Problem Statement:

Let's consider a scenario where we need to manage a collection of online courses. Each course may have different types (e.g., Programming, Mathematics, Literature) and various attributes associated with them (e.g., title, instructor, duration). You are tasked with creating a system to manage the online courses for a learning platform. The system should ensure that only one instance of the course manager exists throughout the application and provide a way to create instances of different types of courses dynamically.

1. Design a course management system using appropriate design patterns to dynamically create instances of different types of courses.
2. Your solution should allow the client code to print the unique properties/information of the courses.
3. Your solution should be extensible so that adding new types of courses can be done without modifying existing code.
4. Throw “IllegalArgumentException” if the dynamically created instance is not a type of course. Perform unit testing for this.