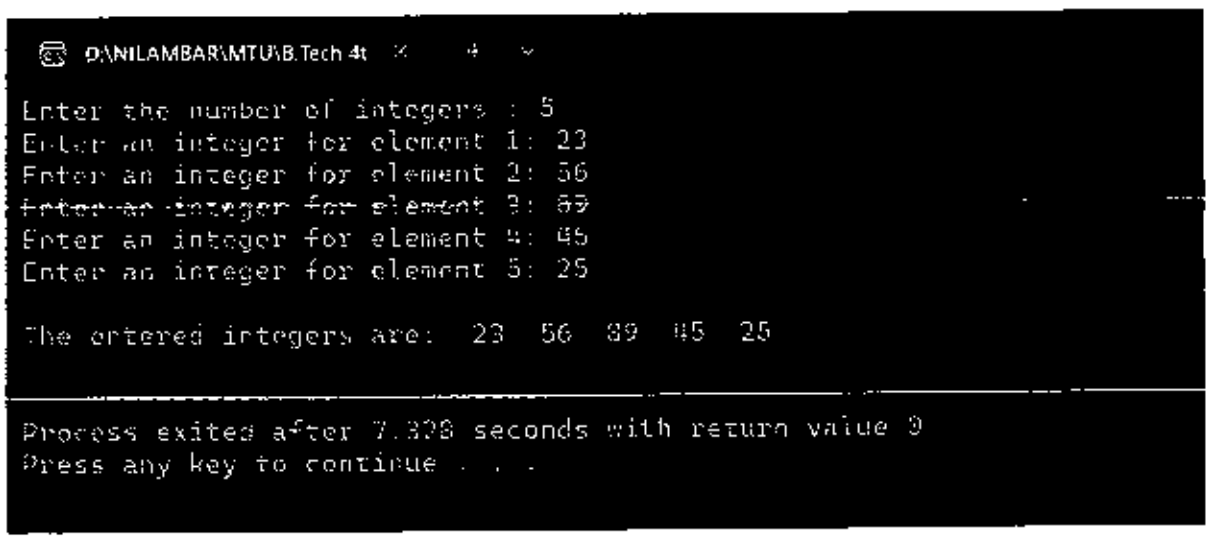
Page No. 1
Date: 5-4-24

Experiment-1.

C Program for malloc() function

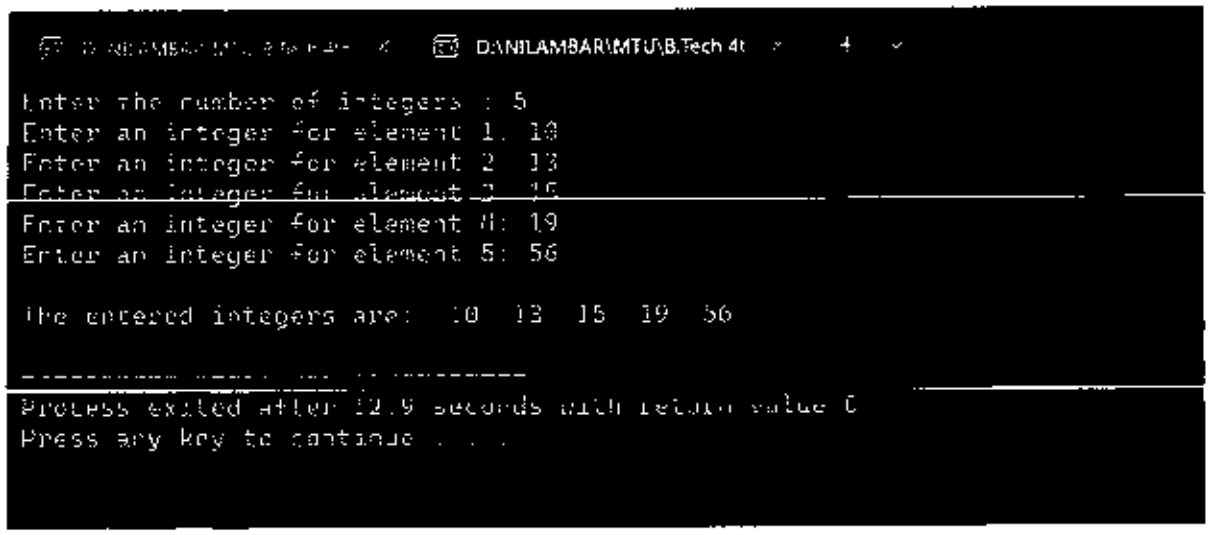
```
#include <stdio.h>
#include <stdlib.h>
int main(){
    int num_integers, i;
    printf("Enter the number of integers: ");
    scanf("%d", &num_integers);
    int *ptr = (int*) malloc(num_integers * sizeof(int));
    if(ptr == NULL){
        printf("Memory Allocation failed!");
        return 1;
    }
    for(i = 0; i < num_integers; i++){
        printf("Enter an integer for element %d: ", i+1);
        scanf("%d", ptr+i);
    }
    printf("\n The entered integers are: ");
    for(i = 0; i < num_integers; i++){
        printf("%d", *(ptr+i));
    }
    printf("\n");
    return 0;
}
```


D:\NILAMBAR\MTU\B.Tech 4t
Enter the number of integers : 5
Enter an integer for element 1: 23
Enter an integer for element 2: 56
Enter an integer for element 3: 89
Enter an integer for element 4: 45
Enter an integer for element 5: 25
The ordered integers are: 23 56 89 45 25
Process exited after 7.398 seconds with return value 0
Press any key to continue . . .

Experiment 2.

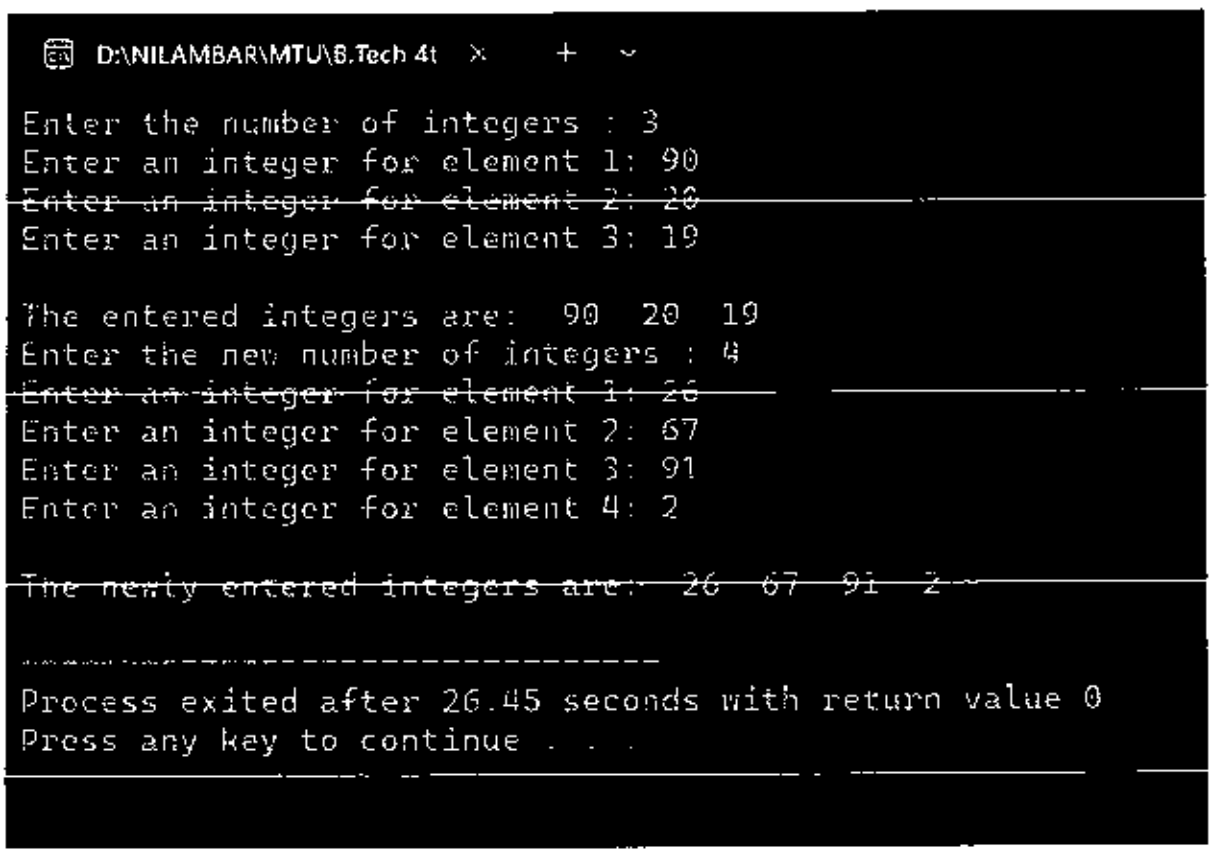
C Program for calloc() function

```
#include <stdio.h>
#include <stdlib.h>
int main(){
    int num_integers, i;
    printf("Enter the number of integers :");
    scanf("%d", &num_integers);
    int * ptr = (int *) calloc(num_integers, sizeof(int));
    if (ptr == NULL){
        printf("Memory allocation failed !");
        return 1;
    }
    for(i=0; i<num_integers; i++){
        printf("Enter an integer for element %d :", i+1);
        scanf("%d", ptr+i);
    }
    printf("\n The integers are : ");
    for(i=0; i<num_integers; i++){
        printf("%d ", *(ptr+i));
    }
    printf("\n");
    return 0;
}
```


D:\NILAMBAR\MTU\B.Tech 4t
4
Enter the number of integers : 5
Enter an integer for element 1: 10
Enter an integer for element 2: 13
Enter an integer for element 3: 15
Enter an integer for element 4: 19
Enter an integer for element 5: 56
The entered integers are: 10 13 15 19 56
Process exited after 12.9 seconds with return value 0
Press any key to continue . . .

C Program to demostrate the use of malloc() function.

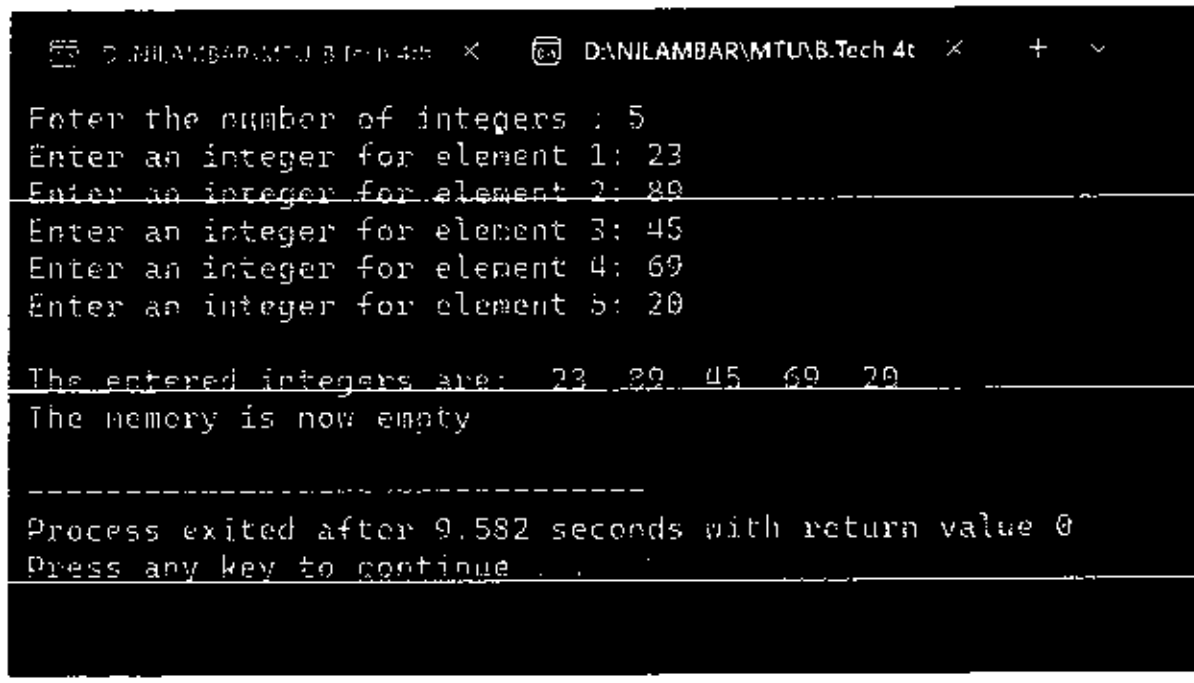
```
#include <stdio.h>
#include <stdlib.h>
int main(){
    int num_integers, i;
    printf("Enter the number of integers : ");
    scanf("%d", &num_integers);
    int *ptr = (int*) malloc(num * sizeof(int));
    if(ptr == NULL){
        printf("Memory allocation failed!\n");
        return 1;
    }
    for(i=0; i<num; i++){
        printf("Enter an integer for element %d:", i+1);
        scanf("%d", ptr+i);
    }
    printf("\n The entered integers are: ");
    for(i=0; i<num, i++){
        printf("%d ", *(ptr+i));
    }
    printf("\n");
```


D:\NILAMBAR\MTU\B.Tech 4t
Enter the number of integers : 3
Enter an integer for element 1: 90
Enter an integer for element 2: 20
Enter an integer for element 3: 19
The entered integers are: 90 20 19
Enter the new number of integers : 4
Enter an integer for element 1: 26
Enter an integer for element 2: 67
Enter an integer for element 3: 91
Enter an integer for element 4: 2
The newly entered integers are: 26 67 91 2
Process exited after 26.45 seconds with return value 0
Press any key to continue . . .

```
int new_num;
printf("Enter the new number of integers: ");
scanf("%d", &new_num);
int *ptr_new = (int *)realloc(ptr, new_num *
                    sizeof(int));
if (ptr_new == NULL){
    printf("Memory allocation failed! \n");
    return 1;
}
for (i = 0; i < new_num; i++){
    printf("Enter an integer for element %d: "
        i+1);
    scanf("%d", ptr_new + i);
}
printf("\n The newly entered integers are: ");
for( i = 0; i < new_num; i++){
    printf("%d ", *(ptr+i));
}
printf("\n");
return 0;
}
```

C Program for free() function

```
#include <stdio.h>
#include <stdlib.h>
int main(){
    int num, i;
    printf("Enter the no of integers : ");
    scanf("%d", &num);
    int *ptr = (int*) malloc(num * sizeof(int));
    if (ptr == NULL){
        printf("Memory allocation failed !\n");
        return 1;
    }
    for (i=0; i< num; i++){
        printf("Enter an integer for element %d :", i+1);
        scanf("%d", ptr+i);
    }
    printf("\n");
    printf("\n The entered integers are : ");
    for(i=0; i<num; i++){
        printf("%d ", *(ptr+i));
    }
    printf("\n");
    free(ptr);
    printf(" The memory is now empty \n");
    return 0;
}
```


D:\NILAMBAR\MTU\B.Tech 4t
Enter the number of integers : 5
Enter an integer for element 1: 23
Enter an integer for element 2: 89
Enter an integer for element 3: 45
Enter an integer for element 4: 69
Enter an integer for element 5: 20
The entered integers are: 23 89 45 69 20
The memory is now empty
Process exited after 9.582 seconds with return value 0
Press any key to continue . . .