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main.c › main

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

int main(int argc, char * argv[]) {
    int a1 = 10;
    int a2 = 10;
    double b1 = 3.14;
    double b2 = 9.8;
    short c1 = 100;
    short c2 = 20;
    char d1 = 'a';
    char d2 = 'c';

    int M = 4;
    int N = 6;
    int A[M][N];
    int i, j;

    //You can find the memory address of a function by using & operator
    printf("------------------- The address of main function: %p ------------
-------------\n", &main);

```

Line 28 : Col 49 History

Console × Shell ×

```
> gcc main.c; ./a.out
------------------- The address of main function: 0x401090 --------------------------
--- Variable memory addresses using & operator and variable sizes using sizeof operator
 ---
Memory address of variable a1: 0x7ffd7de12af8, size: 4 bytes
Memory address of variable a2: 0x7ffd7de12afc, size: 4 bytes
Memory address of variable b1: 0x7ffd7de12b00, size: 8 bytes
Memory address of variable b2: 0x7ffd7de12b08, size: 8 bytes
Memory address of variable c1: 0x7ffd7de12af4, size: 2 bytes
Memory address of variable c2: 0x7ffd7de12af6, size: 2 bytes
Memory address of variable d1: 0x7ffd7de12af2, size: 1 bytes
Memory address of variable d2: 0x7ffd7de12af3, size: 1 bytes

--- Memory addresses of array elements using & operator and base+offset calcualtion ---
-
Base memory address of array A[4][6]: 0x7ffd7de12b10
Memory address (&A[0][0]): 0x7ffd7de12b10, offset: 0000, base + offset: 0x7ffd7de12b10
Memory address (&A[0][1]): 0x7ffd7de12b14, offset: 0004, base + offset: 0x7ffd7de12b14
Memory address (&A[0][2]): 0x7ffd7de12b18, offset: 0008, base + offset: 0x7ffd7de12b18
Memory address (&A[0][3]): 0x7ffd7de12b1c, offset: 000c, base + offset: 0x7ffd7de12b1c
Memory address (&A[0][4]): 0x7ffd7de12b20, offset: 0010, base + offset: 0x7ffd7de12b20
Memory address (&A[0][5]): 0x7ffd7de12b24, offset: 0014, base + offset: 0x7ffd7de12b24
Memory address (&A[1][0]): 0x7ffd7de12b28, offset: 0018, base + offset: 0x7ffd7de12b28
Memory address (&A[1][1]): 0x7ffd7de12b2c, offset: 001c, base + offset: 0x7ffd7de12b2c
Memory address (&A[1][2]): 0x7ffd7de12b30, offset: 0020, base + offset: 0x7ffd7de12b30
Memory address (&A[1][3]): 0x7ffd7de12b34, offset: 0024, base + offset: 0x7ffd7de12b34
Memory address (&A[1][4]): 0x7ffd7de12b38, offset: 0028, base + offset: 0x7ffd7de12b38
Memory address (&A[1][5]): 0x7ffd7de12b3c, offset: 002c, base + offset: 0x7ffd7de12b3c
Memory address (&A[2][0]): 0x7ffd7de12b40, offset: 0030, base + offset: 0x7ffd7de12b40
Memory address (&A[2][1]): 0x7ffd7de12b44, offset: 0034, base + offset: 0x7ffd7de12b44
Memory address (&A[2][2]): 0x7ffd7de12b48, offset: 0038, base + offset: 0x7ffd7de12b48
Memory address (&A[2][3]): 0x7ffd7de12b4c, offset: 003c, base + offset: 0x7ffd7de12b4c
Memory address (&A[2][4]): 0x7ffd7de12b50, offset: 0040, base + offset: 0x7ffd7de12b50
Memory address (&A[2][5]): 0x7ffd7de12b54, offset: 0044, base + offset: 0x7ffd7de12b54
Memory address (&A[3][0]): 0x7ffd7de12b58, offset: 0048, base + offset: 0x7ffd7de12b58
Memory address (&A[3][1]): 0x7ffd7de12b5c, offset: 004c, base + offset: 0x7ffd7de12b5c
Memory address (&A[3][2]): 0x7ffd7de12b60, offset: 0050, base + offset: 0x7ffd7de12b60
Memory address (&A[3][3]): 0x7ffd7de12b64, offset: 0054, base + offset: 0x7ffd7de12b64
Memory address (&A[3][4]): 0x7ffd7de12b68, offset: 0058, base + offset: 0x7ffd7de12b68
Memory address (&A[3][5]): 0x7ffd7de12b6c, offset: 005c, base + offset: 0x7ffd7de12b6c

------------------------ 1-D stencil operation ----------------------------------
Element values of array B[100]
14  16  5   6   9   0   2   6   5   12
4   10  12  5   7   18  16  9   0   19
9   9   0   0   7   18  4   5   3   8
18  10  5   4   16  14  16  10  12  1
2   16  11  6   1   18  4   10  0   16
9   1   5   1   1   5   19  18  2   15
6   1   5   3   17  1   18  13  11  2
14  5   19  17  3   12  7   19  14  7
16  3   8   13  4   2   10  16  12  13
11  18  6   16  2   3   9   12  8   12

Element values of array B2[100] after 1-D stencil operation on array B
14  11  9   6   5   3   2   4   7   7
8   8   9   8   10  13  14  8   9   9
12  6   3   2   8   9   9   4   5   9
12  11  6   8   11  15  13  12  7   5
6   9   11  6   8   7   10  4   8   8
8   5   2   2   2   8   14  13  11  7
7   4   3   8   7   12  10  14  8   9
7   12  13  13  10  7   12  13  13  12
8   9   8   8   6   5   9   12  13  12
14  11  13  8   7   4   8   9   10  12
>
```