PF Lab 10
Dynamic memory allocation

Note: You are not allowed to use constant fixed-sized array in this lab

Question 1: Write a function in C++ that receives a dynamically created integer array and an integer size, and an index from where the left shift starts instead of from the first location. The function will shift whole array one step to the left from that index. (Obviously on shifting left it will lose the value of that array index)

Use this Function Prototype: void shift_left_index (int * arr,int size,int index);

Using this function call, if numbers is an integer pointer used to create array dynamically in main , size is an integer variable representing size of array numbers and a valid index ind from where the left shift should start, all initialized from user in main.

shift_left(numbers, size, ind);

Question 2: Write a function in C++ that receives a dynamically created integer array and an integer size, and a value entered by user in main to search in array, and return its index else return -1. t array index)

Use this Function Prototype: int search (int * arr,int size,int value);

Using this function call, if numbers is an integer pointer used to create array dynamically in main , size is an integer variable representing size of array numbers and a value to search, all initialized from user in main.

int index= search(numbers, size, value);

Question 3: Write a function in C++ that receives a dynamically created integer array and an integer size, and a valid index whose value you want to remove from that array.

Use this Function Prototype: int remove_value_at_index (int * arr,int size,int index);

Using this function call, if numbers is an integer pointer used to create array dynamically in main , size is an integer variable representing size of array numbers and a valid index ind from where the value has to be removed , all initialized from user in main.

remove_value_at_index (numbers, size, ind);

Make use of function created in question 1 to remove value at ind by simply left shifting the array.

Question 4: Write a function to display the array values after removal.

Use this Function Prototype: int display(int * arr, int n_elements);

Using this function call, if numbers is an integer pointer used to create array dynamically in main , n is an integer variable representing not the actual size but the number of elements currently stored in array (it can be less than size). lized from user in main.

Display (numbers, n);

Question 5: Write a function in C++ that receives a dynamically created integer array and an integer size, and a value you want to remove from that array.

Use these Function Prototype:

int remove_value (int * arr,int size,int value);

int search (int * arr,int size,int value);

Using these function call, if numbers is an integer pointer used to create array dynamically in main , size is an integer variable representing size of array numbers and a valid index ind from where the value has to be removed , all initialized from user in main.

int ind= search(numbers, size, value);

remove_value(numbers, size, ind);

Make use of function created in question 2 to search value and question 1 to remove value at ind by simply left shifting the array.

Question 6. Write a function in C++ that reads n values in a dynamic integer array. Make use of pointer notation only while reading values. You are not allowed to use array subscript notation in this question.

Note: a[0] is same as *(a+0) , a[1] is same as *(a+1) and a[i] is same as *(a+i)