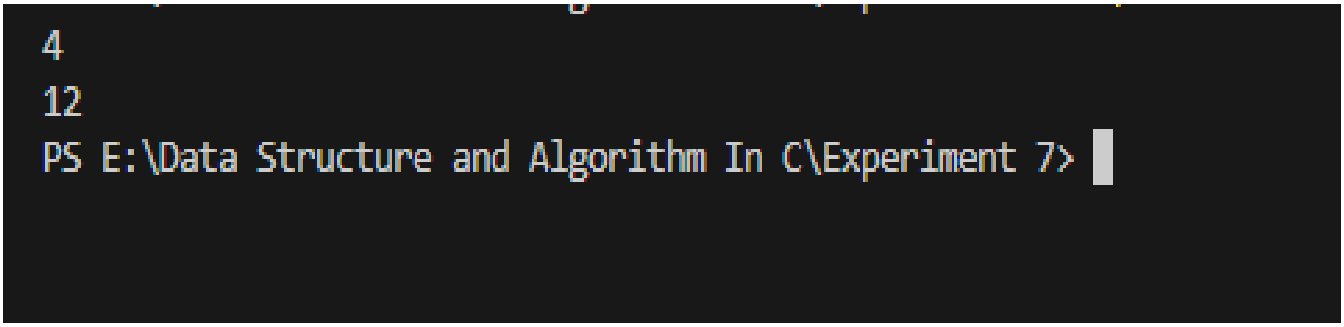
EXPERIMENT NO. 7

Ques 1 :- Write a program to demonstrate the union's effectiveness over structure. You can use any previously given structure program to depict the idea.

```
#include<stdio.h>
union u_tag {
   int ival;
   float fval;
   char *sval;
};
struct s_tag {
   int ival;
   float fval;
   char *sval;
};

int main()
{
   printf("%d \n", sizeof(union u_tag));  //prints 4
   printf("%d \n", sizeof(struct s_tag)); //prints 12
   return 0;
}
```

Output of the Program :-



Ques 2 :- Write the program to demonstrate the various run-time memory allocation approaches like :-

1. **– Malloc**
2. **– Calloc**
3. **– Free**
4. **– Realloc**

For implementing this, make use of array, function and wherever necessary pointer.

```
#include<stdio.h>

#include<stdlib.h>


void traverse(int *arr,int n){
   for(int i=0;i<n;i++)
   printf("%d ",arr[i]);
   printf("\n");
}
```

```
void mallocExample(int* arr){
   arr=(int*)malloc(10*sizeof(int));
    for(int i=0;i<10;i++)arr[i]=i+1;
    traverse(arr,10);
}

void callocExample(int* arr){
    arr=(int*)calloc(10,sizeof(int));
    printf("Memory Allocation Through Calloc Function :\n");
    traverse(arr,10);
}

void rellocExample(int* arr){

    arr=(int*)malloc(10*sizeof(int));

    for(int i=0;i<10;i++)arr[i]=i+1;
    printf("Memory Allocation Through Malloc Function :\n");
    traverse(arr,10);
    printf("Memory Allocation through Realloc Function :\n");
    arr=(int*)realloc(arr,sizeof(int)*5);
    traverse(arr,5);
```

```
    free(arr);
}

int main(){

    int * arr=NULL;
    rellocExample(arr);
    callocExample(arr);
    return 0;
}
```

Output of the Program :-