Creative Software Programming Assignment#6 (week-9)

Every assignment will be announced on **Thursday** and should be sumitted by next **Tuesday**.

In this week **Handed out will be Oct 29, 2020, Due Nov 3, 2020**

1. Virtual World (100%)

Food takes a single integer variable (*point*) when initialized.
Cucumbers have *points* equal to *point* * 5 + 7.
Apple have *points* equal to the remainder of *point* divided by 3 * 9 + 10.
Blueberries have *points* equal to *point* / 3 + 9.

Animals have a **Lion**, a **Rabbit**, and a **Human**, and they take an integer variable *point* when initialized.
Lion have *point* * 3 points.
Rabbits have *point* * 2 points.
Human have *point* * 1 points.

Animals can eat (`eat`) spit (`pop`) and fight (`fight`).
The animal earns food points as it eats and stores the food it eats in stomach.
When the animal spits, it spits food with a score of 10 deducted.
When an animal fights, the opponent's points are deducted by half of its own points.

Lions can shout. If lion shout, lion's points are reduced by 5 and the food with the highest score is spit.
Rabbits can run. When rabbit run, rabbit lose 10 points and spit the food with the lowest score at rabbit's stomach.
Human can sleep. When human sleep, the points decrease by the number of foods in stomach, and the points of the next eat food increase double.

When a lion spits out the food with the lowest score.
when a rabbit spits out the food with the highest score when spitting.
When a human spits out the food ate last.

Lions gain 5 points for their fights.
The rabbit loses 5 points when fighting.
When human fights, human digests the food he ate first. (Disappears from the stomach)

The implementation will be 85%, test case scores 15%.
Create test cases to test that your implementation is complete.

Assignment Structure

- week-9
    - food.h

- animal.h
- main.cc (*for test cases*)

```
#ifndef __FOOD_H__
#define __FOOD_H__

class Food {
public:
    int point;

    Food(int point) : point(point) {}
};

class Cucumber : public Food {
public:
};

class Apple : public Food {
public:
};

class Blueberry : public Food {
public:
};

#endif


#ifndef __ANIMAL_H__
#define __ANIMAL_H__

#include <vector>

#include "food.h"

class Animal {
public:
    int point;
    std::vector<Food> stomach;

    Animal(int point) : point(point) {}

    virtual void eat(Food& food);
    virtual Food pop();
    virtual void fight(Animal& animal);
};

class Lion : public Animal {
public:
```

```
};

class Rabbit : public Animal{
public:
};

class Human : public Animal {
public:
};

#endif
```