



Final Fantasy XVI © Square Enix

Exercise 1 – Game Dev

Design the classes **Game** and **Developer** with the following in mind:

- A **Game** has a *name* which cannot be changed.
- A **Game** has a *versionCode*, which can be incremented.
- A **Game** has a *developer*, which can change.
- A **Developer** has a *name* and is from a *country*. Neither properties can change.

Design the classes and their attributes with the appropriate access modifiers, as well as getter/setter methods where needed. Also provide custom implementations of the **toString()** method for both classes.

Test your two classes in a separate **Launcher** class.

Exercise 2 – Dominant

In the video game *Final Fantasy XVI*, the main character **Clive** can acquire the powers of so-called **Eikons**, which are powerful beings of a certain elemental aspect. Design the classes **Clive** and **Eikon** according to the following:

- **Clive** starts off with just the **Eikon** "Ifrit" ("Fire" aspect).
- **Clive** can acquire new **Eikons** through his method **acquireEikon(Eikon)**. However, he cannot acquire an **Eikon** which he already has.
- An **Eikon** has a *name* and an elemental *aspect* (Fire, Wind, ...), neither of which can change.
- While **Clive** can hold multiple **Eikons** inside him, only one of them can be active at a given time. Implement a method **changeEikon()** allowing him to quickly swap to the next **Eikon** he owns.
- Once acquired, Clive can never lose an **Eikon**.
- Provide custom implementations of the **toString()** method for both classes.

Test your two classes in a separate **Launcher** class.

Exercise 3 – Play Has No Limits

The new **Console PlayStation 5** comes with a built-in SSD which cannot be removed or replaced. To play on the **Console**, a **Controller** has to be connected to it, though you can always change which **Controller** is connected to the **Console**. Design the classes **Console**, **Disk** and **Controller** according to the following:

- 1° **Disk** has a fixed *maximumCapacity* in the range [1024, 1000000]. The amount of storage currently in use is indicated by its property *usedCapacity*, which can change.
- 2° **Controller** has a unique *deviceId* which cannot change.
- 3° **Controller** has a *batteryLevel* in the range [0, 100] and it starts at 100. The *batteryLevel* can change.
- 4° **Console** has a fixed **Disk** which cannot be replaced.
- 5° **Console** has a method **installGame(int size)** to install a game to its **Disk**. It should return a boolean value indicating whether the installation was successful or not.
- 6° **Console** can have a **Controller**, which can also be replaced.
- 7° **Console** has a method **getAvailableStorage()** to retrieve the remaining capacity of its **Disk**.
- 8° Provide custom implementations of the **toString()** method for all classes.

Test your classes in a separate **Launcher** class.

Unique ID

To generate unique identifiers, look into the [UUID](#) class.



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