

## Advanced Java Bootcamp

### Exam 2 - Java OOP and class diagram:

Pay Attention!!!

In this exam you are also measured with your ability to follow instructions.

Question 1 (20 points):

Answer this question in a text file and send it to me via slack when you are ready.

1. What is the difference between an instance and an object?
2. What is the main difference between static and dynamic binding?
3. What is the difference between association, composition, and aggregation?
4. Can you override a static method? Explain why?

Question 2 (80 points):

1. Start by creating a class diagram of your project and add it to your solution as a pdf file. The class diagram should contain fields and important methods(not set get no access modifiers).
2. IMPORTANT!!  
Create each class in a separate package under `javabootcamp.oopexam.XXXXXX` where XXXXXX should be replace according to your class name.

When you're done, please :

1. Upload the code and class diagram in a single folder (name it exam 2) to your github repository.

In this question you are required to implement a project that depicts "A toy played by a kid"

You are allowed to add fields and method as you need freely.

A kid has a name and a birth date (Local date).

Every Toy that gets played by a kid, has a name, a purchase date and a unique serial number.

A toy is designated to kids in certain age group:

- A. 0-1 year old.
- B. 2-4 years old.

C. 5-10 years old.

A toy is broken if it is more than a year old.

A toy can be played by a kid only if the toy is not broken and if the kid's age is in the toy's age group.

A Doll is a Toy that is designated for kids from the age groups A and B only.

A doll can be soft (like a teddy bear) or hard (like a Barbie doll).

A doll gets dirty the more it gets played with.

The dirtiness is measured in a scale of 1 to 10.

When a kid plays with a doll, the doll dirtiness increases by one.

An electric Toy is a toy that operates on batteries.

Each electric toy operated on a specific number of batteries.

An Electric Toy sound can be set in a level of 0 to 3.

When a kid plays with an Electric toy, the sound level decreases by one.

Create a Runner with a main method with an array of 4 Toy class elements. 2 of the elements should refer to Dolls and 2 to Electric Toys.

In a loop print the toString of the toys;

In a loop play with the Toys.

Play should do what describes in the class description above and also output a text that describes the outcome.