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⇒ Merge Sort

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#define MAX 50

void mergeSort [int [], int, int ];
void simplemerge (int [], int, int, int ];
main()
{
  int array [MAX], size ,i ;
  Printf ( "Enter the size of the array - \n");
  Scanf ["%d", &size);
  Printf ( "Enter array elements are - \n");
  for (i =0; i<size ;i++)
{
  Scanf ("%d", &Array [i] );
}
  mergeSort (array, 0, size-1);
  Printf ("\n After sorting array element are)
  for (i=0; i<size, i++)
      Printf ( "%d\t", array [i] );

void mergeSort (int a[], int low, int high)
  {
    int mid, i ;
    if (low < high)
    {
    mid = (low + high) / 2;
    mergeSort (a, low, mid);
    mergeSort (a, mid+1, high);
```

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```
SimpleMerge (a, low, mid, high);
}
}
Void SimpleMerge (int a[], int low, int mid, int
                  high)
{
  int i = low, j = mid+1, k = low;
    int c[50];
  while (i<=mid && j <=high)
  {
    if (a[i] < a[j])
    c [k++] = a [i++];
    else
    c [k++] = a [j++];
}
while (i<=mid)
    c [k++] = a[i++];
  while (j <= high)
  c [k++] = a [j++];
  for (i=low ; i<=high ; i++)
     a[i] = c[i];
}
```

o/p

Enter the size of the array - 6
Enter array elements - 10, 34, 57, 3, 2, 6
After Sorting -
2 3 6 10 34 57

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```
    while(j<=high)
        c[k++]=a[j++];
    for(i=low;i<=high;i++)
        a[i]=c[i];
}
```

OUTPUT:

```
Enter the size of an array...
7
Enter array elements are...
99
88
77
66
55
44
33

After sorting array elements are...
33      44      55      66      77      88      99
```

OBSERVATION: