ASSIGNMENT NO:2 **DATE:06/02/2015**

PROGRAM TITLE:Write a Program to Reverse the elements of an Array.

THEORY: The aim of this program is to reverse the elements in the given array without the help of a second array. The method to doing this is to swap the nth element with the nth element from the last.

PROGRAM ALGORITHM:

```
Algo_reverse(arr,len)
{
      for(i=0 to len/2)
      {
            temp=arr[i];
            arr[i]=arr[len-i-1];
            arr[len-i-1]=temp;
      }
}
```

PROGRAM CODE:

```
/* C Program to Reverse the elements of an array. */
#include <stdio.h>
#include <stdlib.h>
int reverse(int *arr,int n);
int display(int *arr,int n);
int main()
{
      int n,i;

      /*Read inputs from the user*/
      printf("\n\tEnter size of array:");
      scanf("%d",&n);
      printf("\n\tEnter the elements:");

      /*allocate space for the array*/
      int *arr=(int*)malloc(n*sizeof(int));

      /*Check if allocation successful or not*/
      if(!arr)
      {
            printf("\n\tAllocation failed");
            return 1;
      }
      for(i=0;i<n;i++)
      {
            scanf("%d",&arr[i]);
      }
      printf("\n\tArray before Reversing:");
      display(arr,n);
      printf("\n\tArray after Reversing:");

      /*Call function to reverse the array*/
```

```
      reverse(arr,n);
      free(arr);
      return 0;
}

/*Function to reverse the array*/
int reverse(int *arr,int n)
{
      int i,temp;
      for(i=0;i<n/2;i++)
      {
            temp=arr[i];
            arr[i]=arr[n-i-1];
            arr[n-i-1]=temp;
      }
      display(arr,n);
      return 0;
}

/*Function to display array*/
int display(int *arr,int n)
{
      int i;
      for(i=0;i<n;i++)
      {
            printf("\n\t%d",arr[i]);
      }
      printf("\n");
      return 0;
}
```

OUTPUT:

```
      Enter size of array:4

      Enter the elements:1 2 3 4

      Array before Reversing:
      1
      2
      3
      4

      Array after Reversing:
      4
      3
      2
      1
```

DISCUSSION:

The complexity of the Program is O(n).