Assignment 4 – Arrays

1. Take as input N, the size of array. Take N more inputs and store that in an array. Write a function which returns the maximum value in the array. Print the value returned.

2. Take as input N, the size of array. Take N more inputs and store that in an array. Take as input a number M. Write a function which returns the index on which M is found in the array, in case M is not found -1 is returned. Print the value returned.

3. Take as input N, the size of array. Take N more inputs and store that in an array. Take as input a number M. Write a function which returns the index on which M is found in the array, in case M is not found -1 is returned. Print the value returned.

   You can assume that the array is sorted, but you've to optimize the finding process. For an array of size 1024, you can make 10 comparisons at maximum.

4. Take as input N, the size of array. Take N more inputs and store that in an array.

   Write a function that reverses the array. Print the values in reversed array.

5. Take as input N, the size of array. Take N more inputs and store that in an array.

   Write a function that inverses the array. Print the values in inverted array.

   For the definition of inverse, please refer "Assignment 3 – Functions"

6. Take as input N, the size of array. Take N more inputs and store that in an array.

   Write a function that returns true if the array is mirror-inverse and false otherwise. For the definition of mirror-inverse, please refer "Assignment 3 - Functions"

7. Take as input N, the size of array. Take N more inputs and store that in an array.

   Take N more inputs and store that in another array. Write a function which returns true if the second array is inverse of first and false otherwise. Print the value returned.

8. Take as input N, the size of array. Take N more inputs and store that in an array.

   Write a function that bubble sorts the array. Print the elements of sorted array.

9. Take as input N, the size of array. Take N more inputs and store that in an array.

   Write a function that selection sorts the array. Print the elements of sorted array.

10. Take as input N, the size of array. Take N more inputs and store that in an array.

    Write a function that insertion sorts the array. Print the elements of sorted array.

11. Take as input N, the size of array. Take N more inputs and store that in an array.

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Take N more inputs and store that in another array. Write a function which returns the intersection of two arrays in an ArrayList of integers. Print the ArrayList returned.

E.g. for the following arrays 1, 2, 3, 1, 2, 4, 1 and 2, 1, 3, 1, 5, 2, 2 the output will be [1, 1, 2, 2, 3]

12. Take as input N, the size of array. Take N more inputs and store that in an array.

    Take as input "target", a number. Write a function which prints all pairs of numbers which sum to target.

    E.g. For this array => 3, 1, 9, 7, 5, -1 and target of 8 the output is -1 and 9, 1 and 7, 3 and 5

13. Take as input N, the size of array. Take N more inputs and store that in an array.

    Take as input "target", a number. Write a function which prints all triplets of numbers which sum to target.

    E.g. For this array => 3, 1, 9, 7, 5, -1 and target of 9 the output is -1, 1 and 9; -1, 3 and 7; 1, 3 and 5.

14. Take as input N, the size of array. Take N more inputs and store that in an array.

    Take as input M, the size of second array and take M more inputs and store that in second array. Write a function that returns the sum of two arrays. Print the value returned.

    E.g. Sum of [1, 0, 2, 9] and [3, 4, 5, 6, 7] is [3, 5, 5, 9, 6]

15. Take as input N, the size of array. Take N more inputs and store that in an array.

    Print all possible subsets of the array

    E.g. for [1, 2, 3] the following subsets are possible

    []

    [1]

    [2]

    [3]

    [1, 2]

    [1, 3]

    [2, 3]

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[1, 2, 3]

16. Take as input N, the size of array. Take N more inputs and store that in an array.

    Print all possible permutations

    E.g. for [1, 2, 3] following permutations are possible

    [1, 2, 3]

    [1, 3, 2]

    [2, 1, 3]

    [2, 3, 1]

    [3, 1, 2]

    [3, 2, 1]

17. Take as input a two-d array. Wave print it row-wise

    E.g. for the following input array

    [[11, 12, 13, 14],

    [21, 22, 23, 24],

    [31, 32, 33, 34],

    [41, 42, 43, 44]]

    The output is

    11, 12, 13, 14, 24, 23, 22, 21, 31, 32, 33, 34, 44, 43, 42, 41

18. Take as input a two-d array. Wave print it column-wise

    E.g. for the following input array

    [[11, 12, 13, 14],

    [21, 22, 23, 24],

    [31, 32, 33, 34],

    [41, 42, 43, 44]]

    The output is

    11, 21, 31, 41, 42, 32, 22, 12, 13, 23, 33, 43, 44, 34, 24, 14

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19. Take as input a two-d array. Spiral print it anti-clockwise

    E.g. for the following input array

    [[11, 12, 13, 14],

    [21, 22, 23, 24],

    [31, 32, 33, 34],

    [41, 42, 43, 44]]

    The output is

    11, 21, 31, 41, 42, 43, 44, 34, 24, 14, 13, 12, 22, 32, 33, 23

20. Take as input a two-d array. Spiral print it clockwise.

    E.g. for the following input array

    [[11, 12, 13, 14],

    [21, 22, 23, 24],

    [31, 32, 33, 34],

    [41, 42, 43, 44]]

    The output is

    11, 12, 13, 14, 24, 34, 44, 43, 42, 41, 31, 21, 22, 23, 33, 32