PYTHON ARRAYs-SINGLE DIMENSION

1. Write a program to find the sum and average of one dimensional integer array.

Ex. Input: a = [1,2,3,4,5,6]
Output: Sum of the array is: 21
Avg of the array is: 3.5

2. Write a program to swap first and last element of an integer 1-d array.

Ex. Input: a = [1,2,3,4,5,6]
Output: b = [6,2,3,4,5,1]

3. Write a program to reverse the elements of an integer 1-D array.

Ex. Input: a = [1,2,3,4,5,6]
Output: b = [6,5,4,3,2,1]

4. Write a program to find the largest and smallest element of an array.

Ex. Input: a = [1,2,3,4,5,6]
Output: max = 6 and min is 1

5. Write a menu driven program with following option

a. Accept elements of an array and then display the array.

Ex. Input: Do you want to input an element into the array?(y/n)
y
What is your element?
1
Do you want to input an element into the array?(y/n)
y
What is your element?
2
Do you want to input an element into the array?(y/n)
y
What is your element?
3
Do you want to input an element into the array?(y/n)
y
What is your element?
4
Do you want to input an element into the array?(y/n)
n
Your array is: [1,2,3,4]

5. c. Sort the array using **insertion** sort method

d. Sort the array using **selection** sort method

e. Sort the array using **bubble** sort method

6. P is one-dimensional array of integers. Write a function to efficiently search for a data value from P. If the value is present in the array then the function should return value 1 and 0 otherwise.

Ex. Input: a = [1,2,3,4,5,6]
What element are you looking for? 4
Output: b = [0,0,0,1,0,0]

7. Suppose A, B, C are arrays of integers of size M, N, and M + N respectively. The numbers in array A. Write a user defined function to produce third array C by merging arrays A and B so that array A elements are in ascending order and array B elements are in descendng order.

Ex. Input: A = [2,1,3] B = [5,6,7,8]

Output: C = [1,2,3,8,7,6,5]

8. Given two arrays of integers A and B of sizes M and N respectively.

All even numbers of A copied into C and are in ascending order.

All odd numbers of B are copied into C in descending order.

Ex. Input: A = [1, 2, 3, 4, 5, 6] B = [7, 8, 9, 10, 11, 12, 13]

Output: C = [2, 4, 6, 13, 11, 9, 7]