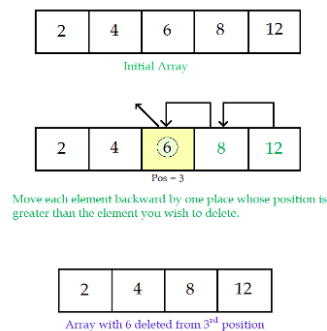


Badji Mokhtar Annaba University , Faculty of Technology, Computer Science Departement
Computing and Automation 01, Semester 01, Algorithms and Data Structure 01
Tutorial serie #4

1. **[TP]** Write a program that calculates and prints the sum, average, max and min of an array of 10 integers, entered by the user.
3. Implement a sorting algorithm to sort an array of integers in ascending order.
4. Write an algorithm that tests if an array contains or not a specific value.
5. Write an algorithm that counts the number of occurrences of a value in an array of integers.
6. Write a program that reverses the elements of an integer array in-place (without using additional arrays).
7. **[TP]** Array delete : Write a program that allows the user to introduce an array and then allow him to delete any number (use array shift as described in the illustration:



8. Develop a program that finds if a matrix of integers contains a specific value X.
9. Write a program that displays the sum of the diagonal of a matrix of 4 x 4 of integers.
10. **[TP]** Write a function to find the transpose of a given square matrix.
11. String Length: Implement a function to calculate the length of a string without using the standard library function `strlen()`.
12. String Concatenation: Create a program that concatenates two strings without using the standard library function `strcat()`.
13. String Palindrome: Write a function to check if a given string is a palindrome (reads the same backward as forward eg. LEVEL, RACECAR, MADAM).
14. String Reversal: Implement a function to reverse a string in-place.
15. **[TP]** String Tokenization: Develop a program that tokenizes a given sentence into words and prints each word on a new line.