

Topic-3D Array**1) Example of a 3D Array**

```

#include<stdio.h>

int main()
{
    int i,j,k;
    int arr[3][4][2] = {
        {
            { 2, 4 },
            { 7, 8 },
            { 3, 4 },
            { 5, 6 }
        },
        {
            { 7, 6 },
            { 3, 4 },
            { 5, 3 },
            { 2, 3 }
        },
        {
            { 8, 9 },
            { 7, 2 },
            { 3, 4 },
            { 5, 1 },
        }
    }
}

```

2) Initialization Methods

```

int x[2][3][4] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
    11, 12, 13, 14, 15, 16, 17, 18, 19,
    20, 21, 22, 23};

```

OR Better

```
int x[2][3][4] = {
    { {0,1,2,3}, {4,5,6,7}, {8,9,10,11} }, //Layer 1 (0th Layer)
    { {12,13,14,15}, {16,17,18,19}, {20,21,22,23} } //Layer 2 (1st Layer)
};
```

3) C Program to store and print 12 values entered by the user

```
#include <stdio.h>
int main()
{
    int i,j,k;
    int test[2][3][2]={0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11};

    // printf("Enter 12 values: \n");

    // for (int i = 0; i < 2; ++i) //2 Layers
    // {
    //     for (int j = 0; j < 3; ++j) //3 Rows
    //     {
    //         for (int k = 0; k < 2; ++k) //2 columns
    //         {
    //             scanf("%d", &test[i][j][k]);
    //         }
    //     }
    // }

    // Printing values with proper index.

    printf("\nDisplaying values:\n");
    for (int i = 0; i < 2; ++i)
    {
        for (int j = 0; j < 3; ++j)
        {
            for (int k = 0; k < 2; ++k)
            {
                printf("test[%d][%d][%d] = %d\n", i, j, k, test[i][j][k]);
            }
        }
    }
    return 0;
}
```