

Algorithms Level 3



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Problem # 09/3 Solution Using C++

```
#include <iostream>
#include <string>
#include <iomanip>

using namespace std;

int RandomNumber(int From, int To)
{
    //Function to generate a random number
    int randNum = rand() % (To - From + 1) + From;
    return randNum;
}

void FillMatrixWithRandomNumbers(int arr[3][3], short Rows, short Cols)
{
    for (short i = 0; i < Rows; i++)
    {
        for (short j = 0; j < Cols; j++)
        {
            arr[i][j] = RandomNumber(1, 10);
        }
    }
}

void PrintMatrix(int arr[3][3], short Rows, short Cols)
{
    for (short i = 0; i < Rows; i++)
    {
        for (short j = 0; j < Cols; j++)
        {
            printf(" %0*d", 2, arr[i][j]);
            //cout << setw(3) << arr[i][j] << " ";
        }
        cout << "\n";
    }
}
```



Problem # 09/3 Solution Using C++

```
void PrintMiddleRowOfMatrix(int arr[3][3], short Rows, short Cols)
{
    short MiddleRow = Rows / 2;

    for (short j = 0; j < Cols; j++)
    {
        printf(" %0*d   ", 2, arr[MiddleRow][j]);
    }
    cout << "\n";
}

void PrintMiddleColOfMatrix(int arr[3][3], short Rows, short Cols)
{
    short MiddleCol = Cols / 2;

    for (short j = 0; j < Rows; j++)
    {
        printf(" %0*d   ", 2, arr[j][MiddleCol]);
    }
    cout << "\n";
}

int main()
{
    //Seeds the random number generator in C++, called only once
    srand((unsigned)time(NULL));

    int Matrix1[3][3];

    FillMatrixWithRandomNumbers(Matrix1, 3, 3);
    cout << "\nMatrix1:\n";
    PrintMatrix(Matrix1, 3, 3);

    cout << "\nMiddle Row of Matrix1 is:\n";
    PrintMiddleRowOfMatrix(Matrix1, 3, 3);

    cout << "\nMiddle Col of Matrix1 is:\n";
    PrintMiddleColOfMatrix(Matrix1, 3, 3);
    system("pause>0");
}
```