Lab1: Object, Class, JUnit

1 Objective

- Design the basic principles of program design with objects and classes (OOP) including setters & getters, constructor, etc.
- Understand the class UML diagram and be able to implement java project in Eclipse
- Be able to use JUnit Test Framework in order to make a program without errors

2 Problem Statement: Art Museum

Mr.Somchai is a curator at a local art museum. He wants a program that helps him keep track of artworks and artists in each exhibition. Write an object oriented program to help Mr.Somchai with his job.

3 Implementation Details

In this part, you will write a program which contains three classes:

1. Artist
   - This class encapsulates the details of each artist.
2. ArtWork
   - This class encapsulates the details of each artwork including its artist(s).
3. Exhibition
   - This class encapsulates the details of each exhibition including its artworks.
   - This is the main class of the program

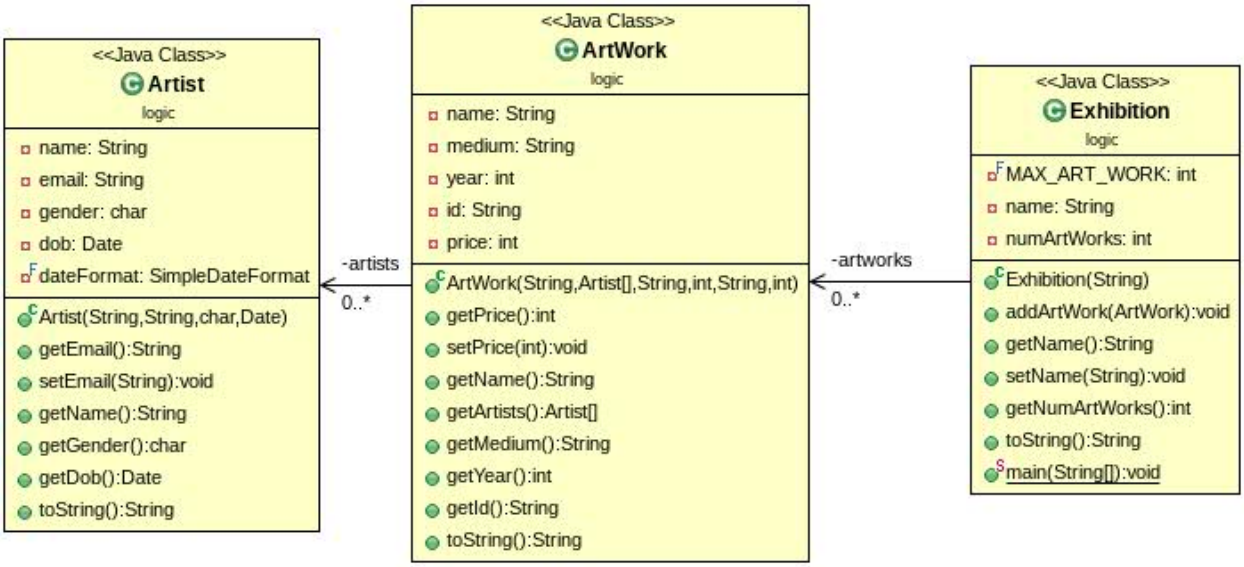

Figure 1. The UML diagram of the program.

3.1 Class: Artist

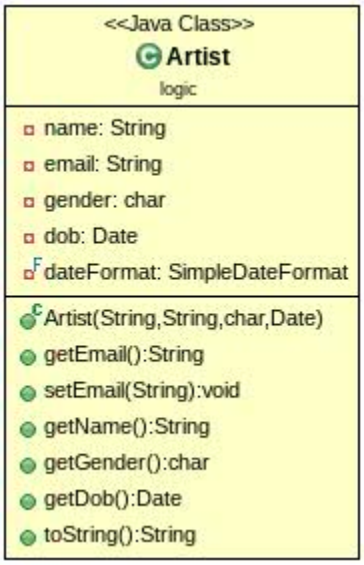

Figure 2. The UML diagram of Artist

3.1.1 Field

- String name: name of the artist
- String email: email of the artist
- char gender: geneder of the artist
- Date dob: date of birth of the artist
- SimpleDateFormat dateFornat: set the date format to `"dd/MM/yyyy"`

3.1.2 Constructor

- `Artist(String name, String email, char gender, Date dob);`

3.1.3 Method

- Getters & Setters
  - Create getters for name, email, gender, dob
  - Create a setter for email
- String toString() : Please look at our JUnit test module for an expected result.

3.2 Class: ArtWork

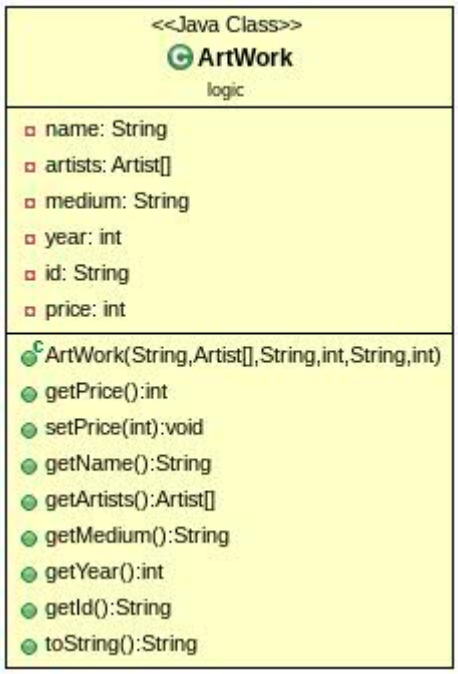

Figure 3. The UML diagram of ArtWork

3.2.1 Field

- String name: name of the artwork
- Artist [] artists: An array that contains a list of artists

- String medium: the medium of the artwork (e.g. paper)
- int year: year when the artwork was created
- int price: price of the artwork

3.2.2 Constructor

- `ArtWork(String name, Artist [] artists, String medium, int year, String id, int price)`

3.2.3 Method

- Getters & Setters
  - Create getters for name, artists, medium, year, price
  - Create a setter for price
- String toString() : Please look at our JUnit test module for an expected result.

3.3 Class: Exhibition

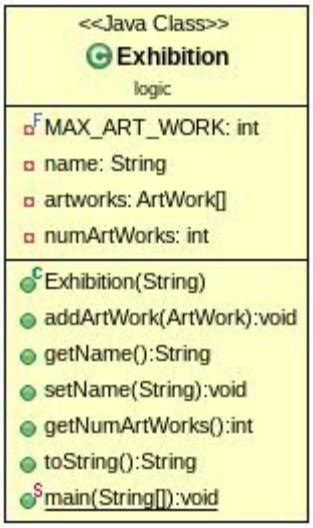

Figure 4. The UML diagram of Exhibition

3.3.1 Field

- final int MAX_ART_WORK; Maximum number of artworks in the exhibition
- String name: name of the exhibition
- Artwork [] artworks: artworks in the exhibition (the size of the array shold be MAX_ART_WORK)
- int numArtWorks: Current number of artworks in the exhibition

3.3.2 Constructor

- `Exhibition(String name)`

3.3.3 Method

- Getters for name and numArtworks
- Setter for name
- void addArtWork(ArtWork artWork) : Add ArtWork to the exhibition if the number of artworks has not reached the maximum number. Else, Print a message to tell Mr.Somchai to tell him thatwe cannot add another artwork. (The message could be anything)
- String toString() : Please look at our JUnit test module for an expected result.