PDP
IT-ACADEMY

Massivlar bilan ishlash (2-qism)

PDP IT-ACADEMY

Reja:

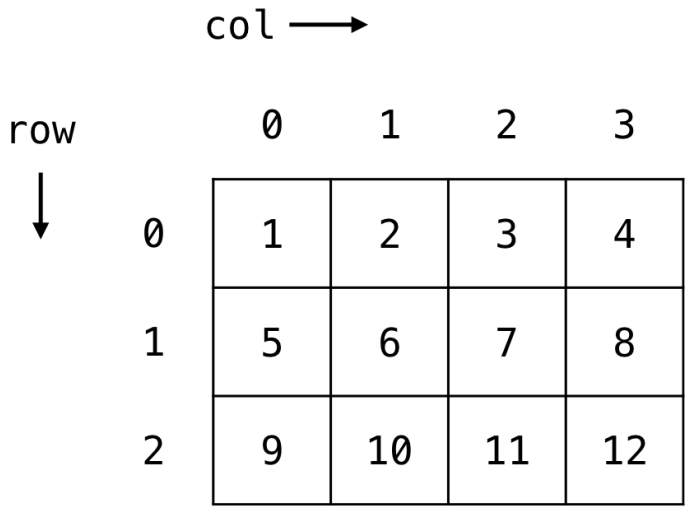
- Ko’p o’lchovli massivlar haqida
- Ko’p o’lchovli massivni e’lon qilish
- Ko’p o’lchovli massiv elementlariga qiymat berish
- Ko’p o’lchovli massiv elementlariga murojaat qilish
- Amaliy mashqlar

PDP
IT-ACADEMY

Ko’p o’lchovli massivlar

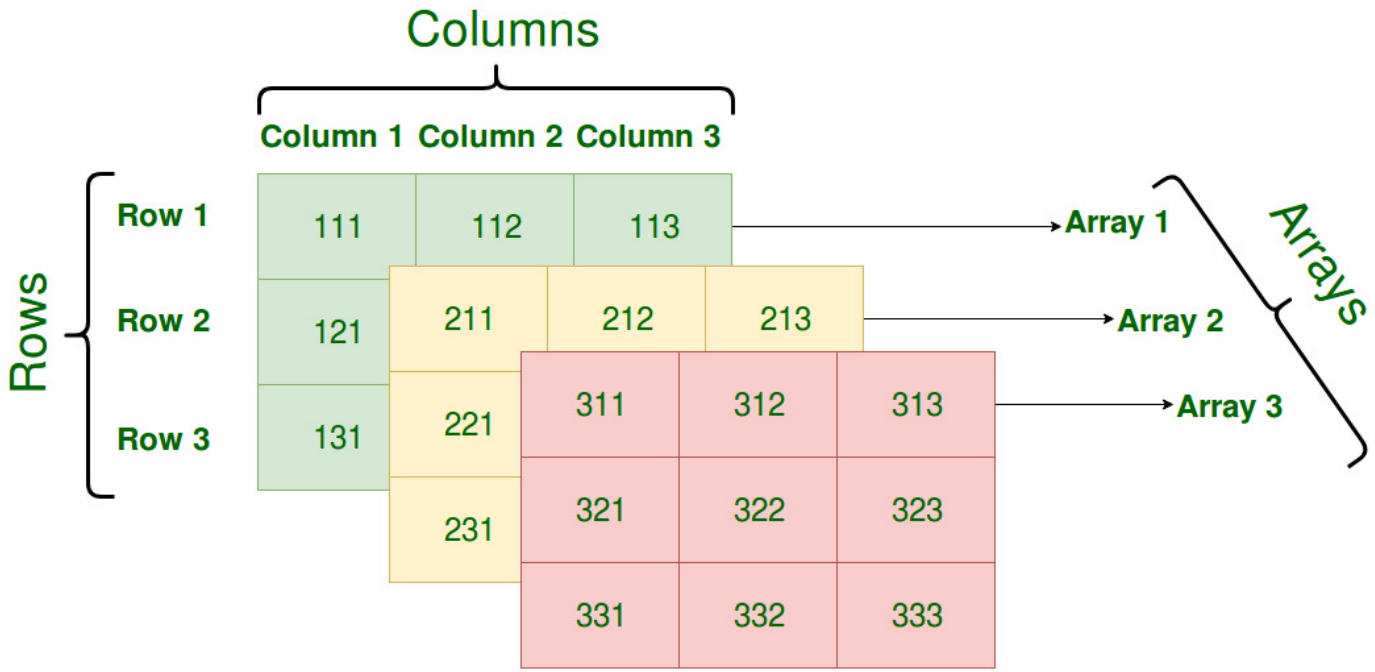
2D multidimensional array

```
int num[3][4] = {
  {1, 2,  3,  4},
  {5, 6,  7,  8},
  {9, 10, 11, 12}
};
```



PDP IT-ACADEMY

3D multidimensional array



PDP
IT-ACADEMY

Ko’p o’lchovli massivni e’lon qilish

PDP
IT-ACADEMY

```
// Syntax: dataType arrayName[size 1] [size 2] … [sizeN];

// Example

int x[10][20];
string y[30][2];

double z[3][5][7];
```

PDP IT-ACADEMY

2D multidimensional array

First Method:

```
int x[3][4] = {0, 1 ,2 ,3 ,4 , 5 , 6 , 7 , 8 , 9 , 10 , 11}
```

Better Method:

```
int x[3][4] = {{0,1,2,3}, {4,5,6,7}, {8,9,10,11}};
```

PDP IT-ACADEMY

2D multidimensional array

```
int test[2][3] = {2, 4, 5, 9, 0, 19};
```

```
int  test[2][3] = { {2, 4, 5}, {9, 0, 19}};
```

	Col 1	Col 2	Col 3
Row 1	2	4	5
Row 2	9	0	19

PDP IT-ACADEMY

3D multidimensional array

Method 1:

```
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};
```

Better Method:

```
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} }
 };
```

PDP
IT-ACADEMY

Ko’p o’lchovli massiv elementlariga murojaat qilish

PDP
IT-ACADEMY

Ko’p o’lchovli massiv elementlariga murojaat:

```
arrayName [index1] [index2]..[indexN]
```

PDP IT-ACADEMY

2D multidimensional array

```
int x[3][3];
```

	Column 0	Column 1	Column 2
Row 0	x[0][0]	x[0][1]	x[0][2]
Row 1	x[1][0]	x[1][1]	x[1][2]
Row 2	x[2][0]	x[2][1]	x[2][2]

PDP
IT-ACADEMY

```
// an array with 3 rows and 2 columns.
int x[3][2] = {{0,1}, {2,3}, {4,5}};

// output each array element's value
for (int i = 0; i < 3; i++)
{
    for (int j = 0; j < 2; j++)
    {
        cout << "Element at x[" << i \
             << "][" << j << "]: ";
        cout << x[i][j]<<endl;
    }
}
```

```
Element at x[0][0]: 0
Element at x[0][1]: 1
Element at x[1][0]: 2
Element at x[1][1]: 3
Element at x[2][0]: 4
Element at x[2][1]: 5
```

PDP IT-ACADEMY

3D multidimensional array

```
// initializing the 3-dimensional array
int x[2][3][2] =
{
    { {0,1}, {2,3}, {4,5} },
    { {6,7}, {8,9}, {10,11} }
};

// output each element's value
for (int i = 0; i < 2; ++i)
{
    for (int j = 0; j < 3; ++j)
    {
        for (int k = 0; k < 2; ++k)
        {
            cout << "Element at x[" << i << "][" << j
                 << "][" << k << "] = " << x[i][j][k]
                 << endl;
        }
    }
}
```

PDP
IT-ACADEMY

```
Element at x[0][0][0] = 0
Element at x[0][0][1] = 1
Element at x[0][1][0] = 2
Element at x[0][1][1] = 3
Element at x[0][2][0] = 4
Element at x[0][2][1] = 5
Element at x[1][0][0] = 6
Element at x[1][0][1] = 7
Element at x[1][1][0] = 8
Element at x[1][1][1] = 9
Element at x[1][2][0] = 10
Element at x[1][2][1] = 11
```

PDP
IT-ACADEMY

Ko’p o’lchovli massiv elementlariga qiymat berish

PDP
IT-ACADEMY

Ko’p o’lchovli massiv elementlariga qiymat berish:

```
arrayName [index1] [index2]..[indexN] = value;
```

PDP
IT-ACADEMY

```
// an array with 3 rows and 2 columns.
int x[3][2] = {{0,1}, {2,3}, {4,5}};

cout<<"Old array: \n";
for (int i = 0; i < 3; i++){
    for (int j = 0; j < 2; j++){
        cout << "Element at x[" << i << "][" << j << "]: ";
        cout << x[i][j]<<endl;
    }
}

x[0][0] = 10;
x[0][1] = 20;
x[2][0] = 30;

cout<<"\nChanged array: \n";
for (int i = 0; i < 3; i++){
    for (int j = 0; j < 2; j++){
        cout << "Element at x[" << i<< "][" << j << "]: ";
        cout << x[i][j]<<endl;
    }
}
```

PDP
IT-ACADEMY

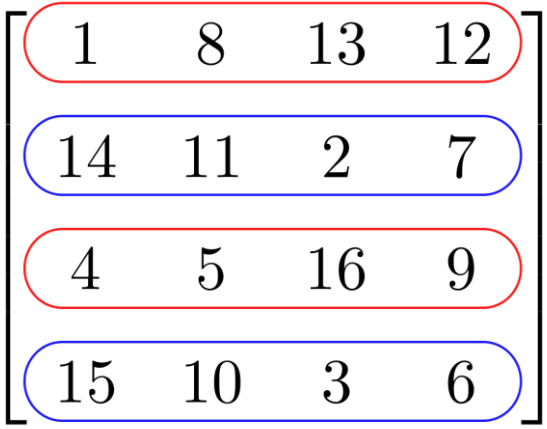
```
Old array:
Element at x[0][0]: 0
Element at x[0][1]: 1
Element at x[1][0]: 2
Element at x[1][1]: 3
Element at x[2][0]: 4
Element at x[2][1]: 5
```

```
Changed array:
Element at x[0][0]: 10
Element at x[0][1]: 20
Element at x[1][0]: 2
Element at x[1][1]: 3
Element at x[2][0]: 30
Element at x[2][1]: 5
```

PDP
IT-ACADEMY

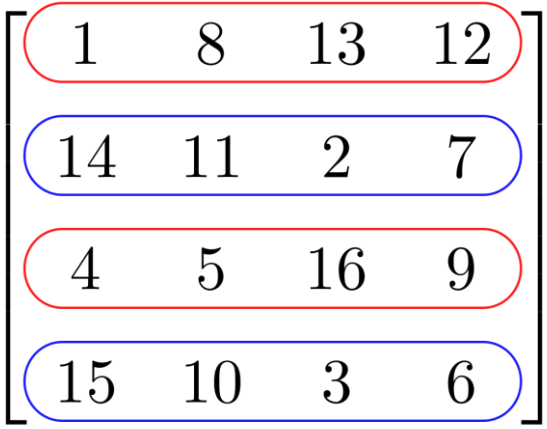
Amaliy mashqlar

PDP
IT-ACADEMY



N x M o’lchamdagi butun sonli massiv berilgan. Har bir qatordagi elementlarning yig’indisini aniqlang.

PDP
IT-ACADEMY



N x M o’lchamdagi butun sonli massiv berilgan. Qaysi qatordagi elementlarning yig’indisi eng katta ekanligini aniqlang.

PDP
IT-ACADEMY

	1	2	3	4	5
1	9	9	90	64	86
2	55	93	63	56	26
3	90	1	12	92	11
4	68	95	28	10	91
5	21	27	97	53	46
6	33	36	57	23	96
7	49	91	59	65	94

max	97
row	5
column	3

N x M o’lchamdagi butun sonli massiv berilgan. Undagi eng katta elementni aniqlang.

PDP
IT-ACADEMY

0	1	2	3	4
5	6	7	8	9
10	11	12	13	14
15	16	17	18	19
20	21	22	23	24

N x N o’lchamdagi butun sonli massiv berilgan. Undagi ajratib ko’rsatilgan sohadagi elementlar yig’indisini aniqlang.

PDP
IT-ACADEMY

0	1	2	3	4
5	6	7	8	9
10	11	12	13	14
15	16	17	18	19
20	21	22	23	24

N x N o’lchamdagi butun sonli massiv berilgan (N-toq son). Undagi ajratib ko’rsatilgan sohadagi elementlar yig’indisini aniqlang.

PDP
IT-ACADEMY

0	1	2	3	4
5	6	7	8	9
10	11	12	13	14
15	16	17	18	19
20	21	22	23	24

N x N o’lchamdagi butun sonli massiv berilgan (N-toq son). Undagi ajratib ko’rsatilgan sohadagi elementlar yig’indisini aniqlang.

PDP
IT-ACADEMY

E`tiboringiz uchun rahmat!