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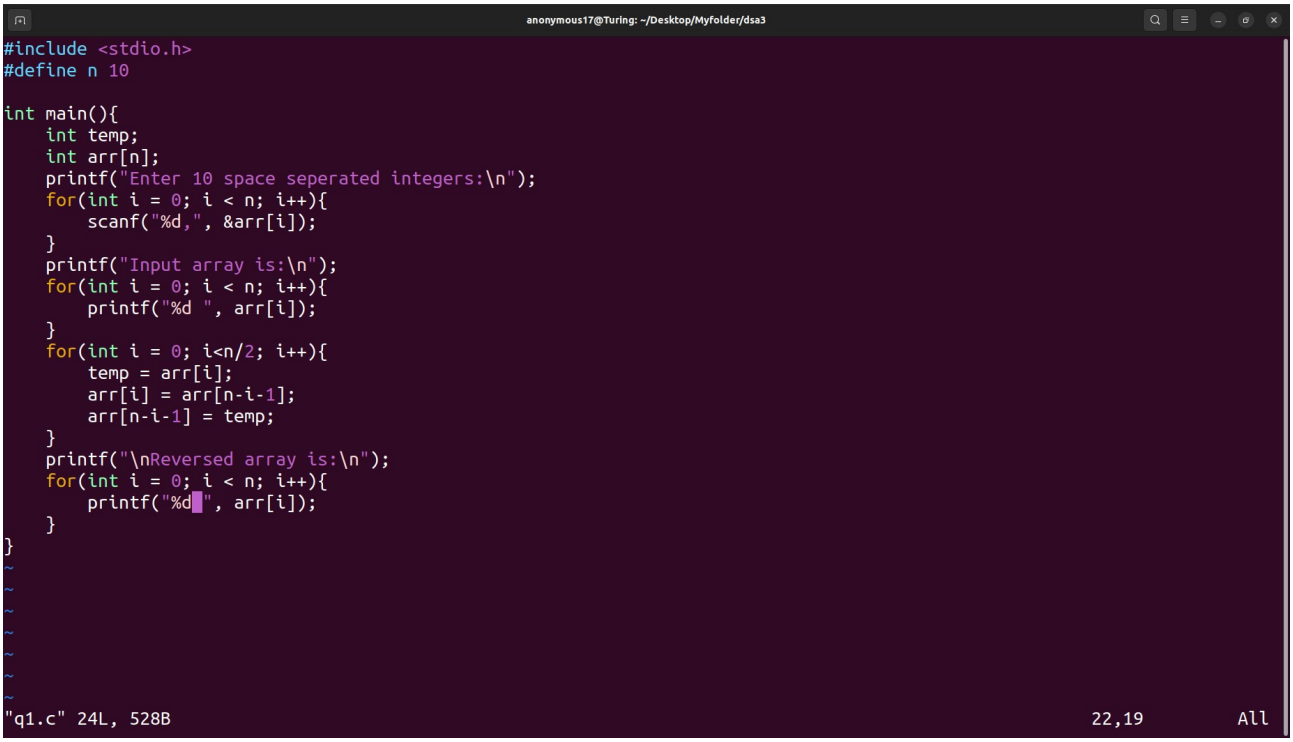
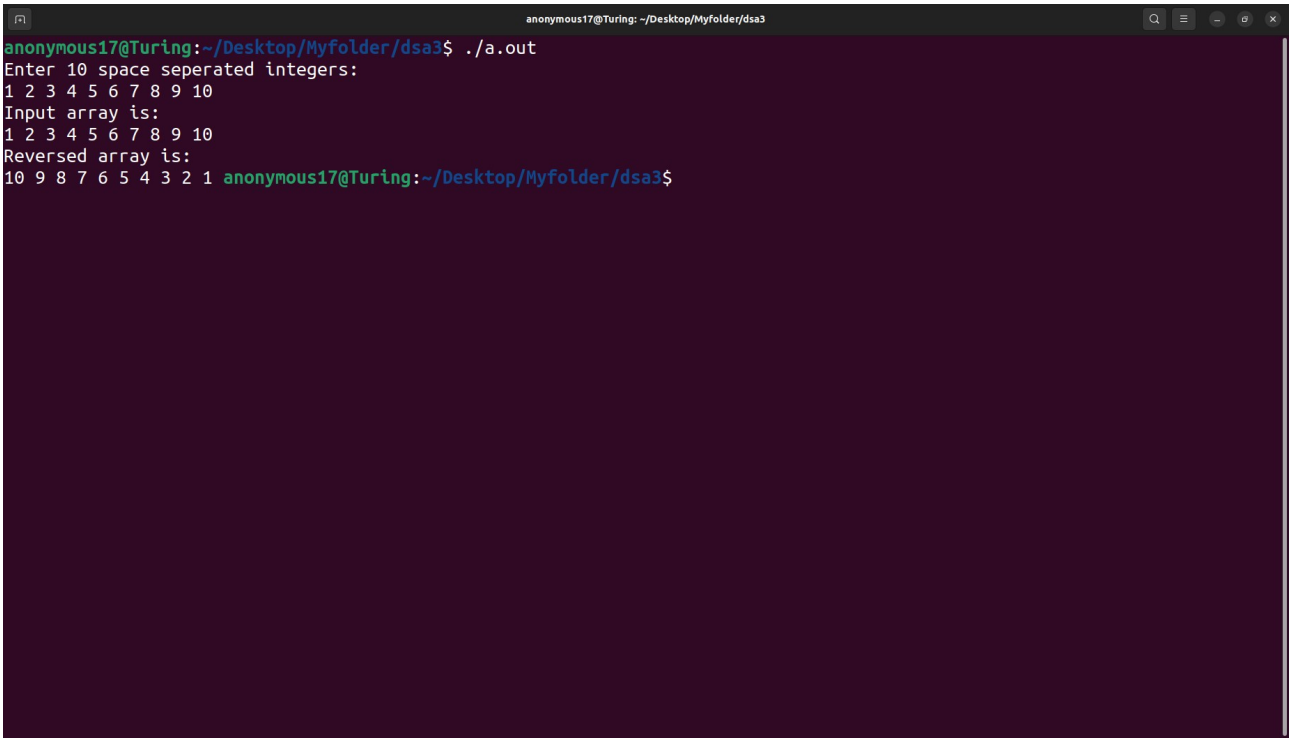
Assignment 3

1. Reverse elements of array without using additional array.





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

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```c
#include<stdio.h>
#include<limits.h>
#define ARRAY_SIZE 10

int main(){
        int array[ARRAY_SIZE];
        printf("Enter 10 integers:\n");
        for(int i = 0;i<10;i++){
                scanf("%d",&array[i]);
        }
        printf("Input array is:\n");
        for(int i = 0;i<10;i++){
                printf("%d ",array[i]);
        }
        printf("\nEnter target element:\n");
        int target;
        scanf("%d",&target);
        int diff_min = INT_MAX, diff_max = INT_MAX,min,max;
        for(int i = 0;i<10;i++){
                if(array[i]<target && target-array[i]<diff_min){
                        min=array[i];
                        diff_min=target-array[i];
                }
                if(array[i]>target && array[i]-target<diff_max){
                        max=array[i];
                        diff_max=array[i]-target;
                }
        }
        printf("Nearest smaller number from target is %d and nearest greater number is %d\n",min,max);
        return 0;
}
```

"q1.c" 31L, 735B 31,1 All

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```
anonymous17@Turing:~/Desktop/Myfolder/dsa3$ gcc q1.c
anonymous17@Turing:~/Desktop/Myfolder/dsa3$ ./a.out
Enter 10 integers:
4 55 -9 0 4 -20 1000 -77 16 -1
Input array is:
4 55 -9 0 4 -20 1000 -77 16 -1
Enter target element:
1
Nearest smaller number from target is 0 and nearest greater number is 4
anonymous17@Turing:~/Desktop/Myfolder/dsa3$
```

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

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```c
#include<stdio.h>
#include<limits.h>
#define ARRAY_SIZE 10

int main(){
        int array[ARRAY_SIZE];
        printf("Enter 10 integers:\n");
        for(int i = 0;i<10;i++){
                scanf("%d",&array[i]);
        }
        printf("Input array is:\n");
        for(int i = 0;i<10;i++){
                printf("%d ",array[i]);
        }
        printf("\n******************\n");
        for(int i = 0;i<10;i++){
                for(int j = 0;j<10-i;j++){
                        printf("%d ",array[j]);
                }
                printf("\n");
        }
        return 0;
}
```

"q1.c" 23L, 422B 21,2-9 All

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```
anonymous17@Turing:~/Desktop/Myfolder/dsa3$ ./a.out
Enter 10 integers:
1 200 3 400 5 600 7 800 9 1000
Input array is:
1 200 3 400 5 600 7 800 9 1000
******************
1 200 3 400 5 600 7 800 9 1000
1 200 3 400 5 600 7 800 9
1 200 3 400 5 600 7 800
1 200 3 400 5 600 7
1 200 3 400 5 600
1 200 3 400 5
1 200 3 400
1 200 3
1 200
1
anonymous17@Turing:~/Desktop/Myfolder/dsa3$
```

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

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```c
#include<stdio.h>
#include<limits.h>
#define ARRAY_SIZE 20

int main(){
        int array[ARRAY_SIZE];
        printf("Enter 20 integers:\n");
        for(int i = 0;i<20;i++){
                scanf("%d",&array[i]);
        }
        printf("Input array is:\n");
        for(int i = 0;i<20;i++){
                printf("%d ",array[i]);
        }
        int sum = 0;
        for(int i = 0;i<20;i++){
                if(i%2==0){
                        sum+=array[i];
                }
        }
        printf("\nSum of all the elements at even position in the array is %d",sum);
        return 0;
}
```

"q1.c" 23L, 439B 21,68-75 All

anonymous17@Turing: ~/Desktop/Myfolder/dsa3

```
anonymous17@Turing:~/Desktop/Myfolder/dsa3$ ./a.out
Enter 20 integers:
1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10
Input array is:
1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10
Sum of all the elements at even position in the array is 55anonymous17@Turing:~/Desktop/Myfolder/dsa3$
```