```
 1  ************************************************************
 2  *    PROGRAMMED BY : Andrew Gharios
 3  *    STUDENT ID    : 1449366
 4  *    CLASS         : M-Th 5-7:20p
 5  *    LAB #8        : Intro to Pointers
 6  ************************************************************
 7  Input the first value (enter -999 to exit)?  5
 8  Input the second value:                      25
 9
10  The sum of the two values:     30
11  The product of the two values: 125
12
13
14  Input the first value (enter -999 to exit)?  -12
15  Input the second value:                      100
16
17  The sum of the two values:     88
18  The product of the two values: -1200
19
20
21  Input the first value (enter -999 to exit)?  -999
22  Thank you for using my program.
23
```

```cpp
1  #ifndef HEADER_H_
2  #define HEADER_H_
3
4  #include <iostream> // cin, cout.
5  #include <iomanip>
6  using namespace std;
7
8  /*****************************************************************************
9   * PrintHeaderFile
10  *   This function will output the header information
11  *
12                                                                            ↵

    *****************************************************************************/
13 void PrintHeaderFile(ostream& output,      // IN  - output datatype.
14                      string asName,        // IN  - assignment name
15                      int asNum,             // IN  - assignment number
16                      string studentName,   // IN  - student's name
17                      string classInfo,     // IN  - class that is being taken
18                      char asType,          // IN  - assignment type
19                      long long studentID); // IN  - student ID
20
21 #endif
```

```cpp
 1  /
    ***************************************************************************
    **
 2  * AUTHOR      : Andrew Gharios
 3  * STUDENT ID : 1449366
 4  * LAB #7      : Intro to Pointers
 5  * CLASS       : CS1B
 6  * SECTION     : M-TH: 5-7:20p
 7  * DUE DATE    : 7/3/21
 8  ***************************************************************************
    /
 9  #include "Header.h"
10
11  /
    ***************************************************************************
    **
12  * Intro to Pointers
13  *--------------------------------------------------------------------------
14  * This program will take in two integers and use pointers to calculate sum and
15  * product of the two integers until user inputs -999.
16  *--------------------------------------------------------------------------
17  * INPUT:
18  * ptr  : static pointer for input.
19  * ptr2 : dynamic pointer for input.
20  ***************************************************************************
    /
21  int main()
22  {
23      /
        ***************************************************************************
        **
24      * CONSTANTS
25      * --------------------------------------------------------------------
26      * OUTPUT - USED FOR CLASS HEADING
27      * --------------------------------------------------------------------
28      * PROGRAMMER : Programmer's Name
29      * CLASS       : Student's Course
30      * SECTION     : Class Days and Times
31      * LAB_NUM     : Lab Number (specific to this lab)
32      * LAB_NAME    : Title of the Lab
33      * --------------------------------------------------------------------
34      * INPUT_COL  : setw size for input column.
35      * OUT_COL    : setw size for output column.
36      ***************************************************************************/
37
38      const string AS_NAME = "Intro to Pointers";
39      const int AS_NUM = 8;
40      const string STUDENT_NAME = "Andrew Gharios";
41      const string CLASS_INFO = "M-Th 5-7:20p";
```

```cpp
42        const char AS_TYPE = 'L';
43        const long long STUDENT_ID = 1449366;
44
45        const int INPUT_COL = 45;
46        const int OUT_COL  = 31;
47
48     int int1;  // CALC      - stackvariable.
49     int *ptr;  // IN & CALC - First pointer allocated statically.
50     int *ptr2; // IN & CALC - Second pointer allocated dynamically/
51
52     int1 = 0;
53     ptr = &int1;
54     ptr2 = new int;
55
56     PrintHeaderFile(cout, AS_NAME, AS_NUM, STUDENT_NAME, CLASS_INFO, AS_TYPE,   ⏎
         STUDENT_ID);
57
58     do
59     {
60         cout << left;
61         cout << setw(INPUT_COL) << "Input the first value (enter -999 to      ⏎
             exit)?";
62         cin  >> *ptr;
63
64         if (*ptr == -999)
65         {
66             cout << "Thank you for using my program." << endl;
67             break;
68         }
69         cout << setw(INPUT_COL) << "Input the second value: ";
70         cin  >> *ptr2;
71
72         cout << endl;
73
74         if (ptr2 == NULL)
75         {
76             cout << "Memory is full" << endl;
77         }
78         else
79         {
80             cout << setw(OUT_COL) << "The sum of the two values:" << *ptr +    ⏎
                 *ptr2 << endl;
81             cout << setw(OUT_COL) << "The product of the two values:" << *ptr * ⏎
                 *ptr2 << endl;
82             cout << "\n\n";
83         }
84
85         } while (*ptr != -999);
86
```

```
87
88      delete ptr2;
89      return 0;
90
91  }
```

```cpp
 1  #include "Header.h"
 2
 3  /*****************************************************************************
 4   * PrintHeaderFile
 5   *    This function will output the header information
 6   *
 7   * PRE-CONDITIONS
 8   *    The following parameters need to have a defined value prior to calling
 9   *    the function
10   *          asName: The name of the assignment given in the course
11   *          asNum: The number of the assignment given in the course
12   *          studentName: The name of the student writing the code
13   *          classInfo: The course name, date, and time of the class
14   *          asType: Will either output as a lab or an assignment
15   *          studentID: The Identification Number of the student
16   *
17   *****************************************************************************/
18  void PrintHeaderFile(ostream& output,       // IN - output datatype.
19      string asName,      // IN - assignment name
20      int asNum,          // IN - assignment number
21      string studentName,  // IN - student's name
22      string classInfo,    // IN - class that is being taken
23      char asType,         // IN - assignment type
24      long long studentID) // IN - student ID
25  {
26      output << left;
27      output << "*************************************************************
         \n";
28      output << "*    PROGRAMMED BY : " << studentName << endl;
29      output << "*    " << setw(14) << "STUDENT ID " << ": " << studentID << endl;
30      output << "*    " << setw(14) << "CLASS " << ": " << classInfo << endl;
31      output << "*    ";
32
33      // PROCESSING - This will adjust setws and format appropriately based
34      //               on if this is a lab 'L' or assignment
35
36      if (toupper(asType) == 'L')
37      {
38          output << "LAB #" << setw(9);
39      }
40      else
41      {
42          output << "ASSIGNMENT #" << setw(2);
43      }
44      output << asNum << ": " << asName << endl;
45      output << "*************************************************************";
46      output << right << endl;
```

```
47
48      return;
49  }
```