pairs.
maximum difference = higest-lowest
minimum difference = second lowest - lowest

3. Take 20 integer inputs from user and print the following:
number of positive numbers
number of negative numbers
number of odd numbers
number of even numbers
number of 0s.

4. Given two arrays a[] and b[] of size n and m respectively. The task is to find union between these two arrays.

Union of the two arrays can be defined as the set containing distinct elements from both the arrays. If there are repetitions, then only one occurrence of element should be printed in the union.
Example 1:
Input:
5 3
1 2 3 4 5
1 2 3
Output:
5
Explanation:
1, 2, 3, 4 and 5 are the
elements which comes in the union set
of both arrays. So count is 5.
Example 2:

Input:
6 2
85 25 1 32 54 6
85 2
Output:
7
Explanation:
85, 25, 1, 32, 54, 6, and
2 are the elements which comes in the
union set of both arrays. So count is 7.

5. Given an array, rotate the array by one position in clock-wise direction.
Example 1:
Input:
N = 5
A[] = {1, 2, 3, 4, 5}
Output:
5 1 2 3 4

Example 2:
Input:
N = 8
A[] = {9, 8, 7, 6, 4, 2, 1, 3}
Output:
3 9 8 7 6 4 2 1

6. Find the first non-repeating element in a given array arr of N integers.
Note: Array consists of only positive and negative integers and not zero.

Example 1:
Input : arr[] = {-1, 2, -1, 3, 2}
Output : 3
Explanation:
-1 and 2 are repeating whereas 3 is
the only number occuring once.
Hence, the output is 3.

Example 2:
Input : arr[] = {1, 1, 1}
Output : 0

7. Given an array of N integers, and an integer K, find the number of pairs of elements in the array whose sum is equal to K.

Example 1:
Input:
N = 4, K = 6
arr[] = {1, 5, 7, 1}
Output: 2
Explanation:
arr[0] + arr[1] = 1 + 5 = 6
and arr[1] + arr[3] = 5 + 1 = 6.

Example 2:
Input:
N = 4, K = 2
arr[] = {1, 1, 1, 1}
Output: 6
Explanation:
Each 1 will produce sum 2 with any 1.

8. Given an array of positive and negative numbers. Find if there is a subarray (of size at-least one) with 0 sum.
Example 1:
Input:
5
4 2 -3 1 6

Output:
Yes

Explanation:
2, -3, 1 is the subarray
with sum 0.

Example 2:
Input:
5
4 2 0 1 6

Output:
Yes

Explanation:
0 is one of the element
in the array so there exist a
subarray with sum 0.

9. Given an array of N integers arr[] where each element represents the max number of steps that can be made forward from that element. Find the minimum number of jumps to reach the end of the array (starting from the first element). If an element is 0, then you cannot move through that element.

Note: Return -1 if you can't reach the end of the array.
Example 1:
Input:
N = 11
arr[] = {1, 3, 5, 8, 9, 2, 6, 7, 6, 8, 9}
Output: 3
Explanation:
First jump from 1st element to 2nd
element with value 3. Now, from here
we jump to 5th element with value 9,
and from here we will jump to the last.
Example 2:

Input :
N = 6
arr = {1, 4, 3, 2, 6, 7}
Output: 2
Explanation:
First we jump from the 1st to 2nd element
and then jump to the last element.

10. Given a boolean 2D array of n x m dimensions where each row is sorted. Find the 0-based index of the first row that has the maximum number of 1's.
Example 1:
Input:
N = 4 , M = 4
Arr[][] = {{0, 1, 1, 1},
{0, 0, 1, 1},
{1, 1, 1, 1},
{0, 0, 0, 0}}
Output: 2
Explanation: Row 2 contains 4 1's (0-based

indexing).

Example 2:
Input:
N = 2, M = 2
Arr[][] = {{0, 0}, {1, 1}}
Output: 1
Explanation: Row 1 contains 2 1's (0-based
indexing).

11. Given a matrix of size r*c. Traverse the matrix in spiral form.
Example 1:
Input:
r = 4, c = 4
matrix[][] = {{1, 2, 3, 4},
{5, 6, 7, 8},
{9, 10, 11, 12},
{13, 14, 15,16}}
Output:
1 2 3 4 8 12 16 15 14 13 9 5 6 7 11 10
Explanation:

Example 2:
Input:
r = 3, c = 4
matrix[][] = {{1, 2, 3, 4},
{5, 6, 7, 8},
{9, 10, 11, 12}}
Output:
1 2 3 4 8 12 11 10 9 5 6 7
Explanation:
Applying same technique as shown above,
output for the 2nd testcase will be
1 2 3 4 8 12 11 10 9 5 6 7.

12. Given a value N, find the number of ways to make change for N cents, if we have infinite supply of each of S = { S1, S2, .. , SM } valued coins.

Example 1:
Input:
n = 4 , m = 3
S[] = {1,2,3}

Output: 4
Explanation: Four Possible ways are:
{1,1,1,1},{1,1,2},{2,2},{1,3}.
Example 2:

Input:
n = 10 , m = 4
S[] ={2,5,3,6}
Output: 5
Explanation: Five Possible ways are:
{2,2,2,2,2}, {2,2,3,3}, {2,2,6}, {2,3,5}
and {5,5}.