Linear Search

```c
#include<stdio.h>
int linear_s(int arr[],int, int);
void main()
{
        int arr[10];
        int i, n = 10, x, r;
        for (i = 0; i <= 9; i++)
                scanf_s("%d", &arr[i]);
        printf("Enter a number to be searched.\n");
        scanf_s("%d", &x);
        r = linear_s(arr,n, x);
        if (r)
                printf("Number found", r);
        else
                printf("Number not found.");
        getch();
}

int linear_s(int arr[],int n, int x)
{
        int i;
        for (i = 0; i < 10; i++)
        {
                if (arr[i] == x)
                        return 1;
                break;
        }
        return 0;
}
```

Binary Search

```c
#include<stdio.h>
int binary_s(int arr[],int, int);
void main()
{
        int arr[10];
        int i,n=10,x,r;
        for (i = 0; i <= 9; i++)
                scanf_s("%d", &arr[i]);
        printf("Enter a number to be searched.\n");
        scanf_s("%d", &x);
        r = binary_s(arr, n,x);
        if (r)
                printf("Number found.");
        else
                printf("Number not found.");
        getch();
}

int binary_s(int arr[],int n, int x)
{
        int l = 0, u = 9, m = 0, flag = 0, i;
        while (l <= u)
        {
```

```
                m = (l + u) / 2;
                if (x > arr[m])
                        l = m + 1;
                else if (x < arr[m])
                        u = m - 1;
                else
                {
                        return 1;
                        break;
                }
        }
        return 0;
}
```

Selection Sort-1

```
#include<stdio.h>
void s_sort(int[],int);
void main()
{
        int i, j,n = 10;
        int arr[10];
        for (i = 0; i <= n; i++)
        {
                scanf_s("%d", &arr[i]);
        }g
        s_sort(arr, n);
        for (j = 0; j <= 9; j++)
        printf("%d ",arr[j]);
        getch();
}
void s_sort(int arr[],int n)
{
        int i, j, t;
        for (i = 0; i < n - 1; i++)
        {
                for (j = i+1; j < n; j++)
                {
                        if (arr[i]>arr[j])
                        {
                                t = arr[i];
                        arr[i] = arr[j];
                        arr[j] = t;
                        }
                }

        }
}
```

Selection Sort-2

```
#include<stdio.h>
void s_sort(int[],int);
void main()
{
        int i, j,n = 10;
```

```c
        int arr[10];
        for (i = 0; i <= n; i++)
        {
                scanf_s("%d", &arr[i]);
        }
        s_sort(arr, n);
        for (j = 0; j <= 9; j++)
        printf("%d ",arr[j]);
        getch();
}
void s_sort(int arr[],int n)
{
        int i, j, t,min;
        for (i = 0; i < n - 1; i++)
        {
                min = i;
                for (j = i + 1; j < n; j++)
                {
                        if (arr[min] > arr[j])
                                min = j;
                }
                if(min!=i)
                {
                        t = arr[min];
                        arr[min] = arr[i];
                        arr[i] = t;

                }

        }
}
```

Bubble Sort

```c
#include<stdio.h>
void b_sort(int[], int);
void main()
{
        int i, j, n = 10;
        int arr[10];
        for (i = 0; i <= n; i++)
        {
                scanf_s("%d", &arr[i]);
        }
        b_sort(arr, n);
        for (j = 0; j <= 9; j++)
                printf("%d ", arr[j]);
        getch();
}
void b_sort(int arr[], int n)
{
        int i, j,temp;
        for (i = 0; i < n-1; i++)
        {
                for (j = 0; j < n - i - 1; j++)
                {
                        if (arr[j] > arr[j + 1])
                        {
```

```c
                        temp = arr[j];
                        arr[j] = arr[j + 1];
                        arr[j + 1] = temp ;
                }
            }
        }
}
```

Insertion Sort

```c
#include<stdio.h>
void i_sort(int[], int);
void main()
{
        int i, j, n = 10;
        int arr[10];
        for (i = 0; i <= n; i++)
        {
                scanf_s("%d", &arr[i]);
        }
        i_sort(arr, n);
        for (j = 0; j <= 9; j++)
                printf("%d ", arr[j]);
        getch();
}
void i_sort(int arr[], int n)
{
        int i, j, k, temp;
        for (i = 1; i < n; i++)
        {
                for (j = 0; j < i; j++)
                {
                        if (arr[j] > arr[i])
                        {
                                temp = arr[j];
                                arr[j] = arr[i];
                                for (k = i; k > j; k--)
                                {
                                        arr[k] = arr[k - 1];
                                }
                                arr[k + 1] = temp;
                        }
                }
        }
}
```

```c
Accept 2 arrays with sorted elements. Put this elements in third array in sorted order.
#include<stdio.h>
void main()
{
        int a[5]={2,9,10,11,57};
        int b[5]={1,3,17,25,90};
        int c[10],i=0,j=0,k=0;
        //for(i=j=k=0;i<=9; )
                while(j<5&&k<5)
        {
                if(a[j]<b[k])
                c[i++]=a[j++];
```

```c
			else
				c[i++]=b[k++];
			/*if(j==5||k==5)
				break;*/
	}
	for ( ;j<=4;j++)
		c[i++]=a[j];
	for( ;k<=4;k++)
		c[i++]=b[k];
	for(i=0;i<=9;i++)
		printf("%d ",c[i]);
	getch();
}
```