

VARIABLE LIST

INPUT

sheep

chocolate

OUTPUT

chocSheep : Chocolates per sheep.

leftover : leftover chocolate.

Name: Andrew Gharios

Class: CS1B M-Th 5-7:20p

Test Case	Category	Testing Type	Input	Output	Result	Expected Output
1	Expected	Black Box	sheep: 20 chocolate: 35	chocSheep: 1 leftover: 15	PASS	chocSheep: 1 leftover: 15
2	Expected	Black Box	sheep: 5 chocolate: 6	chocSheep: 1 leftover: 1	PASS	chocSheep: 1 leftover: 1
3	Unexpected	White Box	sheep: 200 chocolate: 10	chocSheep: 0 leftover: 10	PASS	chocSheep: 0 leftover: 10
4	Boundary	White Box	sheep: -5 chocolate -30	re-input	FAIL	N/A
5	Expected	White Box	sheep: 10 chocolate: 55	chocSheep: 4 leftover: 15	PASS	chocSheep: 4 leftover: 15
6	Unexpected	White Box	sheep: 6 chocolate: 0	Re-enter chocolate	FAIL	N/A

Notes
Not enough chocolate
The code will prompt user to re-enter
you need at least 1 chocolate

```
1 Test Case #1:
2
3 *****
4 *   PROGRAMMED BY : Andrew Gharios
5 *   STUDENT ID    : 1449366
6 *   CLASS         : M-Th 5-7:20p
7 *   LAB #7        : Testing
8 *****
9 Enter the amount of sheep: -5
10 You must have at least one sheep.
11 Enter the amount of sheep: 10
12 Enter the amount of chocolate: -30
13 You must have at least 1 chocolate.
14 Enter the amount of chocolate: 55
15
16 Each sheep should get 4 chocolates.
17 There are 15 chocolates leftover.
18
19
20 Test Case #2:
21
22 *****
23 *   PROGRAMMED BY : Andrew Gharios
24 *   STUDENT ID    : 1449366
25 *   CLASS         : M-Th 5-7:20p
26 *   LAB #7        : Testing
27 *****
28 Enter the amount of sheep: 20
29 Enter the amount of chocolate: 35
30
31 Each sheep should get 1 chocolates.
32 There are 15 chocolates leftover.
33
34
35 Test Case #3:
36
37 *****
38 *   PROGRAMMED BY : Andrew Gharios
39 *   STUDENT ID    : 1449366
40 *   CLASS         : M-Th 5-7:20p
41 *   LAB #7        : Testing
42 *****
43 Enter the amount of sheep: 5
44 Enter the amount of chocolate: 6
45
46 Each sheep should get 1 chocolates.
47 There are 1 chocolates leftover.
```

```
1  #ifndef HEADER_H_
2  #define HEADER_H_
3
4  #include <iostream> // cin, cout.
5  #include <string>   // string datatype variables.
6  #include <fstream>  // Fstream files.
7  #include <iomanip>   // fixed, setw, setprecision.
8  #include <ostream>  // Ostream data type.
9  #include <sstream>   // Ostringstream data type.
10 using namespace std;
11
12 void InpSheepChoc(int& sheep,      // IN - sheep input by user.
13     int& chocolate); // IN - chocolate input by user.
14
15 int ChocPerSheep(int& choc,      // IN - number of chocolates.
16     int& sheep); // IN - number of sheep.
17
18 int LeftOvers(int choc,          // IN - number of chocolates.
19     int sheep,                  // IN - number of sheep.
20     int chocPerSheep); // IN - chocolates per sheep.
21
22
23 /*****
24  * PrintHeaderFile
25  *   This function will output the header information
26  *
27  *****/
28 void PrintHeaderFile(ostream& output,      // IN - output datatype.
29     string asName,          // IN - assignment name
30     int asNum,              // IN - assignment number
31     string studentName,    // IN - student's name
32     string classInfo,      // IN - class that is being taken
33     char asType,           // IN - assignment type
34     long long studentID); // IN - student ID
35
36 #endif
```

```

1  /
    *****
    **
2  * AUTHOR      : Andrew Gharios
3  * STUDENT ID  : 1449366
4  * LAB #7     : Testing
5  * CLASS      : CS1B
6  * SECTION    : M-TH: 5-7:20p
7  * DUE DATE   : 6/30/21
8  *****
    /
9  #include "Header.h"
10
11 /
    *****
    **
12 * Testing
13 * -----
14 * This program will take in the number of sheep and number of chocolate from
15 * user , and then output how much chocolate each sheep get as well as the
16 * remainder of chocolate.
17 * -----
18 * INPUT:
19 * sheepNum  : number of sheep.
20 * chocNum   : number of chocolate.
21 *
22 * OUTPUT:
23 * sheepChoc : number of chocolate per sheep.
24 * leftOver  : leftover chocolate.
25 *****
    /
26 int main()
27 {
28     /
        *****
        **
29     * CONSTANTS
30     * -----
31     * OUTPUT - USED FOR CLASS HEADING
32     * -----
33     * PROGRAMMER : Programmer's Name
34     * CLASS      : Student's Course
35     * SECTION    : Class Days and Times
36     * LAB_NUM    : Lab Number (specific to this lab)
37     * LAB_NAME   : Title of the Lab
38     *****/
39
40     const string AS_NAME  = "Testing";
41     const int AS_NUM      = 7;

```

```
42     const string STUDENT_NAME = "Andrew Gharrios";
43     const string CLASS_INFO   = "M-Th 5-7:20p";
44     const char AS_TYPE       = 'L';
45     const long long STUDENT_ID = 1449366;
46
47     int sheepNum; // IN & CALC - number of sheep.
48     int chocNum;  // IN & CALC - number of chocolate.
49     int sheepChoc; // CALC & OUT - chocolate per sheep.
50     int leftOver;  // CACL & OUT - leftover chocolate.
51
52     PrintHeaderFile(cout, AS_NAME, AS_NUM, STUDENT_NAME, CLASS_INFO, AS_TYPE,
53                     STUDENT_ID);
54
55     InpSheepChoc(sheepNum, chocNum);
56
57     sheepChoc = ChocPerSheep(chocNum, sheepNum);
58     leftOver  = LeftOvers(chocNum, sheepNum, sheepChoc);
59
60     cout << endl;
61     cout << "Each sheep should get " << sheepChoc << " chocolates.";
62     cout << endl;
63     cout << "There are " << leftOver << " chocolates leftover.";
64
65     return 0;
66 }
```

```
1  #include "Header.h"
2
3  /*****
4  * ChocPerSheep
5  *   This function will receive user input of sheep and chocolate amounts.
6  *
7  * INPUTS:
8  *   sheep      - amount of sheep.
9  *   chocolate  - amount of chocolate.
10 *
11 * No outputs.
12 *
13 * *****/
14 /
15 void InpSheepChoc(int& sheep,    // IN - sheep input by user.
16                  int& chocolate) // IN - chocolate input by user.
17 {
18     do
19     {
20         cout << "Enter the amount of sheep: ";
21         cin >> sheep;
22         cin.ignore(10000, '\n');
23
24         if (sheep < 0)
25         {
26             cout << "You must have at least one sheep." << endl;
27         }
28     } while (sheep < 0);
29
30     do
31     {
32         cout << "Enter the amount of chocolate: ";
33         cin >> chocolate;
34         cin.ignore(10000, '\n');
35
36         if (chocolate < 0)
37         {
38             cout << "You must have at least 1 chocolate." << endl;
39         }
40     } while (chocolate < 0);
41 }
```

```
1  #include "Header.h"
2
3  /*****
4  * ChocPerSheep
5  *   This function will determine how many chocolates each sheep will get.
6  *
7  * INPUTS:
8  *   choc  - amount of chocolates.
9  *   sheep - amount of sheep.
10 *
11 * OUTPUT:
12 *   sheepPerChoc - number of chocolate each sheep gets.
13 *
14 *   *****/
15 /
16 int ChocPerSheep(int& choc, // IN - number of chocolates.
17                 int& sheep) // IN - number of sheep.
18 {
19     int sheepPerChoc; // CALC & OUT - chocolate per each sheep.
20
21     sheepPerChoc = choc / sheep;
22
23     if (sheepPerChoc > 4)
24     {
25         sheepPerChoc = 4;
26     }
27
28     return sheepPerChoc;
29 }
```



```
1  #include "Header.h"
2
3  /*****
4  * Search Name
5  *   This function will search for a name within the names Array and then output
6  *   the all the information of that found name to an output file.
7  *
8  * INPUTS:
9  *   OFile    - Output File.
10 *   AR_SIZE  - Array size
11 *   ArrayAcc - Array for all the accounts.
12 *
13 *No Outputs.
14 *
15 * *****/
16 /
17 int LeftOvers(int choc,          // IN - number of chocolates.
18               int sheep,        // IN - number of sheep.
19               int chocPerSheep) // IN - chocolates per sheep.
20 {
21     int leftovers; // CALC & OUT - leftover chocolate.
22
23     leftovers = choc - chocPerSheep * sheep;
24
25     return leftovers;
26 }
```

```

1  #include "Header.h"
2
3  /*****
4   * PrintHeaderFile
5   *   This function will output the header information
6
7   * _____
8   * PRE-CONDITIONS
9   *   The following parameters need to have a defined value prior to calling
10  *   the function
11  *       asName: The name of the assignment given in the course
12  *       asNum: The number of the assignment given in the course
13  *       studentName: The name of the student writing the code
14  *       classInfo: The course name, date, and time of the class
15  *       asType: Will either output as a lab or an assignment
16  *       studentID: The Identification Number of the student
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 }
```