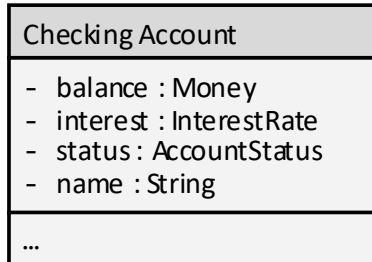


CSE 230 Problem Set 06

Problem 22.1: Checking Account Analysis

Identify the level of fidelity from the following class diagram meant to represent a checking account. This includes an account balance, interest rate, and status. You can assume that the enclosed classes (Money, InterestRate, and AccountStatus) have complete fidelity.



Rationale for whether this class is **Extraneous**:

Extraneous due to Name not being included in the class design concern.

Rationale for whether this class is **Partial**:

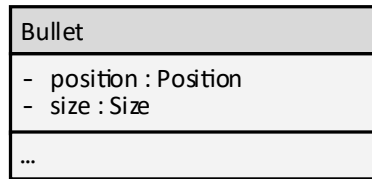
None, otherwise fulfilled

Level of fidelity:

Extraneous

Problem 22.2: Bullet Analysis

Identify the level of fidelity from the following class diagram meant to represent a bullet in a 3D game. You can assume that the enclosed classes (Position and Size) have complete fidelity.



Rationale for whether this class is **Extraneous**:

Size doesn't typically play a part in games just damage output. The hit box is what counts more. Caliber "size" is just for what types of ammo can be used with what type of gun.

Rationale for whether this class is **Partial**:

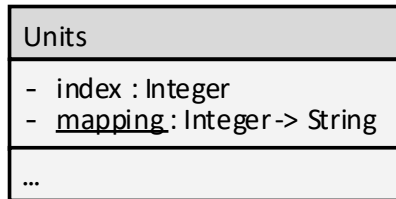
Partial due to possibly missing classes such as velocity, bullet drop, wind sway possibly a few others (range). In the design concern, we need clarification, Represent a bullet how? Bullet sitting on a shelf as part of a background image? Something that can be picked up and loaded into a fire arm? Something that is inside the fire arm and use to hit targets? Size doesn't usually play a part in games just damage output.

Level of fidelity:

Partial due to not having enough information. Bullet position could mean a lot of things. The design concern is too vague .

Problem 22.3: Units Analysis

Identify the level of fidelity from the following class diagram meant to represent a unit of an ingredient that is part of a recipe program. Here the static member variable mapping contains the following collection: {1:cups, 2:teaspoons, 3:tablespoons, 4:ounce, 5:pound}.



Rationale for whether this class is **Extraneous**:

No extra data in the class.

Rationale for whether this class is **Partial**:

Could be partial due to a lack of representation of what ounces mean. (liquid or by weight)

Level of fidelity:

Per the instructions for this assignment, I would classify this as **Partial**.... not enough information to go by. Complete based on the design concern, but partial due to not representing all forms of units. Ounces could mean either liquid or weight.

Problem 22.4: Spaceship Design

Create a class diagram exhibiting the highest possible degree of fidelity to match the following design concern:

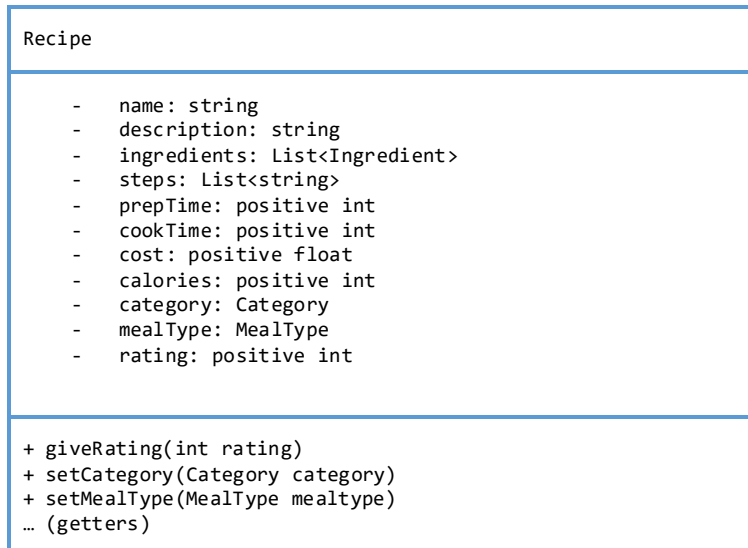
A spaceship in a 3D game has several attributes: position, velocity, orientation. It also as a ship type (one of 3 types: Beginner, Intermediate, and Advanced), a status (one of 5 types: Unharmed, Light Damage, Heavy Damage, Critical Damage, Destroyed), fuel (value from 0...100), and name.

Spaceship
<ul style="list-style-type: none">- position: Coordinate- velocity: Velocity- orientation: Coordinate- type: ShipType- status: ShipStatus- fuel: positive int- name: string
<ul style="list-style-type: none">+ addFuel(int fuel): int leftovers...

Problem 22.5: Recipe Design

Create a class diagram exhibiting the highest possible degree of fidelity to match the following design concern:

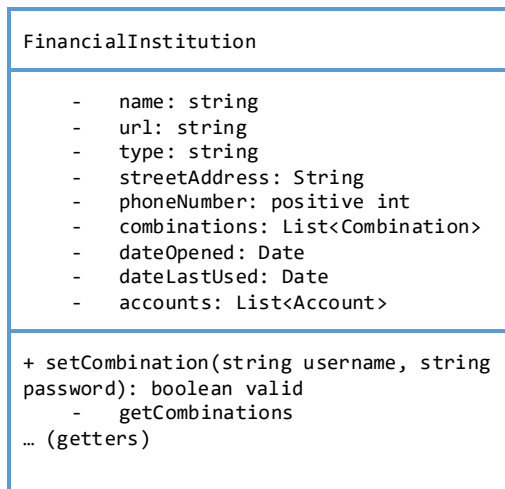
A recipe consists of several things: a collection of ingredients, a collection of process steps, a name, and a description. It also has an estimated prepare time, estimated cook time, cost, and number of calories. The user can categorize the recipe (one of 5: Appetizer, Salad, Soup, Main Course, Dessert), specify its use (one of 4: Breakfast, Lunch, Dinner, Snack), and rate it according to quality (up to 5 stars).



Problem 22.6: Financial Institution Design

Create a class diagram exhibiting the highest possible degree of fidelity to match the following design concern:

A financial institution has several properties: a name, a web site address, a type (Bank, Credit Card, Investment, Other), a street address, and a phone number. The user can also store a username and password combination. We will keep track of the date that the first account was opened, the date of the last usage, and a list of accounts associated with this institution.



Reasoning:

Multiple management accounts may be required, thus the list of combinations. Given that the type can be other, this string must therefore be able to store more possible types than the ones presented. The phone number is stored as a positive integer, but would be displayed as phone numbers are often displayed.