

WEEK 13

#1) Write a user defined function swap () in c to exchange the values of two variables with using third variable and also without using third variable .

C PROGRAM : (With third variable)

```
#include<stdio.h>

void swap(int *a,int *b){

    int temp;

    temp=*a;

    *a=*b;

    *b=temp; }

int main(){

    int n1,n2;

    printf("enter two integers x and y : ");

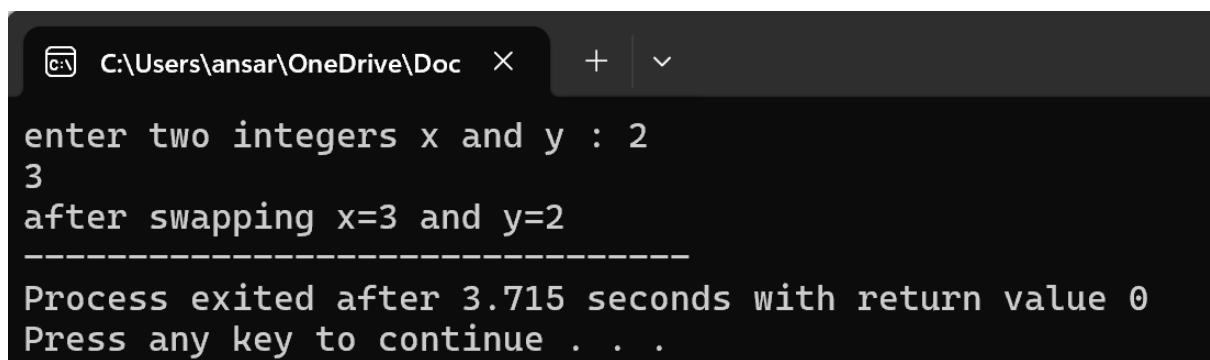
    scanf("%d\t%d",&n1,&n2);

    swap(&n1,&n2);

    printf("after swapping x=%d and y=%d",n1,n2);

    return 0; }
```

OUTPUT:



```
C:\Users\ansar\OneDrive\Doc > enter two integers x and y : 2
3
after swapping x=3 and y=2
-----
Process exited after 3.715 seconds with return value 0
Press any key to continue . . .
```

C PROGRAM : (without third variable)

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

```

void swap(int* a, int *b) {
    *a=*a+*b;
    *b=*a-*b;
    *a=*a-*b; }

int main() {
    int x,y;
    printf("enter two integers ");
    scanf("%d%d",&x,&y);
    printf("Before swap: x = %d, y = %d\n", x, y);
    swap(&x,& y);
    printf("After swap: x = %d, y = %d\n", x, y);
    return 0;
}

```

```

enter two integers 2
3
Before swap: x = 2, y = 3
After swap: x = 3, y = 2
-----
Process exited after 3.879 seconds with return value 0
Press any key to continue . . .

```

#2) Write a program to find the factorial of a given number using recursion .

C PROGRAM :

```

#include<stdio.h>

int factorial(int n){

```

```

if (n==1 || n==0)
    return 1;

return n*factorial(n-1); }

int main (){
    int n;
    printf("enter the number : ");
    scanf ("%d",&n);
    int fact =factorial(n);
    printf("%d!=%d",n,fact);
    return 0; }

```

OUTPUT :

```

C:\Users\ansar\OneDrive\Doc  X + | v
enter the number : 6
6!=720
-----
Process exited after 3.716 seconds with return value 0
Press any key to continue . . .

```

#3) Write a program in c to print the Fibonacci series upto N terms using recursion.

C PROGRAM :

```

#include<stdio.h>

int fibo (int n){

    if(n==1)
        return 0 ;
    if (n==2)
        return 1;

```

```

        return fibo(n-1)+fibo(n-2); }

int main() {
    int n,i;
    printf("Enter the number of terms: ");
    scanf("%d", &n);
    printf("Fibonacci series: ");
    for (i = 1; i <= n; i++) {
        printf("%d ", fibo(i));
    }
    return 0;
}

```

OUTPUT :

```

C:\Users\ansar\OneDrive\Doc + 
Enter the number of terms: 5
Fibonacci series: 0 1 1 2 3
-----
Process exited after 2.593 seconds with return value 0
Press any key to continue . .

```

#4) Write a c program to store n elements in an array and print the elements using pointer .

C PROGRAM :

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

```

int main() {
    int n,i;
    printf("Enter the number of elements: ");
    scanf("%d", &n);
    int arr[n];
    for (i=0;i<n;i++){

```

```

printf("Enter element a[%d]:\n", i+1);

scanf("%d", &arr[i]); }

printf("The elements in the array are:\n");

int *pointer = arr;

for (i = 0; i < n; i++) {

printf("%d ", *(pointer + i)); }

return 0; }

```

OUTPUT :

```

C:\Users\ansar\OneDrive\Doc X + ▾

Enter the number of elements: 5
Enter element a[1]:
1
Enter element a[2]:
2
Enter element a[3]:
3
Enter element a[4]:
9
Enter element a[5]:
5
The elements in the array are:
1 2 3 9 5
-----
Process exited after 9.957 seconds with return value 0
Press any key to continue . . .

```

#5) Write a function countEven (int *int) which receives an integer array and its size , and returns the number of even numbers in the array.

C PROGRAM :

```

#include <stdio.h>

int i,n;

int counteven(int *arr, int size) {

int count = 0;

```

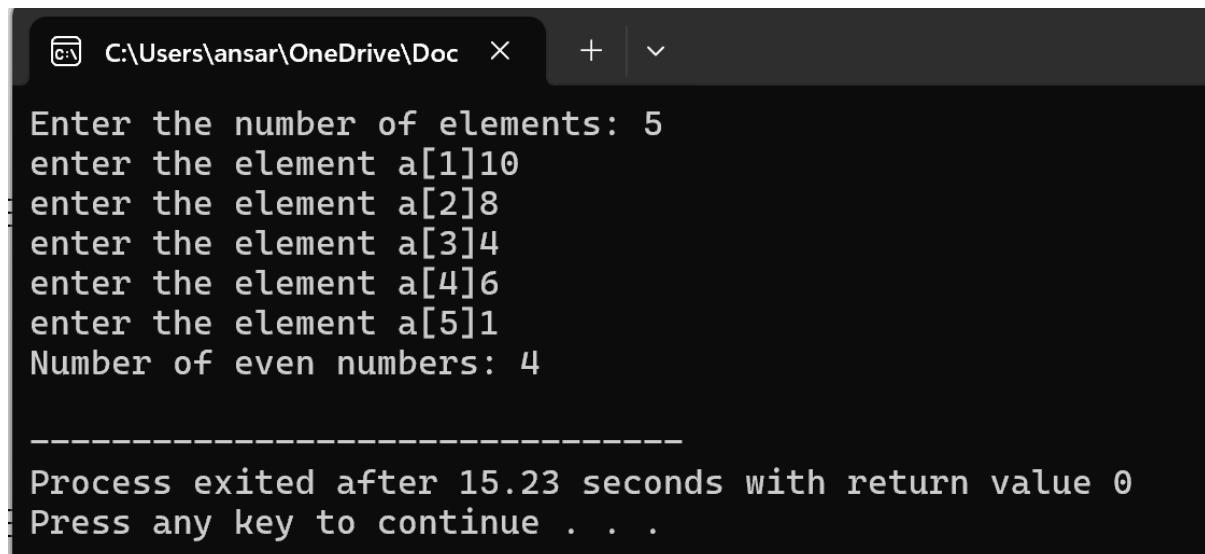
```

for (i = 0; i < size; i++) {
    if (*(arr + i) % 2 == 0) {
        count++;
    }
}
return count;
}

int main() {
    int n,i;
    printf("Enter the number of elements: ");
    scanf("%d", &n);
    int arr[n];
    for (i = 0; i < n; i++) {
        printf("enter the element a[%d]",i+1);
        scanf("%d", &arr[i]);
    }
    int evenCount = counteven(arr, n);
    printf("Number of even numbers: %d\n", evenCount);
    return 0;
}

```

OUTPUT :



```

C:\Users\ansar\OneDrive\Doc X + | v
Enter the number of elements: 5
enter the element a[1]10
enter the element a[2]8
enter the element a[3]4
enter the element a[4]6
enter the element a[5]1
Number of even numbers: 4

-----
Process exited after 15.23 seconds with return value 0
Press any key to continue . . .

```