

# CS 246 F2007 Final

1. a)  $x = 30, y = 20, z = 30$   
 $*p = 30$   
 $x = 20$   
 $y = 30$   
 $20 + 30 = 50$

Output: 50, 30

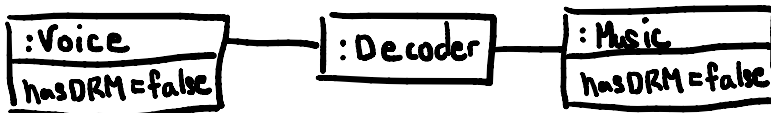
b)  $x = 30, y = 20, z = 30$   
 $*p = 30$   
 $x = 20; m = 20$   
 $y = 30; n = 30$   
 $20 + 30 = 50$

Output: 50, 20

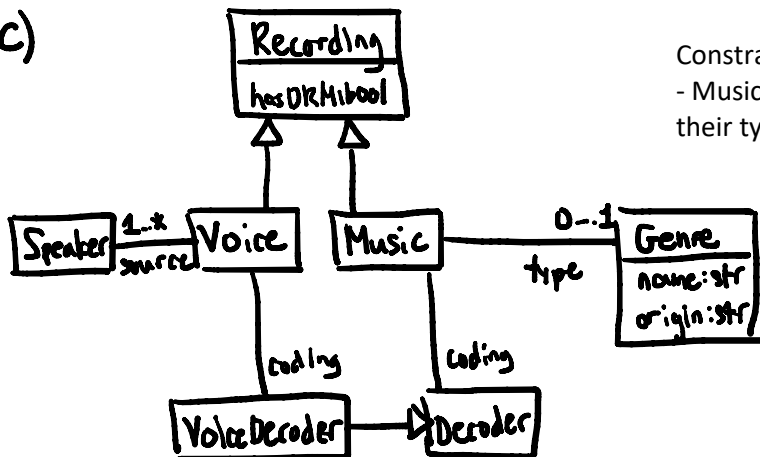
c)  $p$  is allocated on the heap but never deleted.

2. a) False: voice recordings don't have sources...?

b) True



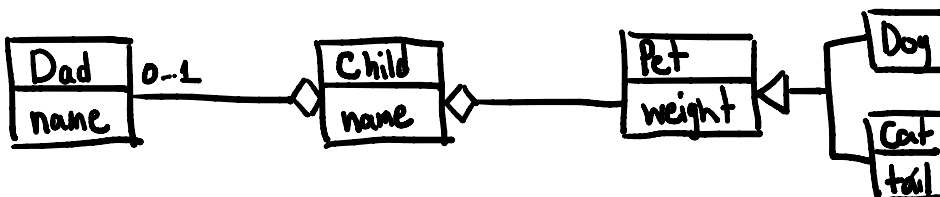
c)



Constraints:

- Music recordings don't have DRM if their type name is "INDIE".

3. a)



```

b) class Dad {
    public:
        string name;
};

class Child {
    public:
        Child(string name, Dad* dad);
        string name;
        Dad* dad;
        vector<Pet*> pets;
        void addPet(Pet*);
};

class Pet {
    public:
        Pet(int weight);
        int weight;
};

class Cat : public Pet {
    public:
        Cat(int weight, int tail);
        int tail;
};

class Dog : public Pet {
    public:
        Dog(int weight);
};

c) #include "Q3.h"
    #include <vector>

    Child* diagramA() {
        Dad* dad = new Dad("jim");
        Child* child = new Child("billy", dad);
        Cat* cat = new Cat(20, "long");
        child.addPet(cat);
        return child;
    }

```

- 4.
- 1) d
  - 2) c, d
  - 3) c, d
  - 4) c, d

5. a) Not covered :P

b) 

```
int Flock::size() {  
    return _numberOfLinks;  
}
```

c) 

```
void Flock::add(Sheep* s) {  
    if (_numberOfLinks == 0) {  
        first = new SheepLink(s, nullptr);  
        return;  
    }  
    SheepLink* lastLink = first;  
    while (lastLink->next) {  
        if (lastLink->s == s) { // Check sheep doesn't already exist  
            return;  
        }  
        lastLink = lastLink->next;  
    }  
    lastLink->next = new SheepLink(s, nullptr);  
    _numberOfLinks += 1;  
}
```