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/// Comp 200 -- Fall 2023

/// Exam 4

#include <iostream>

using namespace std;

// Implement a base class Person.

class Person {

private:

// A person has a name and a birthday.

string name;

string birthday;

public:

Person() {

this->name = "none";

this->birthday = "none";

}

Person(string name, string date) {

this->name = name;

this->birthday = date;

}

void SetName(string name) {

this->name = name;

}

string GetName() const {

return this->name;

}

void SetBirthday(string date) {

this->birthday = date;

}

string GetBirthday() const {

return this->birthday;

}

virtual void Print() const {

cout << "--------------" << endl;

cout << "Name: " << GetName() << endl;

cout << "Birthday: " << GetBirthday() << endl;

}

};

// Derive classes Student and Instructor from Person.

class Student : public Person {

private:

// A student has a major

string major;

public:

Student() {

SetName("none");

SetBirthday("none");

this->major = "none";

}

Student(string name, string date, string major) {

SetName(name);

SetBirthday(date);

this->major = major;

}

void SetMajor(string major) {

this->major = major;

}

string GetMajor() const {

return this->major;

}

virtual void Print() const override {

Person::Print();

cout << "Occupation: Student" << endl;

cout << "Major: " << GetMajor() << endl;

}

};

class Instructor : public Person {

private:

// An instructor has a salary

int salary;

public:

Instructor() {

SetName("none");

SetBirthday("none");

this->salary = 0;

}

Instructor(string name, string date, int salary) {

SetName(name);

SetBirthday(date);

this->salary = salary;

}

void SetSalary(int salary) {

this->salary = salary;

}

int GetSalary() const {

return this->salary;

}

virtual void Print() const override {

Person::Print();

cout << "Occupation: Instructor" << endl;

cout << "Salary: " << GetSalary() << endl;

}

};

int main() {

// Also store in a dynamically allocated array of pointers a Person (in this case, it will be the Dean),

// an instructor and multiple students.

// Be sure to ask the user how many students are in the class when making the array of pointers. \*/

int inputNumStudents = -1;

string name;

string date;

int salary = -1;

cout << "How many students are in the course?" << endl;

cin >> inputNumStudents;

Person\*\* Dean = new Person\*[inputNumStudents + 1]; // Allocates an array of inputNumStudents students and 1 teacher

cin.ignore();

cout << "Enter Instructor's Name" << endl;

getline(cin, name);

cout << "Enter Instructor's Birthday (Month Year)" << endl;

getline(cin, date);

cout << "Enter Instructor's Salary" << endl;

cin >> salary;

Instructor\* Teacher = new Instructor(name, date, salary);

Dean[0] = Teacher;

cin.ignore();

for (int i = 1; i <= inputNumStudents; i++) {

string major;

cout << "Enter Student's Name" << endl;

getline(cin, name);

cout << "Enter Student's Birthday" << endl;

getline(cin, date);

cout << "Enter Student's Major" << endl;

getline(cin, major);

Student\* student = new Student(name, date, major);

Dean[i] = student;

}

cout << endl;

for (int i = 0; i <= inputNumStudents; i++) {

Dean[i]->Print();

cout << endl;

}

delete[] Dean;

return 0;

}



