# Pointers

16-11-25

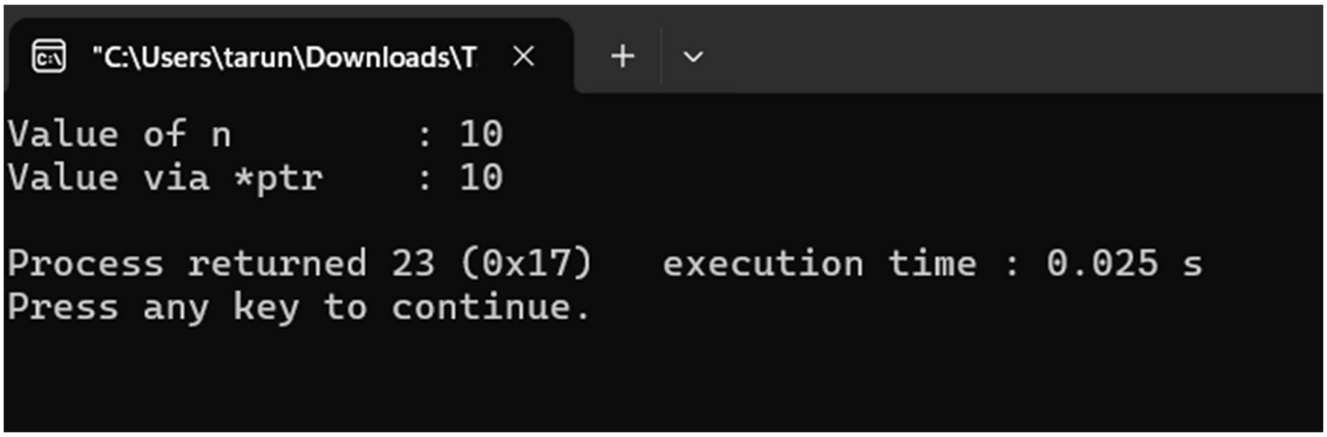
Aim – Write a program to demonstrate pointers, pointer to pointer and pointer to array

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.

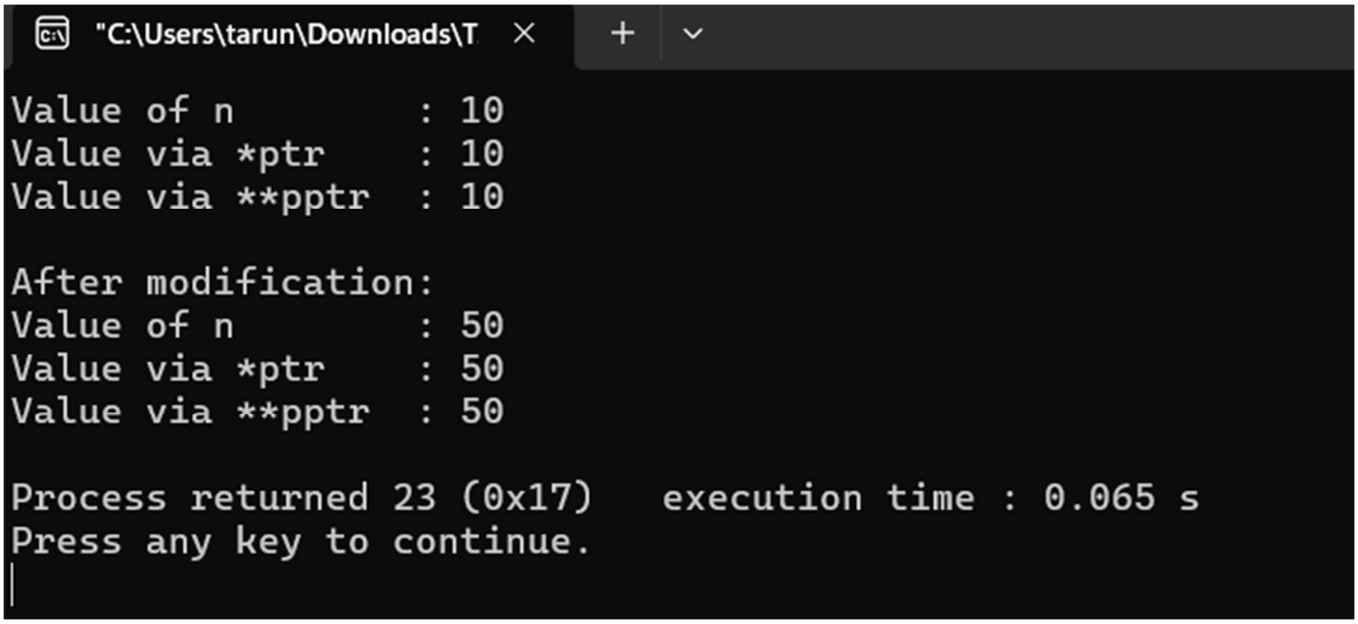
```
#include <stdio.h>

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




A2.

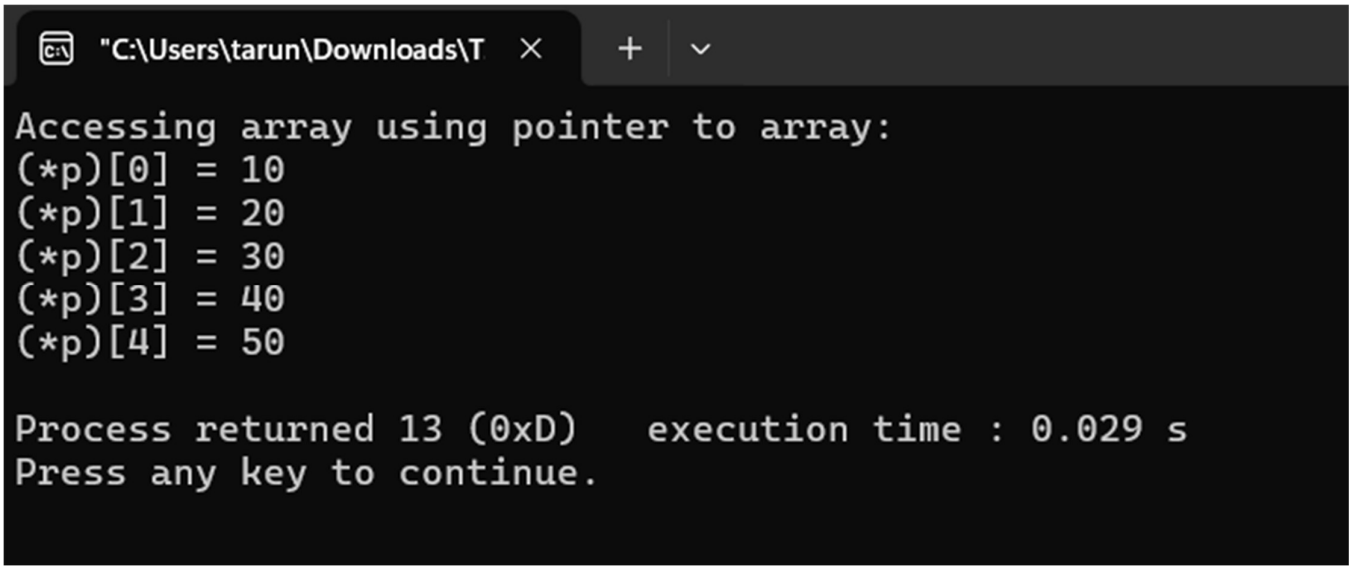
```
#include <stdio.h>

void main() {
    int n = 10;
    int *ptr;
    int **pptr;
    ptr = &n;
    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);
}
```




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("(*p)[%d] = %d\n", i, (*p)[i]);
    }
}
```




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.