Philip Pesic

Week 14

November 20 2022

Week 14 Prog 6

(Base and Derived classes should already be coded in part 3)

Create an animal base class.

```
string animalName;

string sound;   // Use constructor to set derived class sound

virtual animalSound()           { cout << AnimalName << " says " << sound << endl;
```

Create 4 new derived classes based on animal, that override the virtual function, animalSound, with the specific animal noise,

and assign the animal name to the base animal name variable.

cat

dog

elephant

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mouse

Declare instances of each of the 4 different animals. C1, D1, E1, M1.

Declare an array of 4 of type animal

```
animal ** ptrBaseAnimal = new Animal * [4];
```

Declare instances of each of the 4 different animals. C1, D1, E1, M1.

example: ptrBaseAnimal[0] = new Cat;

do the rest...

Assign the derived address of each to on element in the base array.

Write a for loop to print out the animal noices

```
for ( int I = 0 ; I < 4 ; I++) {
```

```
ptrBaseAnimal[I]->animalSound;
```

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```
        }


//
//  main.cpp
//  Week 14 Prog 6
//
//  Created by Pippo Pesic on 11/17/22.
//

#include <iostream>
#include <string>
using namespace std;

class Animal {
        string animalName;
        string sound;
public:
        Animal(string n, string s) {
        animalName = n;
        sound = s;
```

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```
        }
        virtual void animalSound() {
        cout << animalName << " says " << sound << endl;
        };
};

class Cat : public Animal {
public:
        Cat () : Animal("cat", "meow") {}
};

class Dog : public Animal {
public:
        Dog () : Animal("dog", "bark") {}
};

class Elephant : public Animal {
public:
        Elephant () : Animal("elephant", "squeal") {}
};
```

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```
class Mouse : public Animal {
public:
	Mouse () : Animal("mouse", "squeak") {}
};


int main() {

	Animal **pAnimal = new Animal *[4];

	pAnimal[0] = new Cat;
	pAnimal[1] = new Dog;
	pAnimal[2] = new Elephant;
	pAnimal[3] = new Mouse;

	for (int i = 0; i < 4; i++) {
	pAnimal[i]->animalSound();
	}

	cout << "Philip Pesic 11/20/22" << endl;
	return 0;
}
```

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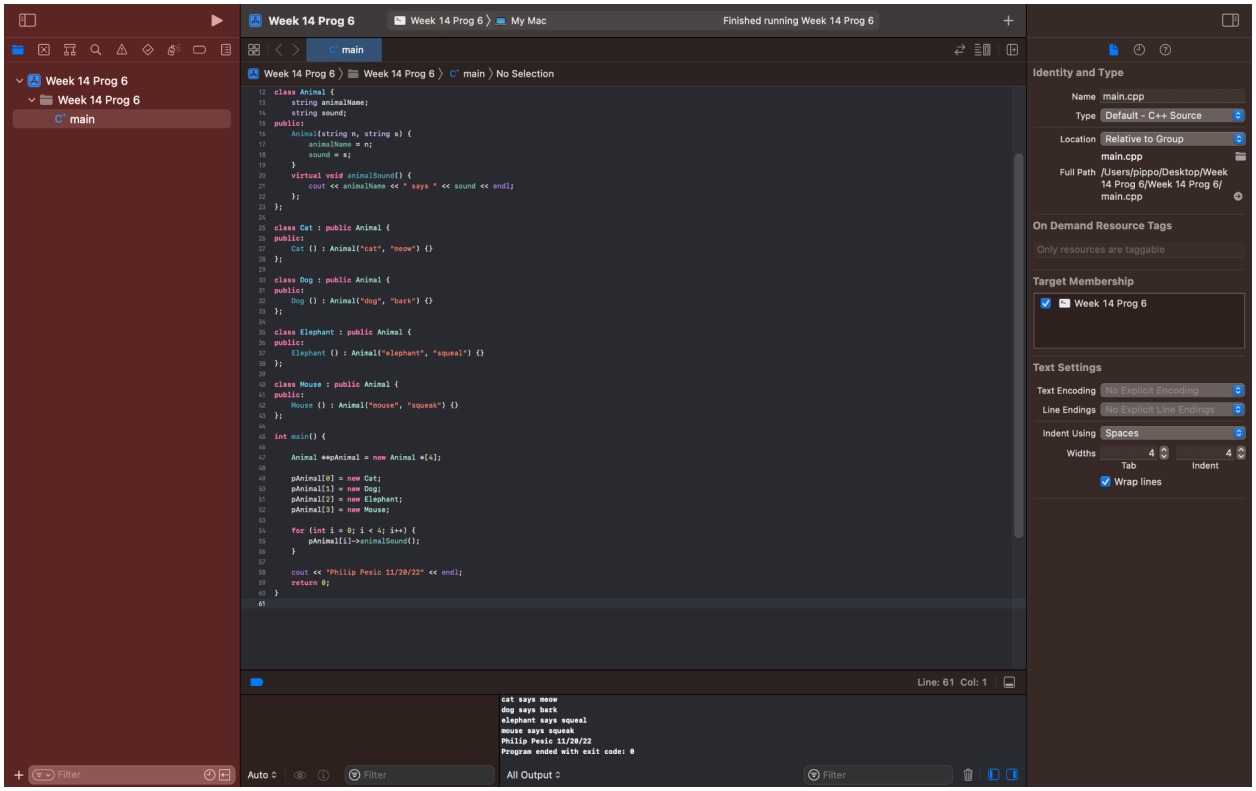

I learned: how to create pointers to pointers to call polymorphic classes