```cpp
1  /*
2      Zach Hofmeister        2/21/19
3      Lab 3: Classes         Virtual Pet: Program demonstrates understanding and use ⮐
          of classes.
4                             Player takes care of a megasloth until it dies of old   ⮐
                    age or neglect.
5  */
6
7  #include "pch.h"
8  #include <iostream>
9  #include <time.h>
10 #include <string>
11
12 using namespace std;
13
14 class Megasloth {
15     private: //Megasloth stats are private
16         string name;
17         int hunger, clean, happy, health, age;
18     public: //Public constructor and functions
19         Megasloth(string n) { //Constructor
20             name = n;
21             age = 0;
22             hunger = rand() % 5 + 1;
23             clean = rand() % 5 + 1;
24             happy = rand() % 5 + 1;
25             health = rand() % 5 + 1;
26         }
27         int getAge() { //getter for age
28             return age;
29         }
30         void displayAttributes() { //Prints attributes
31             cout << endl << endl;
32             cout << "--" << name << "'s stats--" << endl;
33             cout << "Hunger: " << hunger << endl;
34             cout << "Cleanliness: " << clean << endl;
35             cout << "Happiness: " << happy << endl;
36             cout << "Health: " << health << endl;
37             cout << "Age: " << age << endl;
38         }
39         void feed() { //Increase hunger
40             age++;
41             hunger++;
42             switch ((int)(rand() % 2)) { //Decreases a stat at random each  ⮐
                action
43                 case 0:
44                     clean--;
45                     break;
46                 case 1:
```

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47                    happy--;
48                    break;
49                case 2:
50                    health--;
51                    break;
52            }
53            cout << name << " eats a big bowl of leaves." << endl;
54        }
55        void wash() { //Increase cleanliness
56            age++;
57            clean++;
58            switch ((int)(rand() % 2)) { //Decreases a stat at random each ⮡
                  action
59                case 0:
60                    hunger--;
61                    break;
62                case 1:
63                    happy--;
64                    break;
65                case 2:
66                    health--;
67                    break;
68            }
69            cout << name << " splashes in the bath." << endl;
70        }
71        void play() { //Increase happiness
72            age++;
73            happy++;
74            switch ((int)(rand() % 2)) { //Decreases a stat at random each ⮡
                  action
75                case 0:
76                    clean--;
77                    break;
78                case 1:
79                    hunger--;
80                    break;
81                case 2:
82                    health--;
83                    break;
84            }
85            cout << name << " plays happily." << endl;
86        }
87        void heal() { //Increases health
88            age++;
89            health++;
90            switch ((int)(rand() % 2)) { //Decreases a stat at random each ⮡
                  action
91                case 0:
92                    clean--;
```

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 93                            break;
 94                    case 1:
 95                            happy--;
 96                            break;
 97                    case 2:
 98                            hunger--;
 99                            break;
100                }
101                cout << name << " takes their vitamins reluctantly." << endl;
102            }
103            bool isAlive() { //Checks if megasloth's stats are at the right levels ⮐
                   for life.
104                if (age >= 5 || hunger <= 0 || clean <= 0 || happy <= 0 || health ⮐
                       <= 0) {
105                    return false;
106                } else {
107                    return true;
108                }
109            }
110 };
111
112 void displayMenu(Megasloth&); //Displays choices and takes player's selection ⮐
       for interaction. Pass sloth by reference to change original values.
113
114 int main() {
115     srand(time(0));
116     cout << "====================" << endl;
117     cout << "=Virtual Megasloth=" << endl;
118     cout << "====================" << endl;
119
120     cout << "Please enter a name for your pet Megasloth: " << endl;
121     string name;
122     getline(cin, name);
123     Megasloth sloth = Megasloth(name); //Creates object with constructor.
124
125     do { //Loop for menu.
126         sloth.displayAttributes();
127         displayMenu(sloth);
128     } while (sloth.isAlive()); //Game ends when megasloth dies.
129
130     sloth.displayAttributes();
131     if (sloth.getAge() >= 5) {
132         cout << name << " has died of old age.";
133     } else {
134         cout << name << " has died tragically.";
135     }
136
137     return 0;
138 }
```

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139
140  void displayMenu(Megasloth &sloth) { //Displays choices and takes player's
         selection for interaction. Pass sloth by reference to change original values.
141      int choice;
142      cout << "Main menu:" << endl;
143      cout << "1. Feed" << endl;
144      cout << "2. Wash" << endl;
145      cout << "3. Play" << endl;
146      cout << "4. Health" << endl;
147
148      cout << "Enter a number (1-4): ";
149      cin >> choice;
150
151      if (choice == 1) {
152          sloth.feed();
153      } else if (choice == 2) {
154          sloth.wash();
155      } else if (choice == 3) {
156          sloth.play();
157      } else if (choice == 4) {
158          sloth.heal();
159      } else { //Invalid input
160          cout << "Please enter a number 1-4." << endl << endl;
161          displayMenu(sloth);
162      }
163  }
164
165  /*
166  ========================================================
167  SAMPLE OUTPUT 1
168  ========================================================
169
170  ===================
171  =Virtual Megasloth=
172  ===================
173  Please enter a name for your pet Megasloth:
174  Henry
175
176
177  --Henry's stats--
178  Hunger: 5
179  Cleanliness: 3
180  Happiness: 2
181  Health: 3
182  Age: 0
183  Main menu:
184  1. Feed
185  2. Wash
186  3. Play
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187  4. Health
188  Enter a number (1-4): 3
189  Henry plays happily.
190
191
192  --Henry's stats--
193  Hunger: 5
194  Cleanliness: 2
195  Happiness: 3
196  Health: 3
197  Age: 1
198  Main menu:
199  1. Feed
200  2. Wash
201  3. Play
202  4. Health
203  Enter a number (1-4): 2
204  Henry splashes in the bath.
205
206
207  --Henry's stats--
208  Hunger: 4
209  Cleanliness: 3
210  Happiness: 3
211  Health: 3
212  Age: 2
213  Main menu:
214  1. Feed
215  2. Wash
216  3. Play
217  4. Health
218  Enter a number (1-4): 4
219  Henry takes their vitamins reluctantly.
220
221
222  --Henry's stats--
223  Hunger: 4
224  Cleanliness: 2
225  Happiness: 3
226  Health: 4
227  Age: 3
228  Main menu:
229  1. Feed
230  2. Wash
231  3. Play
232  4. Health
233  Enter a number (1-4): 2
234  Henry splashes in the bath.
235
```

```
236
237  --Henry's stats--
238  Hunger: 4
239  Cleanliness: 3
240  Happiness: 2
241  Health: 4
242  Age: 4
243  Main menu:
244  1. Feed
245  2. Wash
246  3. Play
247  4. Health
248  Enter a number (1-4): 3
249  Henry plays happily.
250
251
252  --Henry's stats--
253  Hunger: 3
254  Cleanliness: 3
255  Happiness: 3
256  Health: 4
257  Age: 5
258  Henry has died of old age.
259  C:\Users\zachh\Documents\GitHub\CS121 Lab3\Debug\CS121 Lab3.exe (process 13200) ⮑
         exited with code 0.
260  Press any key to close this window . . .
261  =======================================================
262  SAMPLE OUTPUT 2
263  =======================================================
264
265  ==================
266  =Virtual Megasloth=
267  ==================
268  Please enter a name for your pet Megasloth:
269  Henry II
270
271
272  --Henry II's stats--
273  Hunger: 5
274  Cleanliness: 1
275  Happiness: 4
276  Health: 1
277  Age: 0
278  Main menu:
279  1. Feed
280  2. Wash
281  3. Play
282  4. Health
283  Enter a number (1-4): 1
```

```
284  Henry II eats a big bowl of leaves.
285
286
287  --Henry II's stats--
288  Hunger: 6
289  Cleanliness: 1
290  Happiness: 3
291  Health: 1
292  Age: 1
293  Main menu:
294  1. Feed
295  2. Wash
296  3. Play
297  4. Health
298  Enter a number (1-4): 1
299  Henry II eats a big bowl of leaves.
300
301
302  --Henry II's stats--
303  Hunger: 7
304  Cleanliness: 0
305  Happiness: 3
306  Health: 1
307  Age: 2
308  Henry II has died tragically.
309  C:\Users\zachh\Documents\GitHub\CS121 Lab3\Debug\CS121 Lab3.exe (process 16864) ↵
         exited with code 0.
310  Press any key to close this window . . .
311  */
```