

1. Create a new MSVC++ ***Win32 Static Library*** project, named **mylib**.

2. Add to it the following header file:

```
// mylib.h
#ifndef _MYLIB_H
#define _MYLIB_H

#include <iostream>
using namespace std;

int** create2DIntArray( int nr, int nc );
void delete2DIntArray( int** a, int nr );
void print2DIntArray( int** a, int nr, int nc, ostream& out );

#endif
```

3. Add to it this C++ source code file named **mylib.cpp**:

```
// mylib.cpp
#include "mylib.h"

int** create2DIntArray( int nr, int nc )
{
    int **a = new int*[nr];
    for( int r = 0; r < nr; r++ )
    {
        a[r] = new int[nc];
        for( int c = 0; c < nc; c++ )
            a[r][c] = 0;
    }
    return a;
}

void delete2DIntArray( int** a, int nr )
{
    for( int i = 0; i < nr; i++ )
        delete [] a[i];
    delete [] a;
}

void print2DIntArray( int** a, int nr, int nc, ostream& out )
{
    for( int r = 0; r < nr; r++ )
    {
        for( int c = 0; c < nc; c++ )
            out << a[r][c] << ' ';
        out << endl;
    }
}
```

4. Compile and link. Look inside the **Debug** folder: you should see a file named **mylib.lib**. This is a “static link library” containing your compiled code. We can now write programs that use the functions in this library.

5. Create a MSVC++ **Win32 Console Application** project, named **libtest**.
Add to it the following C++ source code file named **libtest.cpp**:

```
// libtest.cpp
#include <iostream>
using namespace std;

#include "mylib.h"

int main()
{
    int nr, nc;
    cout << "Enter 2D array dimensions: ";
    cin >> nr >> nc;

    int **A = create2DIntArray( nr, nc );

    print2DIntArray( A, nr, nc, cout );
    delete2DIntArray( A, nr );

    return 0;
}
```

6. Compile. Why the errors?

7. Modify the **libtest** project settings:

- (a) Copy **libtest.h** to X:\IC210
- (b) Select **Project -> Settings ...**
- (c) Select the **C++ tab, Category: Preprocessor**
- (e) Type **X:\IC210** in the **Additional include directories:** text entry box.

8. Compile. Link. Why the errors?

9. Modify the **libtest** project settings:

- (a) Copy **mylib.lib** to X:\IC210
- (b) Select **Project -> Settings ...**
- (c) Select **Link tab, Category: Input**, add the name **mylib.lib** at the end of the list of **Object/library modules:**
- (d) Type **X:\IC210** in the **Additional library path:** text entry box.

10. Link, then run the libtest program.

Note that the **libtest** program did not need access to the **mylib** source code (**mylib.cpp**). All we needed to do was #include its header file, and link our program to the already compiled **mylib** library - !