

Lab Assignment :3  
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1] Reverse elements of array without using additional array.

Code:

```
amaan@ubunx: ~/Documents/DSA_Assign
#define size 10
int main(){
    int n ;
    printf("Enter the number of elements:");
    scanf("%d",&n);
    int array[size];

    //Taking the elements form user
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
    {
        printf("Enter %d element: ", i+1);
        scanf("%d", &array[i]);
    }

    //reversing the elements
    for (int k = 0; k < n/2; k++)
    {
        int temp = array[k];
        array[k] = array[n-1-k] ;
        array[n-1-k] = temp;
    }

    //printing the element
    for (int i = 0; i < n; i++)
    {
        printf("%d ", array[i]);
    }
}
~
~
~
~
1,0-1 ALL
```

Output:

```
amaan@ubunx:~/Documents/DSA_Assign$ vim q1.c
amaan@ubunx:~/Documents/DSA_Assign$ gcc q1.c
amaan@ubunx:~/Documents/DSA_Assign$ ./a.out
Enter the number of elements:5
Enter the elements:
Enter 1 element: 20
Enter 2 element: 50
Enter 3 element: 80
Enter 4 element: 70
Enter 5 element: 10
10 70 80 50 20
amaan@ubunx:~/Documents/DSA_Assign$
```

## 2. C program to find nearest lesser and greater element in an array.

Code:

```
#include<stdio.h>
#define size 10

int main(){
    int n ;
    printf("Enter the number of elements:");
    scanf("%d",&n);
    int array[size];

    //Taking the elements form user
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
    {
        printf("Enter %d element: ", i+1);
        scanf("%d", &array[i]);
    }

    int target ;
    printf("Enter the target elements:");
    scanf("%d",&target);

    int lesser_target = -999999 , greater_target = 999999;

    for (int i = 0; i < n; i++)
    {
        if (array[i] > target )
        {
            if (array[i] < greater_target)
            {
                greater_target = array[i];
            }
        }
    }

    printf("Lesser Number:%d \n", lesser_target);
    printf("Greater Number: %d \n", greater_target);

    return 0;
}
```

```
for (int i = 0; i < n; i++)
{
    if (array[i] > target )
    {
        if (array[i] < greater_target)
        {
            greater_target = array[i];
        }
    }
    else if (array[i] == target)
    {
        greater_target = target;
        lesser_target = target;
        break;
    }
    else
    {
        if (array[i] > lesser_target)
        {
            lesser_target = array[i];
        }
    }
}

printf("Lesser Number:%d \n", lesser_target);
printf("Greater Number: %d \n", greater_target);

return 0;
}
```

Output:

```
amaan@ubunx:~/Documents/DSA_Assign$ gcc q2.c
amaan@ubunx:~/Documents/DSA_Assign$ ./a.out
Enter the number of elements:5
Enter the elements:
Enter 1 element: 10
Enter 2 element: 12
Enter 3 element: 9
Enter 4 element: 5
Enter 5 element: 7
Enter the target elements:11
Lesser Number:10
Greater Number: 12
amaan@ubunx:~/Documents/DSA_Assign$ S
```

3.Display elements of array in triangle pattern. Use formatting to get a uniform display.

Code:

```

#include<stdio.h>
#define size 10

int main(){
    int n ;
    printf("Enter the number of elements:");
    scanf("%d",&n);
    int array[size];

    //Taking the elements form user
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
    {
        printf("Enter %d element: ", i+1);
        scanf("%d", &array[i]);
    }

    for (int i = n; i >=0; i--)
    {
        for (int j = 0; j < i; j++)
        {
            printf("%d ", array[j]);
        }
        printf("\n");
    }

}
~
~
~
~
~
~
"q3.c" [noeol][dos] 29L, 543B
1,1 All

```

Output:

```
amaan@ubunx:~/Documents/DSA_Assign$ vim q3.c
amaan@ubunx:~/Documents/DSA_Assign$ gcc q3.c
amaan@ubunx:~/Documents/DSA_Assign$ ./a.out
Enter the number of elements:5
Enter the elements:
Enter 1 element:
20
Enter 2 element: 30
Enter 3 element: 40
Enter 4 element: 100
Enter 5 element: 500
20 30 40 100 500
20 30 40 100
20 30 40
20 30
20
amaan@ubunx:~/Documents/DSA_Assign$
```

4. Write a program that calculates the sum of even elements of an integer array of size 20

Code:

```
Nov 7 18:50
amaan@ubunx:~/Documents/DSA_Assign
#include<stdio.h>
#define size 20

int main(){
    int n ;
    printf("Enter the number of elements:");
    scanf("%d",&n);
    int array[size];

    //Taking the elements form user
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
    {
        printf("Enter %d element: ", i+1);
        scanf("%d", &array[i]);
    }

    int sum = 0;
    for (int i = 0; i < n; i++)
    {
        if(array[i]%2 == 0){
            sum += array[i];
        }
    }

    printf("The sum of even elements is %d.", sum);

    return 0;
}
~
~
~
~
"q4.c" [noeol][dos] 29L, 566B 1,1 All
```

Output:

```
amaan@ubunx:~/Documents/DSA_Assign$ gcc q4.c
amaan@ubunx:~/Documents/DSA_Assign$ ./a.out
Enter the number of elements:5
Enter the elements:
Enter 1 element: 6
Enter 2 element: 3
Enter 3 element: 5
Enter 4 element: 4
Enter 5 element: 2
The sum of even elements is 13.amaan@ubunx:~/Documents/DSA
```