Ex No: 4	CLASS DIAGRAM
Date : 09/08/2021	

AIM

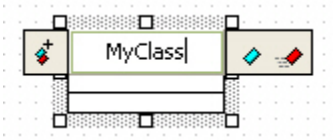
Class diagrams identify the class structure of a system, including the properties and methods of each class. It specifies the various relationships that can exist between classes, such as an inheritance. The Class diagram is one of the most widely used diagrams from the UML specification. Part of the popularity of Class diagrams is the fact that many CASE tools, such as Rationale Rose, will provide clarity of the designing process.

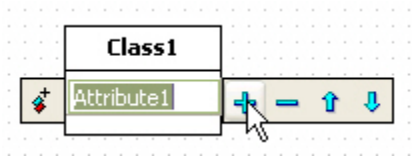
DESCRIPTION

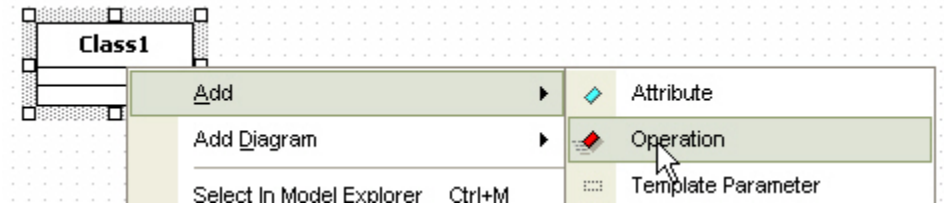
The basic components on a Class diagram are classes and the relationships between them.

Class

A class is depicted using a rectangle divided into 3 sections. The top section is the name of the class. The middle section defines the properties of the class. The bottom section lists the methods of the class.





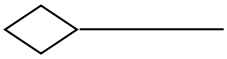


Association

An Association is a generic relationship between two classes, and is modeled by a line connecting the two classes. This line can be qualified with the type of relationship, and can also feature multiplicity rules (for eg. One-to-one, one-to-many, many-to-many) for the relationship.

Composition

If a class cannot exist by itself, and instead must be a member of another class, then that class has a Composition relationship with the containing class. A composition relationship is indicated by a line with a filled diamond.

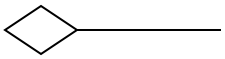


Dependency

A Dependency relationship is indicated by a dotted arrow.

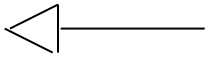
Aggregation

Aggregations indicate a whole-part relationship and are known as “has-a” relationships. An Aggregation relationship is indicated by a line with a hollow diamond.



Generalization

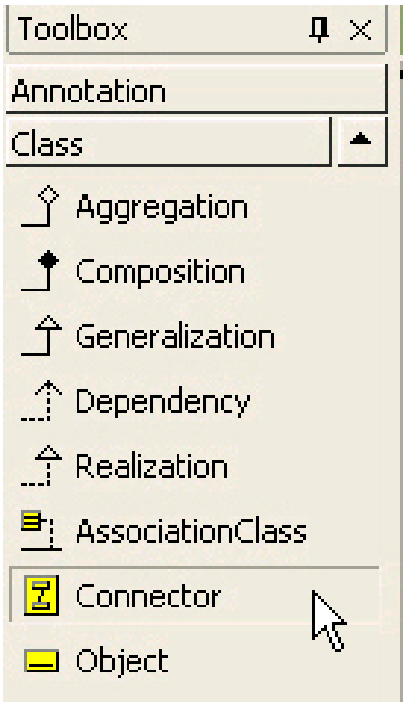
A Generalization relationship is the equivalent of an inheritance relationship in object-oriented terms. (“is-a” relationship). A Generalization relationship is indicated by an arrow with a hollow arrow head pointing to the base or “parent” class.



Association

Object diagrams can contain associations as well. Often, the constraints, relationship details and multiplicity rules found in the Class diagram are left out to concentrate the diagram on the objects and their properties. Associations between objects are simply diagrammed using a line joining the two objects

Tool Box for class diagram



ALGORITHM

Step 1: Identify the various classes that behave as main to perform various functions in the system.

Step 2: Define all its attributes and what operations they perform.

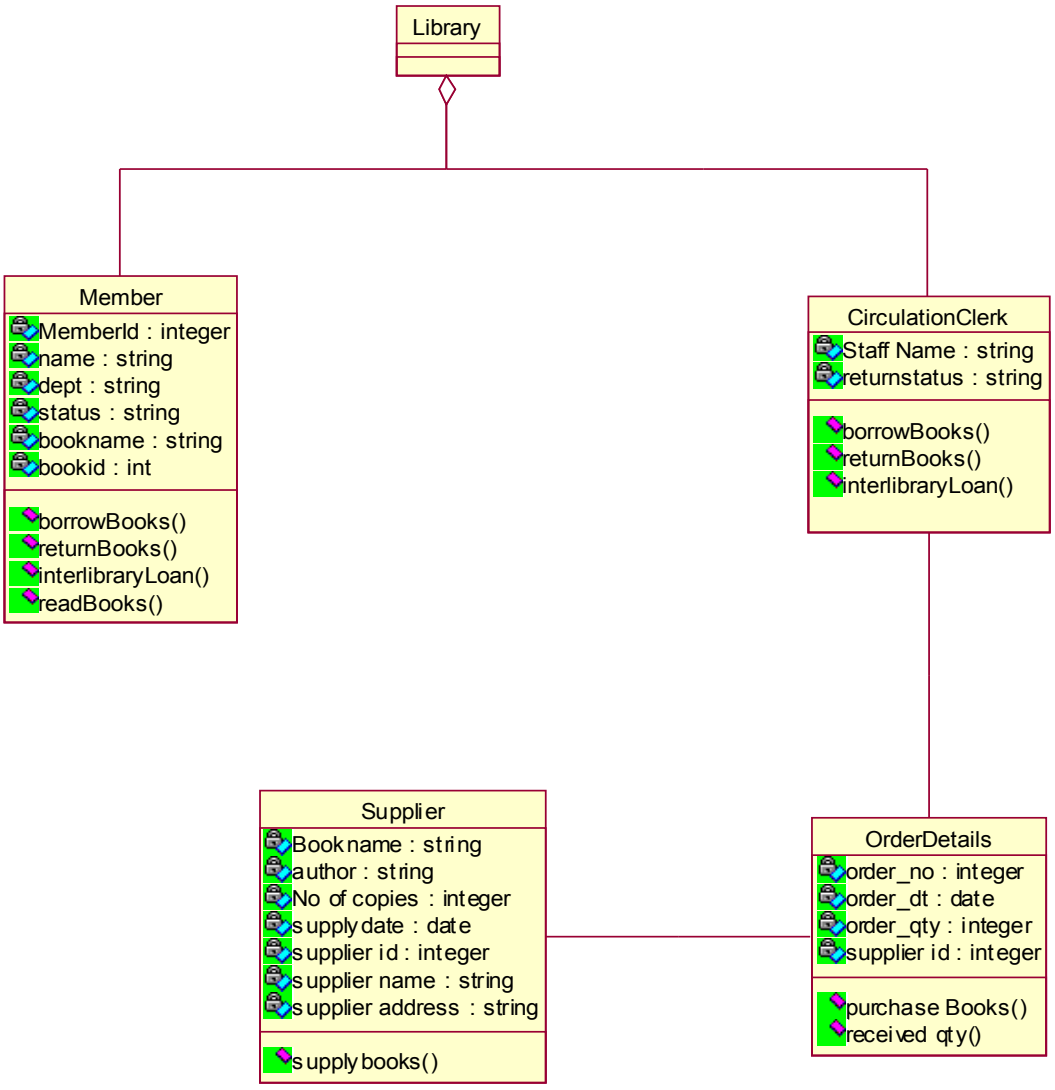
Step 3: Identify the various relationships among the classes.

Step 4: The relationship between a class and its subclass is represented by generalization.

Step 5: Design the class diagram for the Library Information System using the tools provided.

SAMPLE OUTPUT:

PASTE CLASS DIAGRAM OF YOUR APPLICATION HERE



RESULT:

Class diagrams identify the class structure of a system, including the properties and methods of each class and the relationships between them are designed successfully.