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1   // Matthew Bowker, CS3060-001, Assignment #1 Problem 3.16 (HeartRates.H)
2
3   #ifndef HEARTRATES_H
4   #define HEARTRATES_H
5
6   #endif // HEARTRATES_H
7
8   using namespace std;
9
10  class HeartRates {
11  public:
12      HeartRates();
13      HeartRates(string, string, int, int, int);
14      string getFirstName();
15      void setFirstName(string);
16      string getLastName();
17      void setLastName(string);
18      int getMonth();
19      void setMonth(int);
20      int getDay();
21      void setDay(int);
22      int getYear();
23      void setYear(int);
24      int getCurrentMonth();
25      void setCurrentMonth(int);
26      int getCurrentDay();
27      void setCurrentDay(int);
28      int getCurrentYear();
29      void setCurrentYear(int);
30      int getAge();
31      int getMaximumHeartRate();
32      int getTargetHeartRate(int);
33      void generateReport();
34  private:
35      string firstName;
36      string lastName;
37      int month;
38      int day;
39      int year;
40      int currentMonth;
41      int currentDay;
42      int currentYear;
43  };
44
45  HeartRates::HeartRates() {
46
47  }
48
49  HeartRates::HeartRates(string tempFirstName, string tempLastName, int tempMonth, int
    tempDay, int tempYear) {
50      firstName = tempFirstName;
51      lastName = tempLastName;
52      month = tempMonth;
53      day = tempDay;
```

```
54      year = tempYear;
55  }
56
57  string HeartRates::getFirstName() {
58      return firstName;
59  }
60
61  void HeartRates::setFirstName(string tempFirstName) {
62      firstName = tempFirstName;
63  }
64
65  string HeartRates::getLastName() {
66      return lastName;
67  }
68
69  void HeartRates::setLastName(string tempLastName) {
70      lastName = tempLastName;
71  }
72
73  int HeartRates::getMonth() {
74      return month;
75  }
76
77  void HeartRates::setMonth(int tempMonth) {
78      month = tempMonth;
79  }
80
81  int HeartRates::getDay() {
82      return day;
83  }
84
85  void HeartRates::setDay(int tempDay) {
86      day = tempDay;
87  }
88
89  int HeartRates::getYear() {
90      return year;
91  }
92
93  void HeartRates::setYear(int tempYear) {
94      year = tempYear;
95  }
96
97  int HeartRates::getCurrentMonth() {
98      return currentMonth;
99  }
100
101 void HeartRates::setCurrentMonth(int tempMonth) {
102     currentMonth = tempMonth;
103 }
104
105 int HeartRates::getCurrentDay() {
106     return currentDay;
107 }
```

```
108
109 void HeartRates::setCurrentDay(int tempDay) {
110     currentDay = tempDay;
111 }
112
113 int HeartRates::getCurrentYear() {
114     return currentYear;
115 }
116
117 void HeartRates::setCurrentYear(int tempYear) {
118     currentYear = tempYear;
119 }
120
121 int HeartRates::getAge() {
122
123     if (currentYear == 0) {// Have we set the year yet?
124         cout << "Please enter the current year:";
125         cin >> currentYear;
126     }
127
128     return currentYear - year;
129 }
130
131
132 int HeartRates::getMaximumHeartRate() {
133     return 220 - getAge();
134 }
135
136 int HeartRates::getTargetHeartRate(int choice) {
137     switch (choice) {
138         case 1: // Min
139             return getMaximumHeartRate() * .5;
140             break;
141         case 2:
142             return getMaximumHeartRate() * .85;
143             break;
144         default:
145             cout << "Error: You haven't specified a "
146                     << "valid case for getTargetHeartRate()" << endl;
147             return 0;
148             break;
149     }
150
151 }
152
153 void HeartRates::generateReport() {
154     cout << "--------------------------------" << endl;
155     cout << "|   Patient HeartRate Report   |" << endl;
156     cout << "|    Dr. Albert Broullette     |" << endl;
157     cout << "--------------------------------" << endl;
158     cout << "Patient Name: " << getLastName() << ", " << getFirstName() << endl;
159     cout << "Patient Date of Birth: " << getMonth() << "/" << getDay() << "/" << getYear
    () << endl;
160     cout << "--------------------------------" << endl;
```

```
161       cout << "Maximum Heart Rate: " << getMaximumHeartRate() << endl;
162       cout << "-------------------------------" << endl;
163       cout << "Target Heart Rate: " << getTargetHeartRate(1) << " - " <<
          getTargetHeartRate(2) << endl;
164       cout << "-------------------------------" << endl;
165       cout << "Report generated on: " << getCurrentMonth() << "/" << getCurrentDay() <<
          "/" << getCurrentYear() << endl;
166
167
168   }
169
```