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1  /*
2      Zach Hofmeister      2/25/19
3      Lab 4- Overloading constructors      Baseball: Create a baseball team by
                                         assigning the id and batting averages of your players.
4  */
5
6  #include "pch.h"
7  #include <iostream>
8
9  using namespace std;
10
11 class BaseBallPlayer {
12     private:
13         int id;
14         double battingAve;
15     public:
16         //Constructors
17         BaseBallPlayer() {
18             id = 999;
19             battingAve = 0.5;
20         }
21         BaseBallPlayer(int i) {
22             id = i;
23             battingAve = 0.5;
24         }
25         BaseBallPlayer(double bat) {
26             id = 999;
27             battingAve = bat;
28         }
29         BaseBallPlayer(int i, double bat) {
30             id = i;
31             battingAve = bat;
32         }
33         //Getters
34         int getID() {
35             return id;
36         }
37         double getAve() {
38             return battingAve;
39         }
40 };
41
42 void displayTeam(BaseBallPlayer, BaseBallPlayer, BaseBallPlayer,
43                 BaseBallPlayer); //Displays batting averages of all BaseBallPlayers
44
45 int main() {
46     cout << "===Welcome to the create your own baseball team app!==" << endl;
47     cout << endl;
48     cout << "No input needed for a catcher, using default values." << endl;
```

```
48     BaseBallPlayer catcher = BaseBallPlayer();
49     cout << "Catcher " << catcher.getID() << " generated!" << endl;
50     cout << endl;
51
52     int ssID;
53     double ssAve;
54     cout << "A shortstop requires an ID and Batting Average." << endl;
55     cout << "Shortstop's ID: ";
56     cin >> ssID;
57     do {
58         cout << "Shortstop's Batting Average: ";
59         cin >> ssAve;
60         if (ssAve < 0 || ssAve > 1) {
61             cout << "Invalid batting average, must be between 0-1." << endl;
62         }
63     } while (ssAve < 0 || ssAve > 1);
64     BaseBallPlayer shortstop = BaseBallPlayer(ssID, ssAve);
65     cout << "Shortstop " << shortstop.getID() << " generated!" << endl;
66     cout << endl;
67
68     double ofAve;
69     cout << "An outfielder only requires a Batting Average." << endl;
70     do {
71         cout << "Outfielder's Batting Average: ";
72         cin >> ofAve;
73         if (ofAve < 0 || ofAve > 1) {
74             cout << "Invalid batting average, must be between 0-1." << endl;
75         }
76     } while (ofAve < 0 || ofAve > 1);
77     BaseBallPlayer outfielder = BaseBallPlayer(ofAve);
78     cout << "Outfielder " << outfielder.getID() << " generated!" << endl;
79     cout << endl;
80
81     int batID;
82     cout << "A batter only requires an ID." << endl;
83     cout << "Batter's ID: ";
84     cin >> batID;
85     BaseBallPlayer batter = BaseBallPlayer(batID);
86     cout << "Batter " << batter.getID() << " generated!" << endl;
87     cout << endl;
88
89     displayTeam(catcher, shortstop, outfielder, batter);
90
91     return 0;
92 }
93
94 void displayTeam(BaseBallPlayer catcher, BaseBallPlayer shortstop,
95     BaseBallPlayer outfielder, BaseBallPlayer batter) { //Displays batting
96     averages of all BaseBallPlayers
```

```
95     cout << "Catcher's Batting Average is " << catcher.getAve() << endl;
96     cout << "Shortstop's Batting Average is " << shortstop.getAve() << endl;
97     cout << "Outfielder's Batting Average is " << outfielder.getAve() << endl;
98     cout << "Batter's Batting Average is " << batter.getAve() << endl;
99     cout << "The team's collective batting average is " << (catcher.getAve() +
    shortstop.getAve() + outfielder.getAve() + batter.getAve()) / 4 << endl;
100 }
101
102 /*
103 SAMPLE OUTPUT
104 ===Welcome to the create your own baseball team app!===
105
106 No input needed for a catcher, using default values.
107 Catcher 999 generated!
108
109 A shortstop requires an ID and Batting Average.
110 Shortstop's ID: 99
111 Shortstop's Batting Average: 20
112 Invalid batting average, must be between 0-1.
113 Shortstop's Batting Average: 1
114 Shortstop 99 generated!
115
116 An outfielder only requires a Batting Average.
117 Outfielder's Batting Average: 10
118 Invalid batting average, must be between 0-1.
119 Outfielder's Batting Average: 0
120 Outfielder 999 generated!
121
122 A batter only requires an ID.
123 Batter's ID: 3
124 Batter 3 generated!
125
126 Catcher's Batting Average is 0.5
127 Shortstop's Batting Average is 1
128 Outfielder's Batting Average is 0
129 Batter's Batting Average is 0.5
130 The team's collective batting average is 0.5
131
132 C:\Users\zachh\Documents\GitHub\CS121 Lab4\Debug\CS121 Lab4.exe (process 1760)
    exited with code 0.
133 Press any key to close this window . . .
134 */
```