**Write a program for insertion and deletion operations in an array.**

**Insertion**

#include<stdio.h>

void main()

{

int a[10],i,n;

printf("enter the limit\n");

scanf("%d",&n);

printf("enter the elements\n");

for(i=0;i<n;i++)

{

scanf("%d",&a[i]);

}

printf("Array is: \n");

for(i=0;i<n;i++)

{

printf("%d\t",a[i]);

}

}

**Deletion**

#include <stdio.h>

void main ()

{

int arr[50];

int pos, i, num; // declare int type variable

printf (" \n Enter the number of elements in an array: \n ");

scanf (" %d", &num);

printf (" \n Enter %d elements in array: \n ", num);

for (i = 0; i < num; i++ )

{

printf (" arr[%d] = ", i);

scanf (" %d", &arr[i]);

}

// enter the position of the element to be deleted

printf( " Define the position of the array element where you want to delete: \n ");

scanf (" %d", &pos);

// check whether the deletion is possible or not

if (pos >= num+1)

{

printf (" \n Deletion is not possible in the array.");

}

else

{

// Delete element by shifting elements

for (i = pos - 1; i < num -1; i++)

{

arr[i] = arr[i+1];

}

printf (" \n The resultant array is: \n");

for (i = 0; i< num - 1; i++)

{

printf (" arr[%d] = ", i);

printf (" %d \n", arr[i]);

}

}

}

**Write a program to search for an element in an array using**

**Linear Search**

#include<stdio.h>

void main(){

int arr[10],size,i,Element;

//ask the user for the size of the the array

printf("Enter size of the array: ");

scanf("%d",&size);

// ask user to provide values of array

printf("Enter any %d integer values: ",size);

//save user values in arr[] array

for(i = 0; i < size; i++)

{

scanf("%d",&arr[i]);

}

printf("Enter the element to be Search: ");

scanf("%d",&Element);

// loop each element of the array and check if element is equal to the element

//we need to find

for(i = 0; i < size; i++)

{

if(Element == arr[i])

{

// show element found message with it's position

printf("Element is found at %d index", i+1);

break;

}

}

//check if we have reached the end of the list and not found element yet

if(i == size)

{

printf("Given element is not found in the array!!!");

}

}

4. Write a program to merge two arrays.

#include<stdio.h>

void main()

{

int n1,n2,n3,a1[20],a2[20],a3[20],i,j;

printf("enter size of 1st array\n");

scanf("%d",&n1);

printf("enter size of 2nd array\n");

scanf("%d",&n2);

n3=n1+n2;

printf("\nenter elements of 1 st array\n");

for(i=0;i<n1;i++)

{

scanf("%d",&a1[i]);

a3[i]=a1[i];

}

printf("\n enter elements of 2nd array\n");

for(i=0;i<n2;i++)

{

scanf("%d",&a2[i]);

a3[k]=a2[i];

k++;

}

printf("\nmerged array \n");

for(i=0;i<n3;i++)

{

printf("\n%d\t",a3[i]);

}

}

**Binary Search**

#include<stdio.h>

void main()

{

int c, first, last, middle, n, search, array[100];

printf("Enter number of elements\n");

scanf("%d", & n);

printf("Enter %d integers\n", n);

for (c = 0; c < n; c++) scanf("%d", & array[c]);

printf("Enter value to find\n");

scanf("%d", & search);

first = 0;

last = n - 1;

middle = (first + last) / 2;

while (first <= last)

{

if (array[middle] < search) first = middle + 1;

else if (array[middle] == search) {

printf("%d found at location %d.\n", search, middle + 1);

break;

}

Else

last = middle - 1;

middle = (first + last) / 2;

}

if (first > last) printf("Not found! %d is not present in the list.\n", search);

}