QUICK SORT

Exp. No.:
AIM:

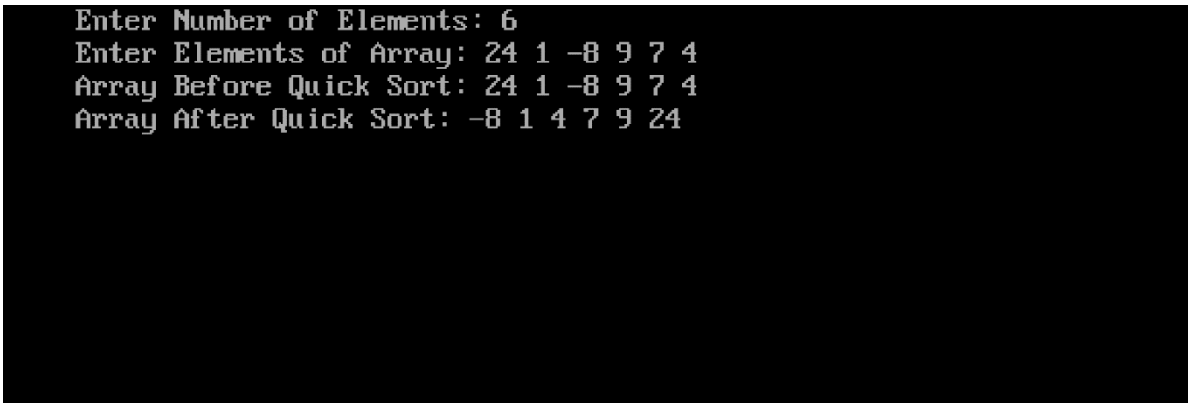
ALGORITHM:

PROGRAM:

```
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>

void quickSort(int *a, int FI, int LI);

int quickPart(int *a, int FI, int LI);

int main()
{
   int n, i, *a, FI, LI;
   printf("Enter Number of Elements: ");
   scanf("%d", &n);
   a = (int *)malloc(n * sizeof(int));
   FI = 0;
   LI = n - 1;
   printf("Enter Elements of Array: ");
   for (i = 0; i < n; i++)
   {
      scanf("%d", &a[i]);
   }
   printf("Array Before Quick Sort:");
   for (i = 0; i < n; i++)
   {
      printf(" %d", a[i]);
   }
   quickSort(a, FI, LI);
   printf("\nArray After Quick Sort:");
   for (i = 0; i < n; i++)
   {
      printf(" %d", a[i]);
   }
   getch();
   clrscr();
   return 0;
}
```

```
void quickSort(int *a, int FI, int LI)
{
   int Q;
   if (FI < LI)
   {
      Q = quickPart(a, FI, LI);
      quickSort(a, FI, Q - 1);
      quickSort(a, Q + 1, LI);
   }
}

int quickPart(int *a, int FI, int LI)
{
   int p, i, j, temp;
   p = a[LI];
   i = FI;
   j = FI - 1;

   while (i < LI)
   {
      if (a[i] > p)
      {
         i++;
      }
      else
      {
         j++;
         temp = a[i];
         a[i] = a[j];
         a[j] = temp;
         i++;
      }
   }
   temp = a[i];
   a[i] = a[j + 1];
   a[j + 1] = temp;
   return j + 1;
}
```

OUTPUT:



RESULT: