**Assignment: Object-Oriented Programming in Java**

**Part 1: Theory Questions**

1. **Define and explain the following terms:**
   * Object
   * Class
   * Encapsulation
   * Inheritance
2. **Discuss the benefits of encapsulation in Java. Provide examples to illustrate your points.**
3. **Explain the concept of inheritance in Java. How does it promote code reuse? Provide an example with a superclass and a subclass.**

**Part 2: Practical Application**

Problem 1: Class Design

Consider the scenario of managing a library. Design and implement the following classes:

* **Book** class with the following attributes:
  + Title
  + Author
  + Year of publication
* **Library** class that encapsulates a collection of **Book** objects.

Problem 2: Constructors

1. Implement a parameterized constructor in the **Book** class to initialize its attributes.
2. Implement a default constructor in the **Library** class to initialize an empty collection of books.
3. Overload the constructors in the **Book** class to provide flexibility for creating objects.

Problem 3: Inheritance

Extend the **Book** class to include a **Magazine** subclass. The **Magazine** class should have an additional attribute for the publication frequency (e.g., monthly, weekly).

Problem 4: Encapsulation

Make appropriate fields in the **Book** and **Magazine** classes private. Provide public methods to access and modify these fields.

**Part 3: Submission**

Submit your assignment as a zip file containing:

* A document with the theoretical answers (Part 1).
* Java source code files for the implemented classes and constructors (Part 2).
* A brief explanation of the design choices made in the implementation.