

Pointers

16-11-25

Aim – Write a program to demonstrate pointers, pointer to pointer and pointer to array

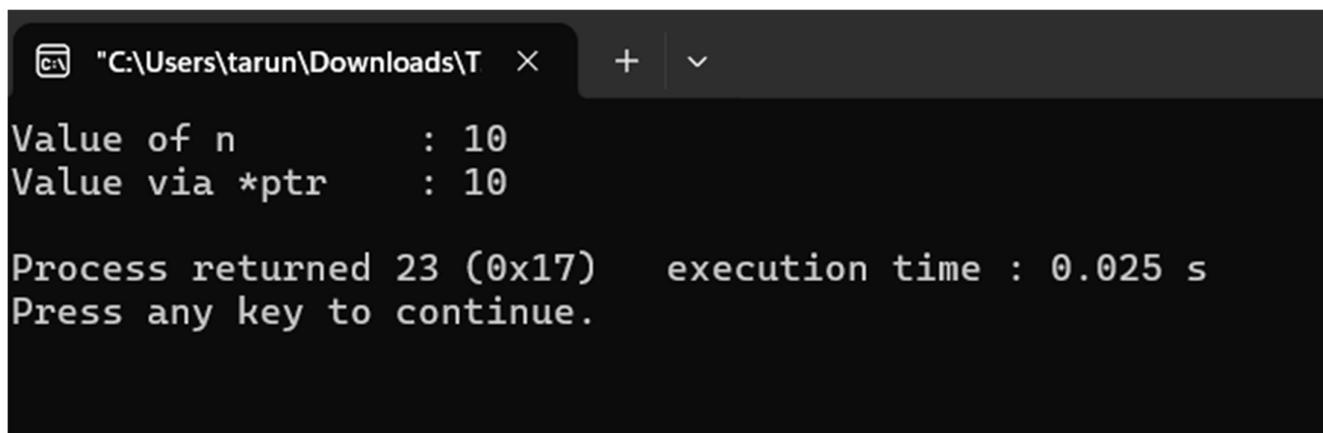
Theory –

Pointers store memory addresses of variables, enabling efficient data access. A pointer to pointer holds the address of another pointer, allowing multiple indirection levels. A pointer to array stores the address of an entire array, helping manage multi-element data structures and multidimensional arrays effectively.

A1.

```
#include <stdio.h>

void main() {
    int n = 10;
    int *ptr;
    ptr = &n;
    printf("Value of n      : %d\n", n);
    printf("Value via *ptr  : %d\n", *ptr);
}
```



```
"C:\Users\tarun\Downloads\T" + 1
Value of n      : 10
Value via *ptr  : 10

Process returned 23 (0x17)  execution time : 0.025 s
Press any key to continue.
```

A2.

```
#include <stdio.h>

void main() {
    int n = 10;
    int *ptr;
    int **pptr;
    pptr = &ptr;
    printf("Value of n      : %d\n", n);
```

```

printf("Value via *ptr : %d\n", *ptr);
printf("Value via **pptr : %d\n", **pptr);
**pptr = 50;
printf("\nAfter modification:\n");
printf("Value of n : %d\n", n);
printf("Value via *ptr : %d\n", *ptr);
printf("Value via **pptr : %d\n", **pptr);
}

```

```

C:\Users\tarun\Downloads\T  × + ▾
Value of n      : 10
Value via *ptr   : 10
Value via **pptr : 10

After modification:
Value of n      : 50
Value via *ptr   : 50
Value via **pptr : 50

Process returned 23 (0x17)  execution time : 0.065 s
Press any key to continue.
|
```

A3.

```

#include <stdio.h>

void main() {
    int arr[5] = {10, 20, 30, 40, 50};
    int (*p)[5] = &arr;
    printf("Accessing array using pointer to array:\n");
    for (int i = 0; i < 5; i++) {
        printf("%d = %d\n", i, (*p)[i]);
    }
}

```

```
C:\ "C:\Users\tarun\Downloads\T" + ▾
Accessing array using pointer to array:
(*p)[0] = 10
(*p)[1] = 20
(*p)[2] = 30
(*p)[3] = 40
(*p)[4] = 50

Process returned 13 (0xD)    execution time : 0.029 s
Press any key to continue.
```

Conclusion

I learnt that pointers store variable addresses. Pointer to pointer stores another pointer's address for multi-level access. Pointer to array stores the address of an entire array, helping manage multiple elements efficiently.