Task 4 Report: Museum Management System

General Introduction

The task involves creating a Java application to manage a museum, focusing on implementing the LegalEntity interface and effectively managing artifacts within the museum's collection. The implementation includes defining classes for artifacts and the museum itself, enabling operations such as artifact addition, storage, retrieval, and basic management of museum identity.

Description of Classes

1. **LegalEntity Interface**
    - **Functionality:**
        - **Defines methods `getName()` and `getAddress()` to retrieve the name and address of the entity.**
        - **Defines methods `setName(String name)` and `setAddress(String address)` to set or update the name and address of the entity.**
    - **Goal:**
        - **Provides a blueprint for any entity to maintain and update its identity details.**

Artifact Class

- **Functionality:**
    - **Represents an artifact with attributes such as name, origin, and year.**
    - **Provides methods to retrieve and modify these attributes (`getName()`, `getOrigin()`, `getYear()`, `setName(String name)`, `setOrigin(String origin)`, `setYear(int year)`).**
    - **Includes a method to print detailed information about the artifact (`printDetails()`).**
- **Goal:**

    - **Facilitates the storage and management of detailed information about each artifact within the museum's collection.**

Museum Class

- **Functionality:**
    - **Implements the LegalEntity interface to manage the museum's identity (`getName()`, `setName(String name)`, `getAddress()`, `setAddress(String address)`).**
    - **Maintains a list of artifacts (`List<Artifact> artifacts`) to store and manage the museum's collection.**
    - **Provides methods to add artifacts (`addArtifact(Artifact artifact)`), save the list of artifacts to a file (`saveArtifactsList(String filename)`), load artifacts from a file (`loadArtifactsList(String filename)`), and print details of all artifacts (`printArtifactsList()`).**
- **Goal:**
    - **Acts as the central controller for museum operations, ensuring artifacts are efficiently managed, stored, and retrieved.**

Conclusion

The implementation of Task 4 creates a robust museum management system in Java, leveraging object-oriented principles to encapsulate artifact and museum identity details. By adhering to the LegalEntity interface and implementing artifact management functionalities, the system ensures efficient data handling and retrieval. This approach not only supports the organizational needs of a museum but also demonstrates effective use of Java programming concepts for data encapsulation and persistence.

Submission

The detailed Java implementation for Task 4 can be found within the finalexam.task4 package. This package includes classes that adhere to the LegalEntity interface and effectively manage museum artifacts. The classes are designed to meet the specified requirements and demonstrate proficiency in object-oriented design and file handling techniques.