

1

# What is Java?

Java Introduction

Java is a popular programming language, created in 1995.

It is owned by Oracle, and more than **3 billion** devices run Java. It is used for:

* Mobile applications (especially Android apps)
* Desktop applications
* Web applications
* Web servers and application servers
* Games
* Database connection
* And much, much more!

# Why Use Java?

Java works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.) It is one of the most popular programming languages in the world

It has a large demand in the current job market It is easy to learn and simple to use

It is open-source and free

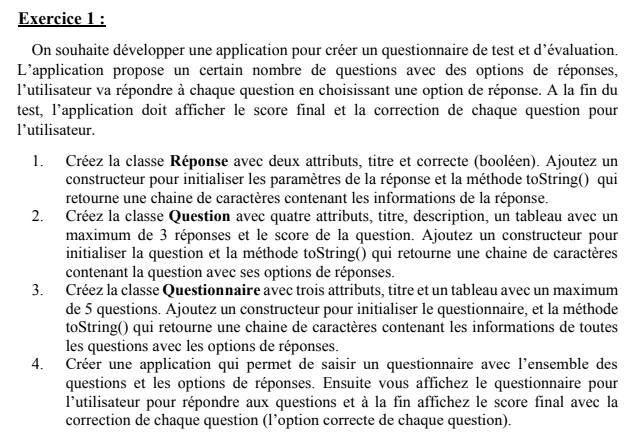
It is secure, fast and powerful

It has a huge community support (tens of millions of developers)

Java is an object-oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs

As Java is close to [C++](https://www.w3schools.com/cpp/default.asp) and [C#](https://www.w3schools.com/cs/default.asp), it makes it easy for programmers to switch to Java or vice versa

# Exercise 1:



*Figure 1: Exercise 1*

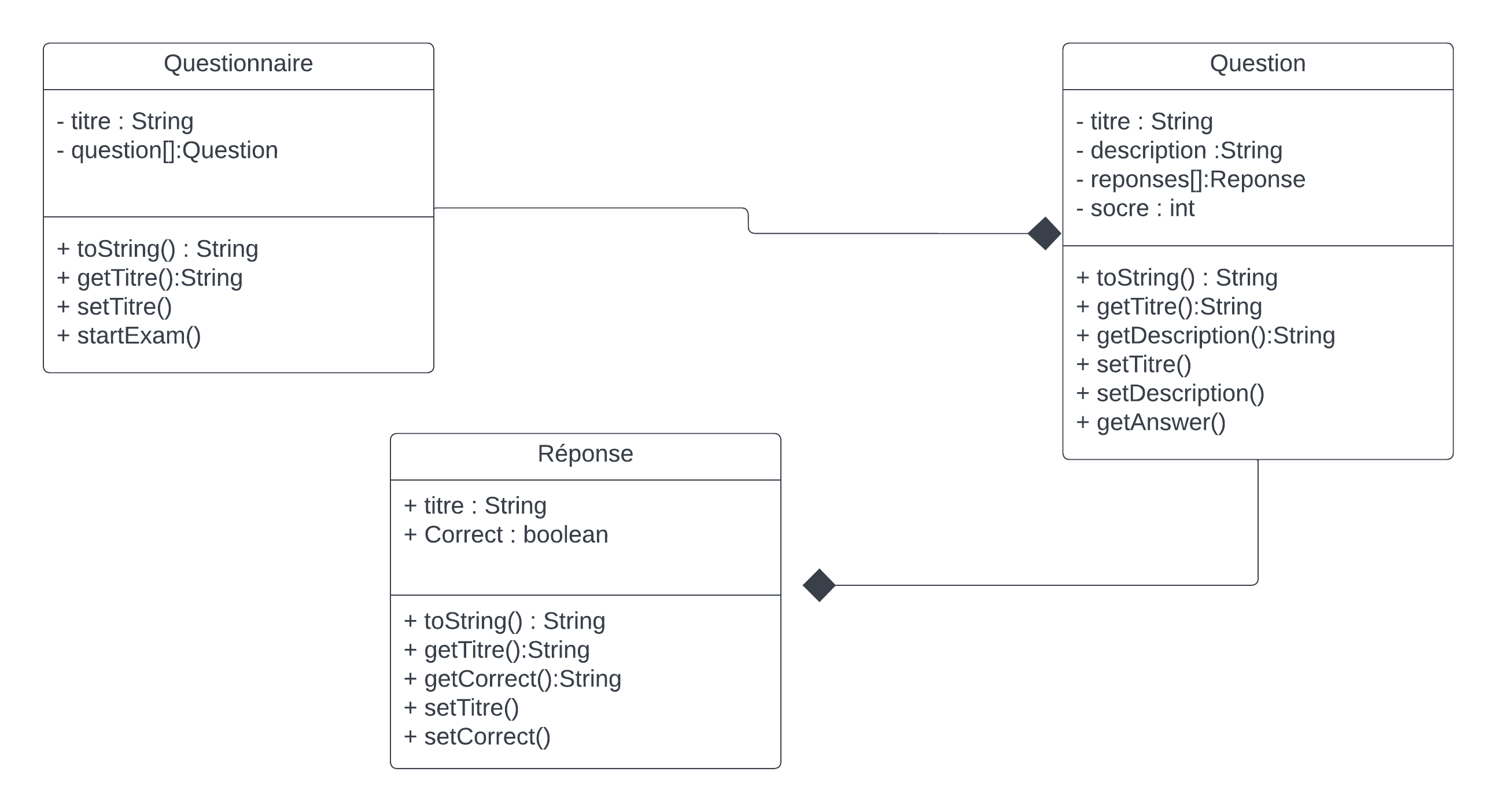
* *In this exercise, we will try to develop a simple java application that will present a list of questions for the user to enter their answer for each question.*

***Step 1: Conception***

*The*[*UML*](https://en.wikipedia.org/wiki/Unified_Modeling_Language)*Class diagram is a graphical notation used to construct and visualize object-oriented systems. A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes*

*the structure of a system by showing the system's:*

* *classes,*
* *their attributes,*
* *operations (or methods),*
* *and the relationships among objects*

**

*Figure 2: UML Class Diagram*

***Step 2: Development***

1. ***Response class:***

*In this class we automatically generate the following methods:*

***Constructors****: A constructor in Java is a****special method****that is used to initialize objects. The constructor is called when an object of a class is created. It can be used to set initial values for object attributes.*

***Getters – Setters :*** *Getter and Setter are methods used to protect your data and make your code more secure. Getter returns the value (accessors), it returns the value of data type int, String, double, float, etc. For the program’s convenience, getter starts with the word “get” followed by the variable name.*

***toString() :*** *is an in-built method in Java that returns the value given to it in string format. Hence, any object that this method is applied on, will then be returned as a string object.*

**

*Figure 3: Response Class*

1. ***Question class:***

***Une image contenant texte

Description générée automatiquement Une image contenant texte

Description générée automatiquement***

*Figure 4: Question Class*

1. ***Questionnaire class:***

*Une image contenant texte

Description générée automatiquement*

*Une image contenant texte

Description générée automatiquement*

*Figure 5: Question Class*

* *StartExam is the main method that will display the questions + and calculate the score*

# Conclusion

*Everything in Java is associated with classes and objects, along with its attributes and methods. For example: in real life, a car is an object. The car has****attributes****, such as weight and color, and****methods****, such as drive and brake.*