

C++ Online B1

Write a C++ class “Matrix” encapsulating a two-dimensional integer matrix objects. The class should have the following member functions

1. A **constructor** which takes two integer arguments (number of row and number of column) and is responsible for necessary memory allocation (you should use malloc() and free() function for memory allocation).
2. A **destructor** with the responsibility of freeing memory
3. A **print** function with the responsibility of displaying matrix
4. A **set** function which takes three integer arguments (row, column, value) with the responsibility of setting the values of a matrix element.
5. A **get** function which takes two integer arguments (row, column) with the responsibility of returning the values of a matrix element.
6. An **add** function which takes an integer argument (n) which is added with each element of the matrix encapsulated by the object accessing add function
7. Another overloaded **add** function which add all the element of the matrix encapsulated by the object accessing add function and return the sum

You can use the following main function

```
int main()
{
    cout<<"Hello World"<<"\n";

    Matrix m(3,3);
    for(int i=0; i<3; i++)
        for(int j=0; j<3; j++)
            m.set(i,j,i+j);

    m.print();
    cout<<m.get(0,0)<<"\n";
    m.set(0,0,100);
    cout<<m.get(0,0)<<"\n";
    m.add(100);
    m.print();
    cout<<m.add()<<"\n";

    return 0;
}
```

Your output should be like the following:

```
Hello World
0 1 2
1 2 3
2 3 4
0
100
200 101 102
101 102 103
102 103 104
1018
```