CSE225L: Data Structures and Algorithm Lab
Lab 02: Classes & Objects
North South University

A class is a user defined blueprint or prototype from which objects are created. It represents the set of properties or methods that are common to all objects of one type.

dynarr.h

```
#ifndef DYNARR_H_INCLUDED
#define DYNARR_H_INCLUDED

class DynArr{
private:
    int size;
    int* data;

public:
    DynArr();
    DynArr(int size);
    ~DynArr();

    int getSize();
    void setValue (int index, int value);
    int getValue (int index);
};

#include "dynarr.tpp"
#endif // DYNARR_H_INCLUDED
```

dynarr.tpp

```
#include "dynarr.h"

using namespace std;
DynArr::DynArr(){
    this->size = 0;
    data = NULL;
}
DynArr::DynArr(int size){
    this->size = size;
    data = new int[size];
}
DynArr::~DynArr(){
    delete [] data;
}
int DynArr::getValue(int index){
    return data[index];
}
void DynArr::setValue (int index, int value){
    data[index] = value;
}
int DynArr::getSize(){
    return size;
}
```

Tasks:

Task 1: In the driver file (main.cpp), perform the following sub-tasks.

1. Create two objects of this class, one with no constructor argument and one with the argument 5.
2. Take five input values from the user and store them in the array inside the second object using the set method.
3. For the second object, print all the values you just stored.

Note that, you cannot assign anything in the first object since the array inside it has size 0. Neither can you change the size of this array to some other size.

Task 2: Modify the header and the source files. Add a member function **`void allocate(int s)`** which allows you to change the size of the array. Make sure that memory is not leaked.

Task 3: Modify the header file and the source files again to make it a two-dimensional array where all the rows are the same size. The user will specify the number of rows and columns as well as the content of the array, which you will take as inputs from user in the main function in driver (main.cpp) file. Finally, print the array.