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1.Insertion Sort:

```
#include<stdio.h>
int main(){
 int i, j, count, temp, number[20];
 printf("Enter how many numbers you want: ");
 scanf("%d",&count);
 printf("Enter %d elements: ", count);
 for(i=0;i<count;i++)
 scanf("%d",&number[i]);
  for(i=1;i<count;i++){
 temp=number[i];
 j=i-1;
 while((temp<number[j])&&(j>=0)){
 number[j+1]=number[j];
 j=j-1;
 }
 number[j+1]=temp;
 }
 printf("Order of Sorted elements: ");
 for(i=0;i<count;i++)
 printf(" %d",number[i]);
 return 0;
}
```

2.Selection Sort:

```
#include<stdio.h>
int main(){
 int i, j, count, temp, number[20];
 printf("Enter how many numbers you want: ");
 scanf("%d",&count);
 printf("Enter %d elements: ", count);
 for(i=0;i<count;i++)
 scanf("%d",&number[i]);
 for(i=0;i<count;i++){
 for(j=i+1;j<count;j++){
 if(number[i]>number[j]){
 temp=number[i];
 number[i]=number[j];
 number[j]=temp;
 }
 }
 }
 printf("Sorted elements: ");
 for(i=0;i<count;i++)
 printf(" %d",number[i]);
 return 0;
}
```

3.Bubble Sort:

```
#include <stdio.h>
int main()
{
 int array[100], g, f, h, swap;
 printf("Enter number of elements\n");
 scanf("%d", &g);
 printf("Enter %d integers\n", g);
 for (f = 0; f < g; f++)
 scanf("%d", &array[f]);
 for (f = 0 ; f < g - 1; f++)
 {
 for (h = 0 ; h < g - f - 1; h++)
 {
 if (array[h] > array[h+1])
 {
 swap = array[h];
 array[h] = array[h+1];
 array[h+1] = swap;
 }
 }
 }
 printf("Sorted list in ascending order:\n");
 for (f = 0; f < g; f++)
 printf("%d\n", array[f]);
 return 0;
}
```

4.Merge sort:

```
#include<stdio.h>
void mergesort(int a[],int i,int j);
void merge(int a[],int i1,int j1,int i2,int j2);
int main()
{
```

```
int a[20],n,i;
printf("Enter no of elements:");
scanf("%d",&n);
printf("Enter array elements:");
for(i=0;i<n;i++)
scanf("%d",&a[i]);
mergesort(a,0,n-1);
printf("\nSorted array is :");
for(i=0;i<n;i++)
printf("%d ",a[i]);
return 0;
}
void mergesort(int a[],int i,int j)
{
int mid;
if(i<j)
{
mid=(i+j)/2;
mergesort(a,i,mid);
mergesort(a,mid+1,j);
merge(a,i,mid,mid+1,j); }
}
void merge(int a[],int i1,int j1,int i2,int j2)
{
int temp[50];
int i,j,k;
i=i1;
j=i2;
k=0;
while(i<=j1 && j<=j2)
{
if(a[i]<a[j])
temp[k++]=a[i++];
else
temp[k++]=a[j++];
}
while(i<=j1)
temp[k++]=a[i++];
while(j<=j2)
temp[k++]=a[j++];
//Transfer elements from temp[] back to a[]
for(i=i1,j=0;i<=j2;i++,j++)
a[i]=temp[j];
```

```
}
```

5.Heap Sort:

```
#include <stdio.h>
void main()
{
 int heap[10], h, i, j, c, root, temp;
 printf("\n Enter number of elements :");
 scanf("%d", &h);
 printf("\n Enter the numbers : ");
 for (i = 0; i < h; i++)
 scanf("%d", &heap[i]);
 for (i = 1; i < h; i++)
 {
 c = i;
 do
 {
 root = (c - 1) / 2;
 if (heap[root] < heap[c])
 {
 temp = heap[root];
 heap[root] = heap[c];
 heap[c] = temp;
 }
 c = root;
 } while (c != 0);
 }
 printf("Heap array : ");
 for (i = 0; i < h; i++)
 printf("%d\t ", heap[i]);
 for (j = h - 1; j >= 0; j--)
 {
 temp = heap[0];
 heap[0] = heap[j];
 heap[j] = temp;
 root = 0;
 do
 {
 c = 2 * root + 1; /* left node of root element */
 if ((heap[c] < heap[c + 1]) && c < j-1)
 c++;
 if (heap[root]<heap[c] && c<j)
 {
 temp = heap[root];
 heap[root] = heap[c];
 heap[c] = temp;
 }
 root = c;
 } while (c < j);
 ;}
 printf("\n The sorted array is : ");
 for (i = 0; i < h; i++)
 printf("\t %d", heap[i]);
}
```