C++ Programming	Student number	21300691
Homework 7	Name	Cheung, Won Sik

Animal Class

Animal.h

```
class Animal{
private:
    string Species;
    string Habitat;
    string Food;
    string Type;
    int Weight;

public:
    Animal();
    string getSpecies() const;
    void setSpecies(string str);
    string getHabitat() const;
    void setHabitat(string str);
    string getFood() const;
    void setFood(string str);
    string getType() const;
    void setType(string str);
    int getWeight() const;
    void setWeight(int w);

    // Pure Virtual Function which will be overrided
    virtual void printTraining() const = 0;
    virtual void printFeeding() const = 0;
    // Virtual Function which will be overrided
    virtual void getInfo() const;
};

#endif
```

Animal.cpp

```cpp
// Animal Object Constructor
Animal::Animal(){
    Species = "";
    Habitat = "";
    Food = "";
    Type = "";
    Weight = 0;

    cout<<"This is Animal Class Constructor"<<endl;
}

// Mutator & Accessor
string Animal::getSpecies() const{
    return Species;
}
void Animal::setSpecies(string str){
    Species = str;
}
string Animal::getHabitat() const{
    return Habitat;
}
void Animal::setHabitat(string str){
    Habitat = str;
}
string Animal::getFood() const{
    return Food;
}
void Animal::setFood(string str){
    Food = str;
}
string Animal::getType() const{
    return Type;
}
```

```cpp
void Animal::setType(string str){
    Type = str;
}
int Animal::getWeight() const{
    return Weight;
}
void Animal::setWeight(int w){
    Weight = w;
}
// Virtual Function getInfo
void Animal::getInfo() const{
    cout<<"I am a "<<Species<<endl;
    cout<<"I eat "<<Food<<endl;
    cout<<"I am a "<<Type<<"!"<<endl;
    cout<<"I weigh "<<Weight<<"kg"<<endl;
    cout<<"I live in the "<<Habitat<<endl;
}
```

Carnivore Class

Carnivore.h

```
#ifndef CARNIVORE_H
#define CARNIVORE_H
#include <string>
#include "Animal.h"
using namespace std;

class Carnivore:public Animal{
private:
    // New variable for override function
    string Training;
    string Feeding;
public:
    Carnivore();
    void setTraining(string str);
    string getTraining() const;
    virtual void printTraining() const;
    void setFeeding(string str);
    string getFeeding() const;
    virtual void printFeeding() const;
    virtual void getInfo() const;
};

#endif
```

Carnivore.cpp

```
// Constructor
Carnivore::Carnivore(){
    setType("Carnivore");

    cout<<"This is Carnivore Constructor"<<endl;
}
// New Function for help printTraining() which overrides virtual
function
void Carnivore::setTraining(string str){
    Training = str;
}
string Carnivore::getTraining() const{
    return Training;
}
// Override Function
void Carnivore::printTraining() const{
    cout<<getType()<<" was trained in "<<Training<<endl;
}
// New Function for help printFeeding() which overrides virtual
function
void Carnivore::setFeeding(string str){
    Feeding = str;
}
string Carnivore::getFeeding() const{
    return Feeding;
}
// Override Function
void Carnivore::printFeeding() const{
    cout<<getType()<<" was fed well with "<<Feeding<<endl;
}
```

```
// Override Function
void Carnivore::getInfo() const{
    cout<<"I am a "<<getSpecies()<<endl;
    cout<<"I eat "<<getFood()<<endl;
    cout<<"I am a "<<getType()<<"!"<<endl;
    cout<<"I weigh "<<getWeight()<<"kg"<<endl;
    cout<<"I live in the "<<getHabitat()<<endl;
    printFeeding();
    printTraining();
}
```

Herbivore Class

Herbivore.h

```
#ifndef HERBIVORE_H
#define HERBIVORE_H
#include <string>
#include "Animal.h"
using namespace std;

class Herbivore:public Animal{
private:
    // New variable for override function
    string Training;
    string Feeding;
public:
    Herbivore();
    void setTraining(string str);
    string getTraining() const;
    virtual void printTraining() const;
    void setFeeding(string str);
    string getFeeding() const;
    virtual void printFeeding() const;
    virtual void getInfo() const;
};

#endif
```

Herbivore.cpp

```
// Constructor
Herbivore::Herbivore(){
    setType("Herbivore");

    cout<<"This is Herbivore Constructor"<<endl;
}
// New Function for help printTraining() which overrides virtual
function
void Herbivore::setTraining(string str){
    Training = str;
}
string Herbivore::getTraining() const{
    return Training;
}
// Override Function
void Herbivore::printTraining() const{
    cout<<getType()<<" was trained in "<<Training<<endl;
}
// New Function for help printFeeding() which overrides virtual
function
void Herbivore::setFeeding(string str){
    Feeding = str;
}
string Herbivore::getFeeding() const{
    return Feeding;
}
// Override Function
void Herbivore::printFeeding() const{
    cout<<getType()<<" was fed well with "<<Feeding<<endl;
}
```

```
// Override Function
void Herbivore::getInfo() const{
    cout<<"I am a "<<getSpecies()<<endl;
    cout<<"I eat "<<getFood()<<endl;
    cout<<"I am a "<<getType()<<"!"<<endl;
    cout<<"I weigh "<<getWeight()<<"kg"<<endl;
    cout<<"I live in the "<<getHabitat()<<endl;
    printFeeding();
    printTraining();
}
```

main.cpp

```cpp
#include "Carnivore.h"
#include "Herbivore.h"
#include <iostream>
#include <cstdlib>
#include <string>
using namespace std;

int main(){
    // 7 functions
    Carnivore animalOne = Carnivore();
    animalOne.setSpecies("Tiger");
    animalOne.setHabitat("Mountain");
    animalOne.setFood("meat");
    animalOne.setWeight(80);
    animalOne.setTraining("axe throwing");
    animalOne.setFeeding("meat");
    animalOne.getInfo();

    cout<<endl;
    // 7 functions
    Herbivore animalTwo = Herbivore();
    animalTwo.setSpecies("Deer");
    animalTwo.setHabitat("Savana");
    animalTwo.setFood("grass");
    animalTwo.setWeight(40);
    animalTwo.setTraining("Juggling");
    animalTwo.setFeeding("grass");
    animalTwo.getInfo();

    system("pause");
    return 0;
}
```

Result


This is Animal Class Constructor
This is Carnivore Constructor
I am a Tiger
I eat meat
I am a Carnivore!
I weigh 80kg
I live in the Mountain
Carnivore was was fed well with meat
Carnivore was trained in axe throwing
This is Animal Class Constructor
This is Herbivore Constructor
I am a Deer
I eat grass
I am a Herbivore!
I weigh 40kg
I live in the Savana
Herbivore was was fed well with grass
Herbivore was trained in Juggling
계속하려면 아무 키나 누르십시오 . . .