

oscreen.txt

```
1 *****
2 * PROGRAMMED BY : Ali Eshghi & Amirarsalan Valipour
3 * CLASS : CS1B
4 * SECTION : MW: 7:30p - 9:50p
5 * LAB #2 : Intro to OOP
6 *****
7
8 1 - Initialize the Animals
9 0 - Exit
10 Enter Selection: 2
11
12 **** The number 2 is an invalid entry ****
13 **** Please input a number between 0 or 1 ****
14
15 1 - Initialize the Animals
16 0 - Exit
17 Enter Selection: a
18
19 **** Please input a NUMBER between 0 or 1 ****
20
21 1 - Initialize the Animals
22 0 - Exit
23 Enter Selection: 1
24
25 Initializing Fluffy, Maa, and Babe...
26
27 1 - Initialize the Animals
28 2 - Change Age
29 3 - Change Value
30 4 - Display
31 0 - Exit
32 Enter Selection: 5
33
34 **** The number 5 is an invalid entry ****
35 **** Please input a number between 0 and 4 ****
36
37 1 - Initialize the Animals
38 2 - Change Age
39 3 - Change Value
40 4 - Display
41 0 - Exit
42 Enter Selection: 4
43
44 ANIMAL NAME AGE VALUE
45 -----
```

oscreen.txt

```
46 Sheep      Fluffy      1      15000.00
47 Sheep      Maa         3      16520.35
48 Pig        Babe        2      10240.67
49
50
51 1 - Initialize the Animals
52 2 - Change Age
53 3 - Change Value
54 4 - Display
55 0 - Exit
56 Enter Selection: 2
57
58 CHANGE AGE:
59 1 - Fluffy
60 2 - Maa
61 3 - Babe
62 Select the animal you'd like to change: 4
63
64 **** The number 4 is an invalid entry      ****
65 **** Please input a number between 1 and 3 ****
66
67
68 CHANGE AGE:
69 1 - Fluffy
70 2 - Maa
71 3 - Babe
72 Select the animal you'd like to change: a
73
74 **** Please input a NUMBER between 1 and 3 ****
75
76
77 CHANGE AGE:
78 1 - Fluffy
79 2 - Maa
80 3 - Babe
81 Select the animal you'd like to change: 1
82
83 NEW AGE: 2
84
85 Changing Fluffy's age to 2...
86
87 1 - Initialize the Animals
88 2 - Change Age
89 3 - Change Value
90 4 - Display
```

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```
91 0 - Exit
92 Enter Selection: 2
93
94 CHANGE AGE:
95 1 - Fluffy
96 2 - Maa
97 3 - Babe
98 Select the animal you'd like to change: 2
99
100 NEW AGE: 4
101
102 Changing Maa's age to 4...
103
104 1 - Initialize the Animals
105 2 - Change Age
106 3 - Change Value
107 4 - Display
108 0 - Exit
109 Enter Selection: 2
110
111 CHANGE AGE:
112 1 - Fluffy
113 2 - Maa
114 3 - Babe
115 Select the animal you'd like to change: 3
116
117 NEW AGE: 11
118
119 **** The number 11 is an invalid entry      ****
120 **** Please input a number between 0 and 10 ****
121
122
123 NEW AGE: 3
124
125 Changing Babe's age to 3...
126
127 1 - Initialize the Animals
128 2 - Change Age
129 3 - Change Value
130 4 - Display
131 0 - Exit
132 Enter Selection: 4
133
134 ANIMAL      NAME      AGE      VALUE
135 -----
```

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```
136 Sheep      Fluffy      2      15000.00
137 Sheep      Maa         4      16520.35
138 Pig        Babe         3      10240.67
139
140
141 1 - Initialize the Animals
142 2 - Change Age
143 3 - Change Value
144 4 - Display
145 0 - Exit
146 Enter Selection: 3
147
148 CHANGE Value:
149 1 - Fluffy
150 2 - Maa
151 3 - Babe
152 Select the animal you'd like to change: 4
153
154 **** The number 4 is an invalid entry      ****
155 **** Please input a number between 1 and 3 ****
156
157 1 - Fluffy
158 2 - Maa
159 3 - Babe
160 Select the animal you'd like to change: 1
161
162 NEW VALUE: 154154.51
163
164 Changing Fluffy's value to 154154.52...
165
166 1 - Initialize the Animals
167 2 - Change Age
168 3 - Change Value
169 4 - Display
170 0 - Exit
171 Enter Selection: 3
172
173 CHANGE Value:
174 1 - Fluffy
175 2 - Maa
176 3 - Babe
177 Select the animal you'd like to change: 2
178
179 NEW VALUE: 651651.61
180
```

oscreen.txt

```
181 **** The number 651651.62 is an invalid entry      ****
182 **** Please input a number between 0 and 400000 ****
183
184
185 NEW VALUE: 165165.61
186
187 Changing Maa's value to 165165.61...
188
189 1 - Initialize the Animals
190 2 - Change Age
191 3 - Change Value
192 4 - Display
193 0 - Exit
194 Enter Selection: 3
195
196 CHANGE Value:
197 1 - Fluffy
198 2 - Maa
199 3 - Babe
200 Select the animal you'd like to change: 3
201
202 NEW VALUE: 123123.12
203
204 Changing Babe's value to 123123.12...
205
206 1 - Initialize the Animals
207 2 - Change Age
208 3 - Change Value
209 4 - Display
210 0 - Exit
211 Enter Selection: 4
212
213 ANIMAL      NAME      AGE      VALUE
214 -----
215 Sheep      Fluffy      2      154154.52
216 Sheep      Maa         4      165165.61
217 Pig        Babe        3      123123.12
218
219 1 - Initialize the Animals
220 2 - Change Age
221 3 - Change Value
222 4 - Display
223 0 - Exit
224 Enter Selection: 1
225 Are you sure you want to reinitialize (Y/N)?x
```

oscreen.txt

```
226
227 **** x is an invalid entry      ****
228 **** Please input Y or N ****
229
230
231 Are you sure you want to reinitialize (Y/N)?n
232 Animals have not beenre-initialized!
233
234 1 - Initialize the Animals
235 2 - Change Age
236 3 - Change Value
237 4 - Display
238 0 - Exit
239 Enter Selection: 4
240
241 ANIMAL      NAME      AGE      VALUE
242 -----
243 Sheep      Fluffy      2      154154.52
244 Sheep      Maa         4      165165.61
245 Pig        Babe        3      123123.12
246
247
248
249 1 - Initialize the Animals
250 2 - Change Age
251 3 - Change Value
252 4 - Display
253 0 - Exit
254 Enter Selection: 1
255 Are you sure you want to reinitialize (Y/N)?y
256
257 Initializing Fluffy, Maa, and Babe...
258
259 1 - Initialize the Animals
260 2 - Change Age
261 3 - Change Value
262 4 - Display
263 0 - Exit
264 Enter Selection: 4
265
266 ANIMAL      NAME      AGE      VALUE
267 -----
268 Sheep      Fluffy      1      15000.00
269 Sheep      Maa         3      16520.35
270 Pig        Babe        2      10240.67
```

oscreen.txt

```
271
272
273 1 - Initialize the Animals
274 2 - Change Age
275 3 - Change Value
276 4 - Display
277 0 - Exit
278 Enter Selection: 0
```

ClassHeader.h

```
1 /*****
2 * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3 * STUDENT ID : 1112261 & 1103126
4 * CLASS      : CS1B
5 * SECTION    : MW 7:30pm
6 * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7 * DUE DATE   : 19 September 2019
8 *****/
9
10 #ifndef CLASSHEADER_H_
11 #define CLASSHEADER_H_
12
13 #include <iostream>
14 #include <iomanip>
15 #include <string>
16 #include <fstream>
17 #include <sstream>
18 using namespace std;
19
20 /*****
21 * VARIABLES *
22 *****/
23
24 /*****
25 * Class of Sheep1, containing objects of information about Fluffy *
26 *****/
27 class Sheep1
28 {
29     //public part of the class that is available for outside of the class
30     public:
31         //constructor
32         Sheep1()
33         {
34             name.clear();
35             type.clear();
36             age = 0;
37             value= 0;
38         };
39
40         //destructor
41         ~Sheep1();
42
43         //method for setting the animal type
44         void SetTypeSheep1(string);
45
46         //method for setting or changing the age
47         void SetAgeSheep1(int);
48
49         //method for setting the name
50         void SetNameSheep1(string);
51
52         //method for setting or changing the value
53         void SetValueSheep1(float);
54
55         //method for outputting the objects
```


ClassHeader.h

```
56     void PrintSheep1(string, string, int, float) const;
57
58
59 //private part only available for the class
60 private:
61     string name;
62     string type;
63     int age;
64     float value;
65
66 };
67
68
69 /*****
70 * Class of Sheep1, containing objects of information about Maa *
71 *****/
72 class Sheep2
73 {
74     //public part of the class that is available for outside of the class
75     public:
76         //constructor
77         Sheep2()
78         {
79             name.clear();
80             type.clear();
81             age = 0;
82             value= 0;
83         };
84
85         //decosntructor
86         ~Sheep2();
87
88         //method for seting the animal type
89         void SetTypeSheep2(string);
90
91         //method for setting or changing the age
92         void SetAgeSheep2(int);
93
94         //method for setting the name
95         void SetNameSheep2(string);
96
97         //method for setting or changing the value
98         void SetValueSheep2(float);
99
100        //method for outputting the objects
101        void PrintSheep2(string, string, int, float) const;
102
103 //private part only available for the class
104 private:
105
106     string name;
107     string type;
108     int age;
109     float value;
110
```

ClassHeader.h

```
111 };
112
113 /*****
114  * Class of Sheep1, containing objects of information about Babe  *
115  *****/
116 class Pig
117 {
118     //public part of the class that is available for outside of the class
119     public:
120         //constructor
121         Pig()
122         {
123             name.clear();
124             type.clear();
125             age = 0;
126             value= 0;
127         };
128
129         //decosntructor
130         ~Pig();
131
132         //method for seting the animal type
133         void SetTypePig(string);
134
135         //method for setting or changing the age
136         void SetAgePig(int);
137
138         //method for setting the name
139         void SetNamePig(string);
140
141         //method for setting or changing the value
142         void SetValuePig(float);
143
144         //method for outputting the objects
145         void PrintPig(string, string, int, float) const;
146
147
148     //private part only available for the class
149     private:
150         string name;
151         string type;
152         int age;
153         float value;
154
155 };
156
157
158
159
160 #endif /* CLASSHEADER_H_ */
161
```

MyHeader.h

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9
10 #ifndef MYHEADER_H_
11 #define MYHEADER_H_
12
13 #include <iostream>           //input and output
14 #include <iomanip>            //setting the fraction
15 #include <string>             //using the string
16 #include <fstream>            //using input and output file
17 #include <sstream>            //using ostringstream
18 #include "ClassHeader.h"     //using the header that contains the class
19 using namespace std;
20
21 /*****
22  * PrintHeader
23  *      This function outputs the header into the screen.
24  *****/
25 void PrintHeader(const string MY_NAME, //OUT
26                 const string CLASS,   //OUT
27                 const string CLASS_TIME, //OUT
28                 const int LAB_NUM,    //OUT
29                 const string LAB_NAME); //OUT
30
31 /*****
32  * FirstMenu
33  *      This function gets the user choice for the first menu that has been run
34  *
35  *      RETURNS: integer
36  *****/
37 int FirstMenu();
38
39 /*****
40  * Menu
41  *      This function outputs the main menu and gets the user's choice for the menu
42  *      options
43  *
44  *      RETURNS: ineger
45  *****/
46 int Menu();
47
48 /*****
49  * ChangeAge
50  *      This function asks the user for the new age that the user wants to change
51  *
52  *      RETURNS: integer
53  *****/
54 int ChangeAge();
55
```

MyHeader.h

```
56 /*****
57 * ChangeAge
58 * This function asks the user for the new value that the user wants to change
59 *
60 * RETURNS: float
61 *****/
62 float ChangeValue();
63
64
65 #endif /* MYHEADER_H_ */
66
```

main.cpp

```
1 /*****
2 * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3 * STUDENT ID : 1112261 & 1103126
4 * CLASS      : CS1B
5 * SECTION    : MW 7:30pm
6 * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7 * DUE DATE   : 19 September 2019
8 *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 /*****
14 * Lab 12
15 * -----
16 * This program uses the class and initializes the objects of the class using
17 * methods. then based on the user's choice the objects' values can be changed
18 * or get reinitialized to the first values.
19 * -----
20 * INPUT : firstMenuOption -> The first choice that initializes the objects
21 *                menuChoice    -> choice of the user to change the age or value,
22 *                newAge         -> change the value of the object age of the class
23 *                newValue       -> change the value of the object value of the class
24 * -----
25 * PROCESS: Initializing objects
26 *                Getting the first choice for the first menu
27 *                Getting the choice for the main menu
28 *                changing the age
29 *                changing the value
30 * -----
31 * OUTPUT : the values of the object variables of the class
32 *****/
33
34 int main()
35 {
36     /*****
37     * CONSTANTS
38     * -----
39     * OUTPUT - USED FOR CLASS HEADING
40     * -----
41     * PROGRAMMER : Programmer's Name
42     * CLASS      : Student's Course
43     * SECTION    : Class Days and Time
44     * LAB_NUM    : Lab Number (specific to this lab)
45     * LAB_NAME   : Title of the Assignment
46     *****/
47     const string PROGRAMMER = "Ali Eshghi and Amirarsalan Valipour";
48     const string CLASS      = "CS1B";
49     const string SECTION    = "MW: 7:30p - 9:50p";
50     const int    LAB_NUM    = 12;
51     const string LAB_NAME   = "Intro to OOP";
52
53     /*****
54     * VARIABLES *
55     *****/
56 }
```

main.cpp

```
56      *****/
57
58      int startOption; //IN - choice of the first menu
59      int menuOption; //IN - choice of the main menu
60      int animalOption; //IN - choice of which animal
61
62      bool checkInp; //PROCESS - input checking
63
64      char initialSure; //IN - choice of reinitializing
65
66      int age1; //PROCESS & OUT - age for Fluffy
67      int age2; //PROCESS & OUT - age for Maa
68      int ageP; //PROCESS & OUT - age for Babe
69
70      float value1; //PROCESS & OUT - value for Fluffy
71      float value2; //PROCESS & OUT - value for Maa
72      float valueP; //PROCESS & OUT - value for Babe
73
74      string name1; //OUT - name for Fluffy
75      string name2; //OUT - name for Maa
76      string nameP; //OUT - name for Babe
77
78      string type1; //OUT - animal type for Fluffy
79      string type2; //OUT - animal type for Maa
80      string typeP; //OUT - animal type for Babe
81
82
83      Sheep1 fluffy; //PROCESS - variable for class Sheep1
84      Sheep2 maa; //PROCESS - variable for class Sheep2
85      Pig babe; //PROCESS - variable for class Pig
86
87
88      /*****
89      * PROCESS *
90      *****/
91      //this function will print header to the screen
92      PrintHeader(PROGRAMMER, CLASS, SECTION, LAB_NUM, LAB_NAME);
93
94      //This function gets the user choice for the first menu to initialize or
95      //exit the program
96      startOption = FirstMenu();
97
98      //if for the first choice that initializes the objects
99      if(startOption == 1)
100      {
101          cout << "\nInitializing Fluffy, Maa, and Babe..." << endl << endl;
102
103          /*****
104          * INITIALIZE *
105          *****/
106
107          age1 = 1;
108          age2 = 3;
109          ageP = 2;
110
```

main.cpp

```
111     value1 = 15000.00;
112     value2 = 16520.35;
113     valueP = 10240.67;
114
115     name1  = "Fluffy";
116     name2  = "Maa";
117     nameP  = "Babe";
118
119     type1  = "Sheep";
120     type2  = "Sheep";
121     typeP  = "Pig";
122
123     //methods for the three class that initializes the objects of the class
124
125     fluffy.SetTypeSheep1(type1);
126     fluffy.SetNameSheep1(name1);
127     fluffy.SetAgeSheep1(age1);
128     fluffy.SetValueSheep1(value1);
129
130     maa.SetTypeSheep2(type2);
131     maa.SetNameSheep2(name2);
132     maa.SetAgeSheep2(age2);
133     maa.SetValueSheep2(value2);
134
135     babe.SetTypePig(typeP);
136     babe.SetNamePig(nameP);
137     babe.SetAgePig(ageP);
138     babe.SetValuePig(valueP);
139
140 }
141
142
143
144
145 //while loop for the main menu untill the choice 0 is entered
146 while(startOption != 0 || menuOption != 0)
147 {
148     //this function will get the user's choice for the main menu
149     menuOption = Menu();
150
151     //if statement for the first option
152     if(menuOption == 1)
153     {
154         checkInp = false;
155
156         do
157         {
158             //INPUT – asks user if they are sure for reinitialization
159
160
161             cout << "Are you sure you want to reinitialize (Y/N)?";
162             cin.get(initialSure);
163
164
165             //CHECKS FOR THE CHAR INPUT
```

```

166
167     if (toupper(initialSure) != 'Y' && toupper(initialSure) != 'N')
168     {
169         cin.clear();
170         cin.ignore(numeric_limits<streamsize>::max(), '\n');
171
172         cout << endl;
173         cout << "**** "<< initialSure
174             << " is an invalid entry      ****" << endl;
175         cout << "**** Please input Y or N ****";
176         cout << endl << endl;
177
178         checkInp = false;
179
180
181     }
182
183     else
184     {
185
186         cin.ignore(numeric_limits<streamsize>::max(), '\n');
187         checkInp = true;
188
189     }
190
191     }while(!checkInp);
192
193     //if statement for reinitializing the classes to the first values
194     if(toupper(initialSure) == 'Y')
195     {
196         cout << "\nInitializing Fluffy, Maa, and Babe..." << endl
197             << endl;
198
199         age1 = 1;
200         age2 = 3;
201         ageP = 2;
202
203         value1 = 15000.00;
204         value2 = 16520.35;
205         valueP = 10240.67;
206
207         name1 = "Fluffy";
208         name2 = "Maa";
209         nameP = "Babe";
210
211         type1 = "Sheep";
212         type2 = "Sheep";
213         typeP = "Pig";
214
215         fluffy.SetTypeSheep1(type1);
216         fluffy.SetNameSheep1(name1);
217         fluffy.SetAgeSheep1(age1);
218         fluffy.SetValueSheep1(value1);
219
220         maa.SetTypeSheep2(type2);

```


main.cpp

```
221         maa.SetNameSheep2(name2);
222         maa.SetAgeSheep2(age2);
223         maa.SetValueSheep2(value2);
224
225         babe.SetTypePig(typeP);
226         babe.SetNamePig(nameP);
227         babe.SetAgePig(ageP);
228         babe.SetValuePig(valueP);
229
230
231     }
232
233     else if(toupper(initialSure) == 'N')
234     {
235         cout << "Animals have not beenre-initialized!" << endl <<endl;
236     }
237
238
239
240 }
241
242 //if statement for the second option of the menu
243 else if(menuOption == 2)
244 {
245     checkInp = false;
246
247
248     //do while loop for user input for which animal they want to change
249     do
250     {
251         //INPUT
252         cout << "\nCHANGE AGE:" << endl;
253         cout << "1 - Fluffy" << endl;
254         cout << "2 - Maa" << endl;
255         cout << "3 - Babe" << endl;
256
257         cout << "Select the animal you'd like to change: ";
258
259
260         //CHECKS FOR THE CHAR INPUT
261
262         if (!(cin >> animalOption))
263         {
264             cin.clear();
265             cin.ignore(numeric_limits<streamsize>::max(), '\n');
266
267             cout << endl;
268             cout << "**** Please input a NUMBER between 1 and 3 ****";
269             cout << endl << endl;
270
271             checkInp = false;
272         }
273     }
274
275     //CHECKS FOR THE RANGE ERROR
```

```

276
277     else if (animalOption >= 4 || animalOption <= 0 )
278     {
279
280         cout << endl;
281         cout << "**** The number " << animalOption
282         << " is an invalid entry ****" << endl;
283         cout << "**** Please input a number between 1 and 3 ****";
284         cout << endl << endl;
285
286         checkInp = false;
287
288     }
289
290     //PASS
291
292     else
293     {
294
295         cin.ignore(numeric_limits<streamsize>::max(), '\n');
296         checkInp = true;
297
298     }
299
300     }while(!checkInp);
301
302
303     //if statement if the user wants to change the age for Fluffy
304     if(animalOption == 1)
305     {
306
307         age1 = ChangeAge();
308
309         cout << "\nChanging Fluffy's age to " << age1 << "..." << endl
310         << endl;
311
312         fluffy.SetAgeSheep1(age1);
313     }
314
315     //if statement if the user wants to change the age for Maa
316     else if(animalOption == 2)
317     {
318         age2 = ChangeAge();
319
320         cout << "\nChanging Maa's age to " << age2 << "..." << endl
321         << endl;
322
323         maa.SetAgeSheep2(age2);
324     }
325
326     //if statement if the user wants to change the age for Babe
327     else if(animalOption == 3)
328     {
329         ageP = ChangeAge();
330

```

main.cpp

```
331         cout << "\nChanging Babe's age to " << ageP << "..." << endl
332         << endl;
333
334         babe.SetAgePig(ageP);
335     }
336 }
337
338 //if statement for the third option of the main menu
339 else if(menuOption == 3)
340 {
341     checkInp = false;
342
343     cout << "\nCHANGE Value:" << endl;
344
345     //do while loop for user input for which animal the user wants to
346     //change
347     do
348     {
349         //INPUT
350
351         cout << "1 - Fluffy" << endl;
352         cout << "2 - Maa" << endl;
353         cout << "3 - Babe" << endl;
354
355         cout << "Select the animal you'd like to change: ";
356
357
358         //CHECKS FOR THE CHAR INPUT
359
360         if (!(cin >> animalOption))
361         {
362             cin.clear();
363             cin.ignore(numeric_limits<streamsize>::max(), '\n');
364
365             cout << endl;
366             cout << "**** Please input a NUMBER between 1 and 3 ****";
367             cout << endl << endl;
368
369             checkInp = false;
370         }
371
372         //CHECKS FOR THE RANGE ERROR
373
374         else if (animalOption >= 4 || animalOption <= 0 )
375         {
376
377
378             cout << endl;
379             cout << "**** The number " << animalOption
380             << " is an invalid entry ****" << endl;
381             cout << "**** Please input a number between 1 and 3 ****";
382             cout << endl << endl;
383
384             checkInp = false;
385
```

```

386     }
387
388     //PASS
389
390     else
391     {
392
393         cin.ignore(numeric_limits<streamsize>::max(), '\n');
394         checkInp = true;
395
396     }
397
398     }while(!checkInp);
399
400
401     //if statement if the user wants to change value for Fluffy
402     if(animalOption == 1)
403     {
404         value1 = ChangeValue();
405
406         cout << "\nChanging Fluffy's value to " << value1 << "... "
407              << endl << endl;
408
409         fluffy.SetValueSheep1(value1);
410     }
411
412
413     //if statement if the user wants to change value for Maa
414     else if(animalOption == 2)
415     {
416         value2 = ChangeValue();
417
418         cout << "\nChanging Maa's value to " << value2 << "... " << endl
419              << endl;
420
421         maa.SetValueSheep2(value2);
422     }
423
424
425
426     //if statement if the user wants to change value for Babe
427     else if(animalOption == 3)
428     {
429         valueP = ChangeValue();
430
431         cout << "\nChanging Babe's value to " << valueP << "... " << endl
432              << endl;
433
434         babe.SetValuePig(valueP);
435     }
436
437 }
438
439 //if statement for the fourth option of the menu
440 else if(menuOption == 4)

```

main.cpp

```
441     {
442
443         cout << endl;
444         cout << left;
445         cout << setw(11) << "ANIMAL" << setw(15) << "NAME" << setw(7)
446             << "AGE" << setw(8) << "VALUE" << endl;
447         cout << "-----" << "-----" << "___"
448             << "-----"
449             << endl;
450
451         //these methods outputs the objects of the classes
452
453         fluffy.PrintSheep1(name1, type1, age1, value1);
454
455         maa.PrintSheep2(name2, type2, age2, value2);
456
457         babe.PrintPig(nameP, typeP, ageP, valueP);
458
459         cout << endl << endl;
460     }
461 }
462
463
464 return 0;
465 }
466
467
```

Initialize.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 //Setting and changing the information for Fluffy
14
15 void Sheep1::SetAgeSheep1(int age1)
16 {
17     age = age1;
18 }
19
20 void Sheep1::SetValueSheep1(float value1)
21 {
22     value = value1;
23 }
24
25 void Sheep1::SetTypeSheep1(string type1)
26 {
27     type = type1;
28 }
29
30 void Sheep1::SetNameSheep1(string name1)
31 {
32     name = name1;
33 }
34
35
36
37 //Setting and changing the information for Maa
38
39 void Sheep2::SetAgeSheep2(int age2)
40 {
41     age = age2;
42 }
43
44 void Sheep2::SetValueSheep2(float value2)
45 {
46     value = value2;
47 }
48
49 void Sheep2::SetTypeSheep2(string type2)
50 {
51     type = type2;
52 }
53
54 void Sheep2::SetNameSheep2(string name2)
55 {
```

Initialize.cpp

```
56     name = name2;
57 }
58
59
60 //Setting and changing the information for Babe
61
62 void Pig::SetAgePig(int ageP)
63 {
64     age = ageP;
65 }
66
67 void Pig::SetValuePig(float valueP)
68 {
69     value = valueP;
70 }
71
72 void Pig::SetTypePig(string typeP)
73 {
74     type = typeP;
75 }
76
77 void Pig::SetNamePig(string nameP)
78 {
79     name = nameP;
80 }
81
82
```

ChangeAge.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 /*****
14  * ChangeAge
15  * This function asks the user for the new age that the user wants to change
16  *
17  * RETURNS: integer
18  *****/
19
20 int ChangeAge()
21 {
22
23     /*****
24      * VARIABLES *
25      *****/
26
27     int newAge; //IN - the new age user input
28     bool checkInp; //PROCESS - input check
29
30     /*****
31      * INITIALIZE *
32      *****/
33
34     checkInp = false;
35
36     //do while loop for error checking
37     do
38     {
39         //INPUT
40
41         cout << "\nNEW AGE: ";
42
43
44
45         //CHECKS FOR THE CHAR INPUT
46
47         if (!(cin >> newAge))
48         {
49             cin.clear();
50             cin.ignore(numeric_limits<streamsize>::max(), '\n');
51
52             cout << endl;
53             cout << "**** Please input a NUMBER between 0 and 10 ****";
54             cout << endl << endl;
55 }
```


ChangeAge.cpp

```
56         checkInp = false;
57     }
58 }
59
60 //CHECKS FOR THE RANGE ERROR
61
62 else if (newAge >= 11 || newAge <= -1 )
63 {
64
65     cout << endl;
66     cout << "**** The number " << newAge
67     << " is an invalid entry ****" << endl;
68     cout << "**** Please input a number between 0 and 10 ****";
69     cout << endl << endl;
70
71     checkInp = false;
72
73 }
74
75 //PASS
76
77 else
78 {
79
80     cin.ignore(numeric_limits<streamsize>::max(), '\n');
81     checkInp = true;
82
83 }
84
85 }while(!checkInp);
86
87 //returns integer to main
88 return newAge;
89
90 }
91
92
93
```

ChangeValue.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 /*****
14  * ChangeAge
15  * This function asks the user for the new value that the user wants to change
16  *
17  * RETURNS: float
18  *****/
19
20 float ChangeValue()
21 {
22     /*****
23      * VARIABLES *
24      *****/
25
26     float  newValue; //IN - user input for new value
27     bool checkInp; //PROCESS - input checking
28
29     /*****
30      * INITIALIZE *
31      *****/
32
33     checkInp = false;
34
35     //do while loop for error checking
36     do
37     {
38         //INPUT
39
40         cout << "\nNEW VALUE: ";
41
42
43
44         //CHECKS FOR THE CHAR INPUT
45
46         if (!(cin >> newValue))
47         {
48             cin.clear();
49             cin.ignore(numeric_limits<streamsize>::max(), '\n');
50
51             cout << endl;
52             cout << "**** Please input a NUMBER between 0 and 400000 ****";
53             cout << endl << endl;
54
55             checkInp = false;
```

```
56
57     }
58
59     //CHECKS FOR THE RANGE ERROR
60
61     else if (newValue >= 400001 || newValue <= -1 )
62     {
63
64         cout << endl;
65         cout << "**** The number "           << newValue
66         << " is an invalid entry      ****" << endl;
67         cout << "**** Please input a number between 0 and 400000 ****";
68         cout << endl << endl;
69
70         checkInp = false;
71
72     }
73
74     //PASS
75
76     else
77     {
78
79         cin.ignore(numeric_limits<streamsize>::max(), '\n');
80         checkInp = true;
81
82     }
83
84     }while(!checkInp);
85
86     //returns float to the main
87     return newValue;
88 }
89
90
91
92
93
```

Display.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 //Outputting the information for Fluffy using a method
14
15 void Sheep1::PrintSheep1(string name1, string type1, int age1, float value1) const
16 {
17     cout << fixed << setprecision(2);
18     cout << setw(11) << type << setw(15) << name << setw(8) << age << setw(8) <<
19     value << endl;
20 }
21 //Outputting the information for Maa using a method
22
23 void Sheep2::PrintSheep2(string name2, string type2, int age2, float value2) const
24 {
25     cout << fixed << setprecision(2);
26     cout << setw(11) << type << setw(15) << name << setw(8) << age << setw(8) <<
27     value << endl;
28 }
29 //Outputting the information for Babe using a method
30
31 void Pig::PrintPig(string nameP, string typeP, int ageP, float valueP) const
32 {
33     cout << fixed << setprecision(2);
34     cout << setw(11) << type << setw(15) << name << setw(8) << age << setw(8) <<
35     value << endl;
36 }
```

FirstMenu.cpp

```
1 /*****
2 * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3 * STUDENT ID : 1112261 & 1103126
4 * CLASS      : CS1B
5 * SECTION    : MW 7:30pm
6 * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7 * DUE DATE   : 19 September 2019
8 *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 /*****
14 * FirstMenu
15 *   This function gets the user choice for the first menu that has been run
16 *
17 *   RETURNS: integer
18 *****/
19
20 int FirstMenu()
21 {
22
23     /*****
24     * VARIABLES *
25     *****/
26
27     int startOption;
28     bool checkInp;
29
30     /*****
31     * INITIALIZE *
32     *****/
33
34     checkInp = false;
35
36     //do while loop for error checking
37     do
38     {
39         //INPUT
40
41         cout << "1 - Initialize the Animals " << endl;
42         cout << "0 - Exit" << endl;
43
44         cout << "Enter Selection: ";
45
46
47         //CHECKS FOR THE CHAR INPUT
48
49         if (!(cin >> startOption))
50         {
51             cin.clear();
52             cin.ignore(numeric_limits<streamsize>::max(), '\n');
53
54             cout << endl;
55             cout << "**** Please input a NUMBER between 0 or 1 ****";
```

FirstMenu.cpp

```
56         cout << endl << endl;
57
58         checkInp = false;
59     }
60
61     //CHECKS FOR THE RANGE ERROR
62
63     else if (startOption >= 2 || startOption <= -1 )
64     {
65
66         cout << endl;
67         cout << "**** The number " << startOption
68         << " is an invalid entry ****" << endl;
69         cout << "**** Please input a number between 0 or 1 ****";
70         cout << endl << endl;
71
72         checkInp = false;
73
74     }
75
76     //PASS
77
78     else
79     {
80
81         cin.ignore(numeric_limits<streamsize>::max(), '\n');
82         checkInp = true;
83
84     }
85
86 }while(!checkInp);
87
88 //returns an integer to the main
89 return startOption;
90 }
91 }
92
```

Menu.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2   : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE    : 19 September 2019
8  *****/
9
10 #include "MyHeader.h"
11 #include "ClassHeader.h"
12
13 /*****
14  * Menu
15  * This function outputs the main menu and gets the user's choice for the menu
16  * options
17  *
18  * RETURNS: ineger
19  *****/
20
21 int Menu()
22 {
23     /*****
24      * VARIABLES *
25      *****/
26
27     int menuOption; //IN - user input for menu
28     bool checkInp;  //PROCESS - input check
29
30     /*****
31      * INITIALIZE *
32      *****/
33
34     checkInp = false;
35
36
37     //do while loop for error checking
38     do
39     {
40         //INPUT
41
42         cout << "1 - Initialize the Animals " << endl;
43         cout << "2 - Change Age" << endl;
44         cout << "3 - Change Value" << endl;
45         cout << "4 - Display" << endl;
46         cout << "0 - Exit" << endl;
47
48         cout << "Enter Selection: ";
49
50
51         //CHECKS FOR THE CHAR INPUT
52
53         if (!(cin >> menuOption))
54         {
55             cin.clear();
```

Menu.cpp

```
56         cin.ignore(numeric_limits<streamsize>::max(), '\n');
57
58         cout << endl;
59         cout << "**** Please input a NUMBER between 0 and 4 ****";
60         cout << endl << endl;
61
62         checkInp = false;
63
64     }
65
66     //CHECKS FOR THE RANGE ERROR
67
68     else if (menuOption >= 5 || menuOption <= -1 )
69     {
70
71         cout << endl;
72         cout << "**** The number " << menuOption
73         << " is an invalid entry ****" << endl;
74         cout << "**** Please input a number between 0 and 4 ****";
75         cout << endl << endl;
76
77         checkInp = false;
78
79     }
80
81     //PASS
82
83     else
84     {
85
86         cin.ignore(numeric_limits<streamsize>::max(), '\n');
87         checkInp = true;
88
89     }
90
91     }while(!checkInp);
92
93     //returns an integer to the main
94     return menuOption;
95 }
96
```


PrintHeader.cpp

```
1 /*****
2  * PROGRAMMER : Ali Eshghi & Amirarsalan Valipour
3  * STUDENT ID : 1112261 & 1103126
4  * CLASS      : CS1B
5  * SECTION    : MW 7:30pm
6  * Assign #2  : tic-tac-toe game (multi-dimensional arrays)
7  * DUE DATE   : 19 September 2019
8  *****/
9 #include "MyHeader.h"
10
11 /*****
12  * Function - PrintHeaderFile
13  * -----
14  * This function will output the class heading to the screen.
15  *
16  * return type - nothing
17  *               the function is void type
18  *****/
19
20 void PrintHeader(const string MY_NAME, //OUT
21                 const string CLASS,   //OUT
22                 const string CLASS_TIME, //OUT
23                 const int LAB_NUM,    //OUT
24                 const string LAB_NAME) //OUT
25 {
26     cout << left;
27     cout << "*****\n" ;
28     cout << "* PROGRAMMED BY : " << MY_NAME ;
29     cout << "\n* " << setw(14) << "CLASS" << ": " << CLASS ;
30     cout << "\n* " << setw(14) << "SECTION" << ": " << CLASS_TIME ;
31     cout << "\n* LAB #" << setw(9) << LAB_NUM << ": " << LAB_NAME;
32     cout << "\n*****\n\n" ;
33     cout << right;
34 }
35
36
```