Exercise 11-3: Instantiating Objects

using namespace std;

#include <iostream>

#include <iomanip>

#include <string>

class person

{

public:

string firstName = "\_";

string lastName = "\_";

int age = 0;

};

class student :public person

{

private:

int courses;

double gpa;

public:

void studentInfo()

{

cout << "What is your first name? >> ";

cin >> firstName;

cout << "What is your last name? >> ";

cin >> lastName;

cout << "What is your age? >> ";

cin >> age;

cout << "How many courses have you taken? >> ";

cin >> courses;

cout << "What is your GPA? >> ";

cin >> gpa;

cout << endl;

}

void displayStudent()

{

cout << "You are student " << firstName << " " << lastName << ", age " << age << ". ";

cout << "You have taken " << courses << " courses and have a " << gpa << " GPA." << endl << endl;

}

};

class staff : public person

{

private:

double hourlyPay;

double hoursPerWeek;

public:

void staffInfo()

{

cout << "What is your first name? >> ";

cin >> firstName;

cout << "What is your last name? >> ";

cin >> lastName;

cout << "What is your age? >> ";

cin >> age;

cout << "How much do you make per hour? >> $";

cin >> hourlyPay;

cout << "How many hours do you work per week? >> ";

cin >> hoursPerWeek;

cout << endl;

}

void displayStaff()

{

cout << "You are staff member " << firstName << " " << lastName << ", age " << age << ". ";

cout << "You make $" << fixed << setprecision(2) << hourlyPay << " an hour and work ";

cout << setprecision(0) << hoursPerWeek << " hours a week." << endl << endl;

}

};

class faculty :public person

{

private:

double hourlyPay;

double hoursPerWeek;

public:

void facultyInfo()

{

cout << "What is your first name? >> ";

cin >> firstName;

cout << "What is your last name? >> ";

cin >> lastName;

cout << "What is your age? >> ";

cin >> age;

cout << "How much do you make per hour? >> $";

cin >> hourlyPay;

cout << "How many hours do you work per week? >> ";

cin >> hoursPerWeek;

cout << endl;

}

void displayFaculty()

{

cout << "You are faculty member " << firstName << " " << lastName << ", age " << age << ". ";

cout << "You make $" << fixed << setprecision(2) << hourlyPay << " an hour and work ";

cout << setprecision(0) << hoursPerWeek << " hours a week." << endl << endl;

}

};

void main()

{

student obj1;

staff obj2;

faculty obj3;

int answer;

int numPeople;

cout << "How many people are entering info? >> ";

cin >> numPeople;

do

{

cout << "====================" << endl;

cout << "|What is your role?|" << endl;

cout << "====================" << endl;

cout << "|Type 1 for student|\n|Type 2 for staff |\n|Type 3 for faculty| " << endl;

cout << "====================" << endl << "role >> ";

cin >> answer;

switch (answer)

{

case 1:

obj1.studentInfo();

obj1.displayStudent();

break;

case 2:

obj2.staffInfo();

obj2.displayStaff();

break;

case 3:

obj3.facultyInfo();

obj3.displayFaculty();

break;

default:

cout << "INVALID INPUT" << endl;

break;

}

numPeople--;

} while (numPeople > 0);

system("pause");

}

Exercise 11-4: All of the Above

using namespace std;

#include <iostream>

#include <iomanip>

#include <string>

class art

{

public:

string artist = "\_";

string title = "\_";

int id = 0;

void getArt()

{

cout << "Who is the artist? >> ";

cin.ignore();

getline(cin, artist);

cout << "What is the title? >> ";

getline(cin, title);

cout << "What is the id number? >> #";

cin >> id;

}

void displayArt()

{

cout << "Artwork Info..." << endl;

cout << "Artist: " << artist << endl;

cout << "Title: " << title << endl;

cout << "ID: " << id << endl;

}

};

class painting :public art

{

private:

double length;

double width;

string type[4] = { "Oil", "Watercolor", "Pastel", "Mixed-media" };

int answer;

string mediaType;

public:

void paintingInfo()

{

getArt();

cout << "What media was used for the artwork?" << endl;

cout << "1 for oil" << endl << "2 for watercolor" << endl;

cout << "3 for pastel" << endl << "4 for mixed-media" << endl;

cout << "Media type: ";

cin >> answer;

while (answer < 1 || answer > 4)

{

cout << "Input not within range" << endl;

cout << "What media was used for the artwork?" << endl;

cout << "1 for oil" << endl << "2 for watercolor" << endl;

cout << "3 for pastel" << endl << "4 for mixed-media" << endl << endl;

cout << "Media type: ";

cin >> answer;

}

mediaType = type[answer];

cout << "What is the length of the painting? >> ";

cin >> length;

cout << "What is the width of the painting? >> ";

cin >> width;

cout << endl;

}

void displayPainting()

{

displayArt();

cout << "Media: " << mediaType << endl;

cout << "Length: " << length << endl;

cout << "Width: " << width << endl << endl;

}

};

class sculpture : public art

{

private:

string material[3] = { "Wood", "Metal", "Plastic" };

int answer;

string materialType;

public:

void sculptureInfo()

{

getArt();

cout << "What material was used for the sculpture?" << endl;

cout << "1 for wood" << endl;

cout << "2 for metal" << endl;

cout << "3 for plastic" << endl << endl;

cout << "Material: ";

cin >> answer;

while (answer < 1 || answer > 3)

{

cout << "What material was used for the sculpture?" << endl;

cout << "1 for wood" << endl;

cout << "2 for metal" << endl;

cout << "3 for plastic" << endl << endl;

cout << "Material: ";

cin >> answer;

}

materialType = material[answer];

cout << endl;

}

void displaySculpture()

{

displayArt();

cout << "Material: " << materialType << endl << endl;

}

};

class pottery :public art

{

private:

string potteryArray[4] = { "Earthenware", "Stoneware", "Porcelain", "Ceramic" };

int answer;

string potteryType;

double length;

double width;

double height;

public:

void potteryInfo()

{

getArt();

cout << "What type of pottery was used for the artwork?" << endl;

cout << "1 for earthenware" << endl << "2 for stoneware" << endl;

cout << "3 for porcelain" << endl << "4 for ceramic" << endl;

cout << "Pottery type: ";

cin >> answer;

while (answer < 1 || answer > 4)

{

cout << "What type of pottery was used for the artwork?" << endl;

cout << "1 for earthenware" << endl << "2 for stoneware" << endl;

cout << "3 for porcelain" << endl << "4 for ceramic" << endl;

cout << "Pottery type: ";

cin >> answer;

}

potteryType = potteryArray[answer];

cout << "What is the length of the pottery? >> ";

cin >> length;

cout << "What is the width of the pottery? >> ";

cin >> width;

cout << "What is the height of the pottery? >> ";

cin >> height;

cout << endl;

}

void displayPottery()

{

displayArt();

cout << "Pottery type: " << potteryType << endl;

cout << "Length: " << length << endl;

cout << "Width: " << width << endl;

cout << "Height: " << height << endl << endl;

}

};

void main()

{

painting obj1;

sculpture obj2;

pottery obj3;

int answer;

int numEntries;

cout << "How many works of art have info to be entered? >> ";

cin >> numEntries;

do

{

cout << "=======================================" << endl;

cout << "|What type of artwork are you logging?|" << endl;

cout << "=======================================" << endl;

cout << "|Type 1 for painting |" << endl;

cout << "|Type 2 for sculpture |" << endl;

cout << "|Type 3 for pottery |" << endl;

cout << "=======================================" << endl;

cout << "Art Type: ";

cin >> answer;

while (answer < 1 || answer > 3)

{

cout << "INPUT NOT WITHIN RANGE" << endl;

cout << "=======================================" << endl;

cout << "|What type of artwork are you logging?|" << endl;

cout << "=======================================" << endl;

cout << "|Type 1 for painting |" << endl;

cout << "|Type 2 for sculpture |" << endl;

cout << "|Type 3 for pottery |" << endl;

cout << "=======================================" << endl;

cout << "Art Type: ";

cin >> answer;

}

switch (answer)

{

case 1:

obj1.paintingInfo();

obj1.displayPainting();

break;

case 2:

obj2.sculptureInfo();

obj2.displaySculpture();

break;

case 3:

obj3.potteryInfo();

obj3.displayPottery();

break;

default:

cout << "INVALID INPUT" << endl;

break;

}

numEntries--;

} while (numEntries > 0);

system("pause");

}