Title - UML Diagram.

Objective of the Experiment - To understand designing of ER diagram.

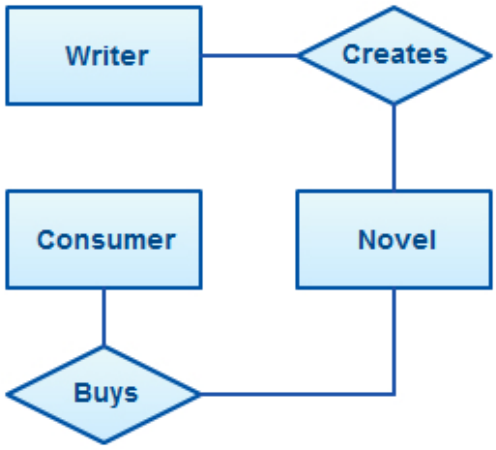
Problem Statement - Developer wants to know how many entities are involved, what are their respective attributes and relationship between the entities for implementation phase. Draw the ER diagram for the respective project.

Outcome of the Experiment - Must be able to design ER diagram.

Description - UML is an acronym that stands for Unified Modeling Language. Simply put, UML is a modern approach to modeling and documenting software. In fact, it's one of the most popular business process modeling techniques.

It is based on diagrammatic representations of software components. As the old proverb says: "a picture is worth a thousand words". By using visual representations, we are able to better understand possible flaws or errors in software or business processes.
Mainly, UML has been used as a general-purpose modeling language in the field of software engineering. However, it has now found its way into the documentation of several business processes or workflows. For example, activity diagrams, a type of UML diagram, can be used as a replacement for flowcharts. They provide both a more standardized way of modeling workflows as well as a wider range of features to improve readability and efficacy.

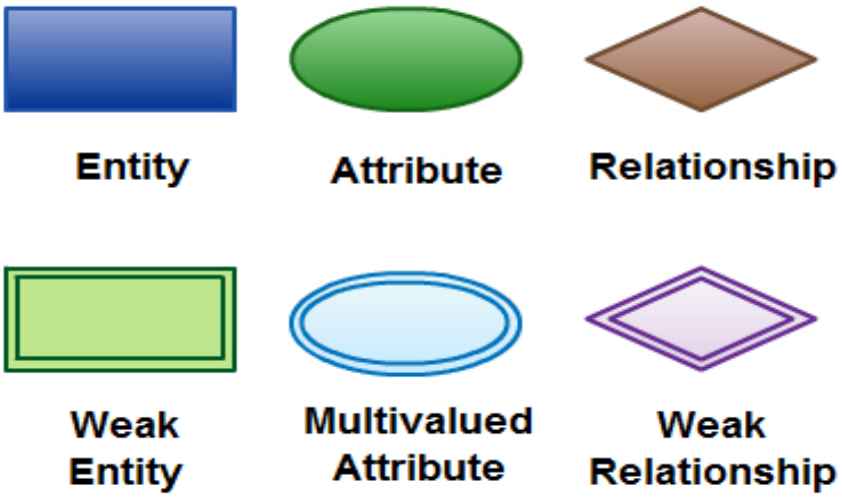
ER Diagram - Entity Relationship Diagrams are a major data modelling tool and will help organize the data in your project into entities and define the relationships between the entities. This process has proved to enable the analyst to produce a good database structure so that the data can be stored and retrieved in a most efficient manner.



Entity - A data entity is anything real or abstract about which we want to store data. Entity types fall into five classes: roles, events, locations, tangible things or concepts. E.g. employee, payment, campus, book. Specific examples of an entity are called instances. E.g. the employee John Jones, Mary Smith's payment, etc.

Relationship - A data relationship is a natural association that exists between one or more entities. E.g. Employees process payments. Cardinality defines the number of occurrences of one entity for a single occurrence of the related entity. E.g. an employee may process many payments but might not process any payments depending on the nature of her job.

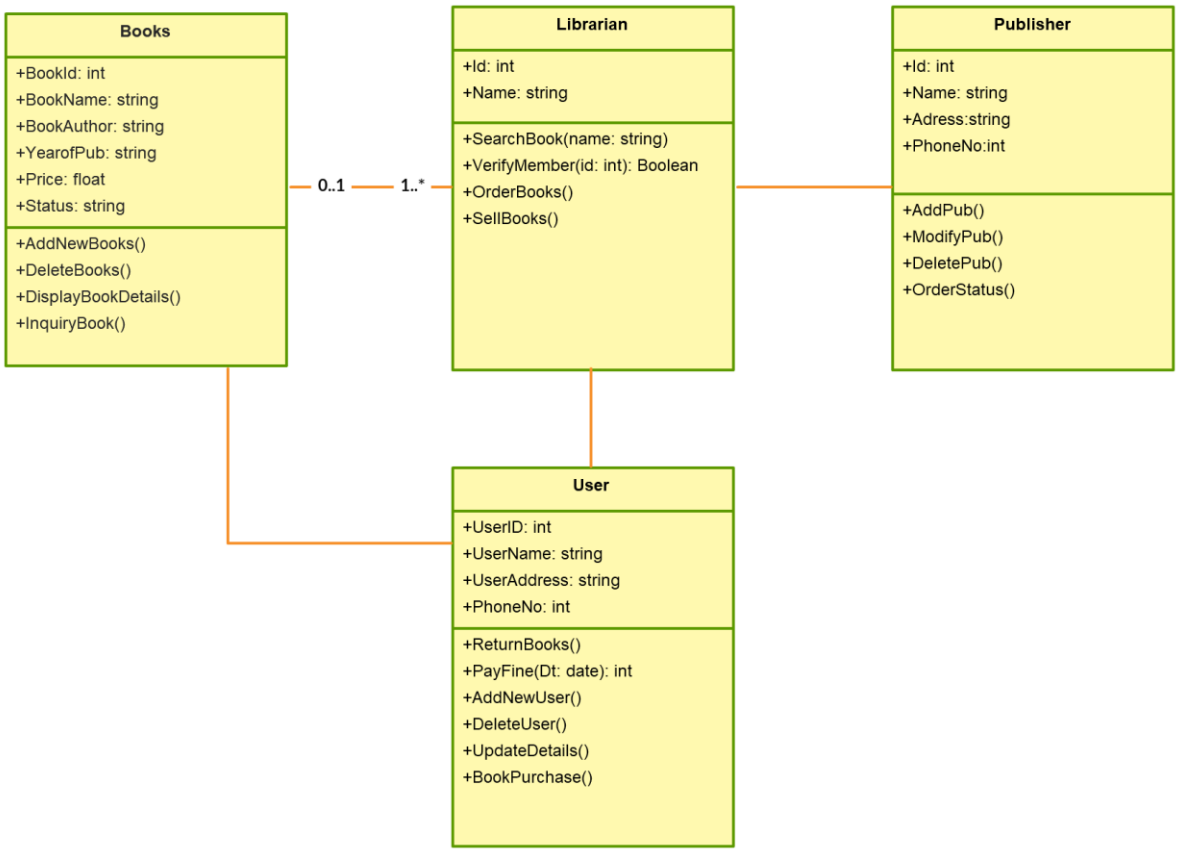
Attribute - A data attribute is a characteristic common to all or most instances of a particular entity. Synonyms include property, data element, field. E.g. Name, address, Employee Number, pay rate are all attributes of the entity employee. An attribute or combination of attributes that uniquely identifies one and only one instance of an entity is called a primary key or identifier. E.g. Employee Number is a primary key for Employee.



How to Draw ER Diagrams -

Below points show how to go about creating an ER diagram.

1. Identify all the entities in the system. An entity should appear only once in a particular diagram. Create rectangles for all entities and name them properly.
2. Identify relationships between entities. Connect them using a line and add a diamond in the middle describing the relationship.
3. Add attributes for entities. Give meaningful attribute names so they can be understood easily.



Benefits of ER diagrams -

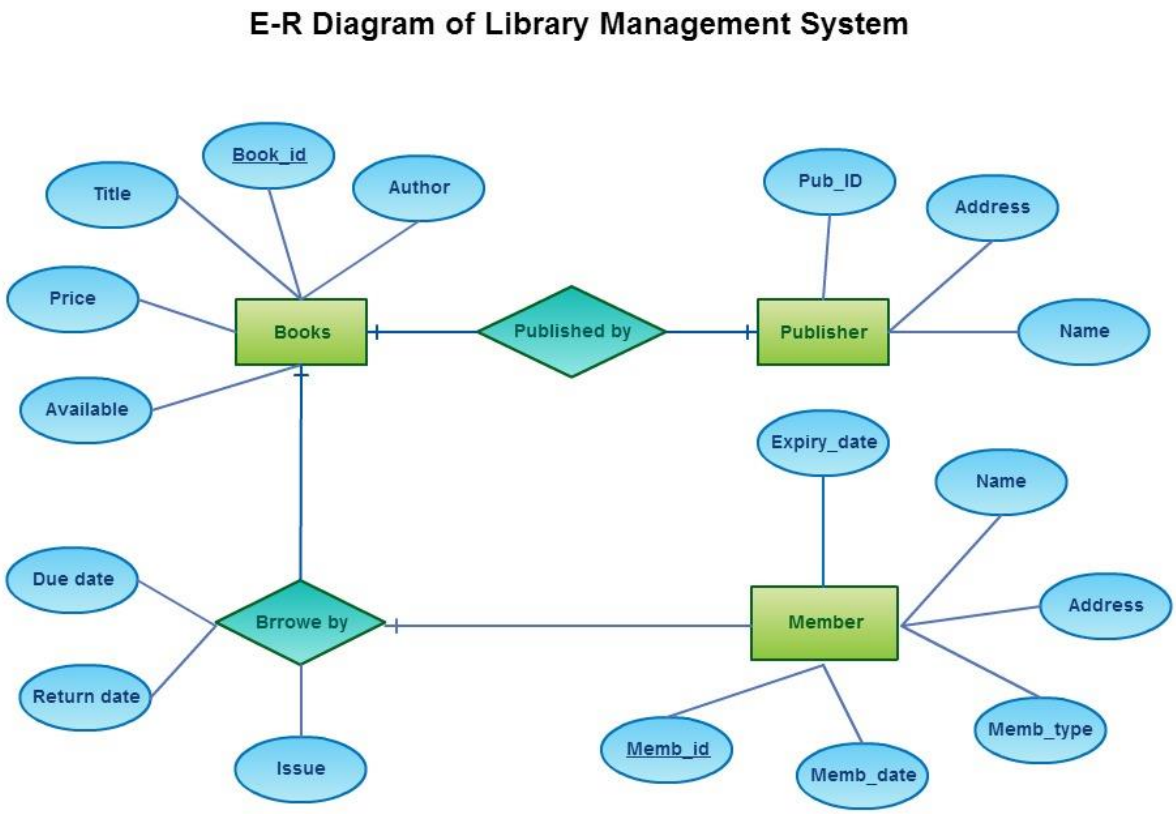
ER diagrams constitute a very useful framework for creating and manipulating databases. First, ER diagrams are easy to understand and do not require a person to undergo extensive training to be able to work with it efficiently and accurately. This means that designers can use ER diagrams to easily communicate with developers, customers, and end users, regardless of their IT proficiency. Second, ER diagrams are readily translatable into relational tables which can be used to quickly build databases. In addition, ER diagrams can directly be used by database developers as the blueprint for implementing data in specific software applications. Lastly, ER diagrams may be applied in other contexts such as describing the different relationships and operations within an organization.

Disadvantages of E-R Data Model -

Following are disadvantages of an E-R Model:

1. No industry standard for notation: There is no industry standard notation for developing an E-R diagram.

2. Popular for high-level design: The E-R data model is especially popular for high level.



Result - Hence the ER Diagram is designed.