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1 //CPS311 F2015 A4 Gp45 Plotnik, D; Fernandes, S; Burger, C
2 #include <iostream>
3 using namespace std;
4 class shopper {
5     protected:
6         char* shopper_name;
7         int years_a_member;
8         double avg_monthly_purchases;
9         double membership_cost;
10        double nominal_membership_cost = 50;
11    public:
12        shopper(int yrs_a_mbr, char* sh_nm, double av_mnth_prchs = 250);
13        ~shopper() {
14            cout << "In the destructor" << endl;
15            delete[] shopper_name;
16        }
17        virtual void set_membership_cost() {
18            if (years_a_member < 5) {
19                membership_cost = nominal_membership_cost*(1 -
20                    0.04*years_a_member) - 0.5*0.01*avg_monthly_purchases;
21            }
22            else {
23                membership_cost = 30;
24            }
25            double get_membership_cost() {
26                return membership_cost + 2;
27            }
28            char* get_shopper_name() {
29                return shopper_name;
30            }
31        };
32
33        shopper::shopper(int yrs_a_mbr, char* sh_nm, double av_mnth_prchs) :
34            years_a_member( yrs_a_mbr ) {
35                shopper_name = new char[strlen(sh_nm)+1];
36                strcpy(shopper_name, sh_nm);
37                avg_monthly_purchases = av_mnth_prchs;
38            }
39        ostream& operator<<(ostream& out, shopper shpr)
40        {
41            out << shpr.get_shopper_name()
42                << " has a yearly membership cost of $"
43                << shpr.get_membership_cost()
44                << endl;
45            return out;
46        }
47
48
49        class family_shopper : public shopper {
50        private:
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51     double family_discount;
52 public:
53     family_shopper(char* f_sh_nm, double fam_disc = 10, int yrs_a_mbr = 2,
54         double av_mnth_prchs = 100.00) : shopper(yrs_a_mbr, f_sh_nm,
55         av_mnth_prchs) {
56         family_discount = fam_disc;
57     }
58     virtual void set_membership_cost() {
59         if (years_a_member < 5) {
60             membership_cost = nominal_membership_cost*(1 -
61                 0.04*years_a_member) - 0.5*0.01*avg_monthly_purchases;
62         }
63         else {
64             membership_cost = 30;
65         }
66         membership_cost *= (1 - ((double)(family_discount)) / 100);
67     }
68     friend ostream& operator<<(ostream& out, family_shopper f_shpr) {
69         cout.setf(ios::fixed);
70         cout.precision(2);
71         out << f_shpr.shopper_name
72             << " is a family shopper whose annual membership with discount of "
73             << f_shpr.family_discount
74             << "% is $"
75             << f_shpr.membership_cost
76             << endl;
77         return out;
78     }
79 };
80 int main() {
81     cout << "CPS311 F2015 A4 Gp45 Plotnik, D; Fernandes, S; Burger, C" << endl;
82     static shopper shpr1(3, "ABC", 600);
83     static shopper shpr2(6, "DEF");
84     static family_shopper f_shpr("GHI", 12);
85
86     shopper *ptr;
87
88     ptr = &shpr1;
89     ptr->set_membership_cost();
90     cout << shpr1;
91
92     ptr = &shpr2;
93     ptr->set_membership_cost();
94     cout << shpr2;
95
96     ptr = &f_shpr;
97     ptr->set_membership_cost();
98     cout << f_shpr;
99     return 0;
```

99 }