Problem Solving Session

- The remainder of today's class will comprise the ***problem solving session*** (***PSS***).
- Your instructor will divide you into ***teams of 3 or 4 students***.
- Each team will ***work together*** to solve the following problems over the course of ***20-30 minutes***.
  - You may work on paper, a white board, or digitally as determined by your instructor.
  - You will submit your solution by pushing it to GitHub before the end of class.
- Your instructor will go over the solution before the end of class.
- If there is any time remaining, you will begin work on your homework assignment.

Class participation is a significant part of your grade (20%). This includes in class activities and the problem solving session.

Your Course Assistants will grade your participation by verifying that you pushed your solutions before the end of the class period each day.

Problem Solving Team Members

If you are working digitally, record the name of each of your problem solving team members here.

Do not forget to ***add every team member's name***! Your instructor (or course assistant) may or may not use this to determine whether or not you participated in the problem solving session.

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Jarrett Swierk
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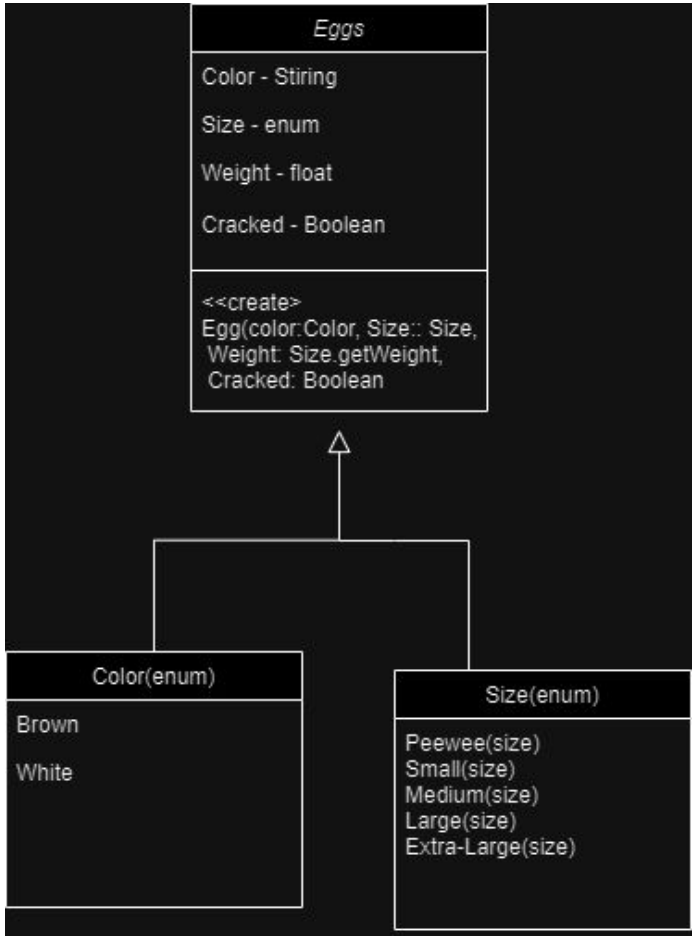
Problem Solving 1

Using the following problem statement, draw a class diagram detailing each class. Connect the classes using the right kind of relationships (association or dependency) as needed.

If you are working digitally, use a tool like draw.io to create your diagram and paste the image here. Otherwise, hand draw the diagram on paper or a whiteboard.

Chicken eggs come in two basic colors (brown and white). They also come in 6 different sizes (each of which has a minimum weight in ounces): Peewee (1.25oz), Small (1.5oz), Medium (1.75oz), Large (2.0oz), Extra-Large (2.25oz), and Jumbo (2.5oz). Every egg has a size and color. Eggs may also be cracked. All eggs start off uncracked but may become cracked.



```
Public enum EggColor{
Brown,
White;
}

Public enum EggSize{

Peewee(“1.25oz”),
Small(“1.5oz”),
Medium(“1.75oz”),
Large(“2.0oz”),
Extra-Large(“2.25oz”),
Jumbo(“2.5oz”);

Private String size;
Private EggSize(String size){
This.size = size;
}
Public String getSize(){return this.size;}


}
```

Problem Solving 2

Given that eggs come in one of two predefined colors, brown or white, what is the best Java type to use to represent the color of an egg? Define a new Java type to represent egg *colors*.

Given that eggs come in one of six predefined sizes, what is the best type to use to represent the size of an egg? Define a new Java type represent egg *sizes*. Don't forget that every egg has an associated minimum weight in ounces!

If you are working digitally and need more space, duplicate this slide.

If necessary, update the class diagram that you drew earlier to match your implementations.

Problem Solving 3

Write the code to implement the Egg class. Use the types that you created previously! If necessary, update your UML diagram based on your implementation if necessary. The requirements have been repeated below for your convenience.

Chicken eggs come in two basic colors (brown and white). They also come in 6 different sizes (each of which has a minimum weight in ounces): Peewee (1.25oz), Small (1.5oz), Medium (1.75oz), Large (2.0oz), Extra-Large (2.25oz), and Jumbo (2.5oz). Every egg has a size and color. Eggs may also be cracked. All eggs start off uncracked but may become cracked.

```
Public class Egg {

Private EggColor eggColor;
Private EggSize eggSize;
Private boolean cracked;

Public Egg(EggColor eggColor, EggSize eggSize,
boolean cracked){
this.eggColor = eggColor;
this.eggSize = eggSize;
This.cracked = false;

}




}
```

```
import java.util.random;

public static Egg randomEgg() {

        int rand = random.randInt(1,3);
        if(rand == 1){
                EggColor = EggColor(“Brown”);
        }
        else{
                EggColor = EggColor(“White”);
        }
        int rand2 = random.randInt(1,7);
        if(rand2 == 1){
                EggSize = EggSize(PeeWee);
        }
        else if(rand2 == 2){
                EggSize = EggSize(Small);
        }
        else if(rand2 == 3){
                EggSize = EggSize(Medium);
        }
        else if(rand2 == 4){
                EggSize = EggSize(Large);
        }
        else if(rand2 == 4){
                        EggSize = EggSize(Extra-Large);
                }
        else if(rand2 == 4){
                        EggSize = EggSize(Jumbo);
                }

        return Egg(EggColor, EggSize)

}
```

Problem Solving 4

You should recall that the `java.util.Random` class can be used to generate pseudorandom numbers.

Finish the method to the right such that it will return an egg of a random size and color.