Assignment:-7:

Q) Explain the unified modelling language with example.

Ans) Unified Modelling language (UML) is a general purpose modelling language. The main aim of UML is to define a standard way to visualize the way a system has been designed. Unified modelling language (UML) is a standardized modeling language used in software engineering to visualize, specify, construct and document the artifacts of a system. It provides a set of graphical notations to create abstract models of software system.

Key components of UML:
UML consists of structure diagrams and behavious diagrams.

> Structure Diagrams:
They are visual representations that depict the static aspects of a system, including its classes, objects, components and their relationships, providing a clear views of the system's architecture.

- > Class Diagram
- > Object diagram
- > Component Diagram
- > Deployment Diagram

> Behavious Diagram:
A state diagram is used to represent the condition of the system or part of the system at finite instances of time.

> Use Case Diagram
> Sequence Diagram
> Activity Diagram
> State Diagram.

→ Example of UML Diagram - Class Diagram.

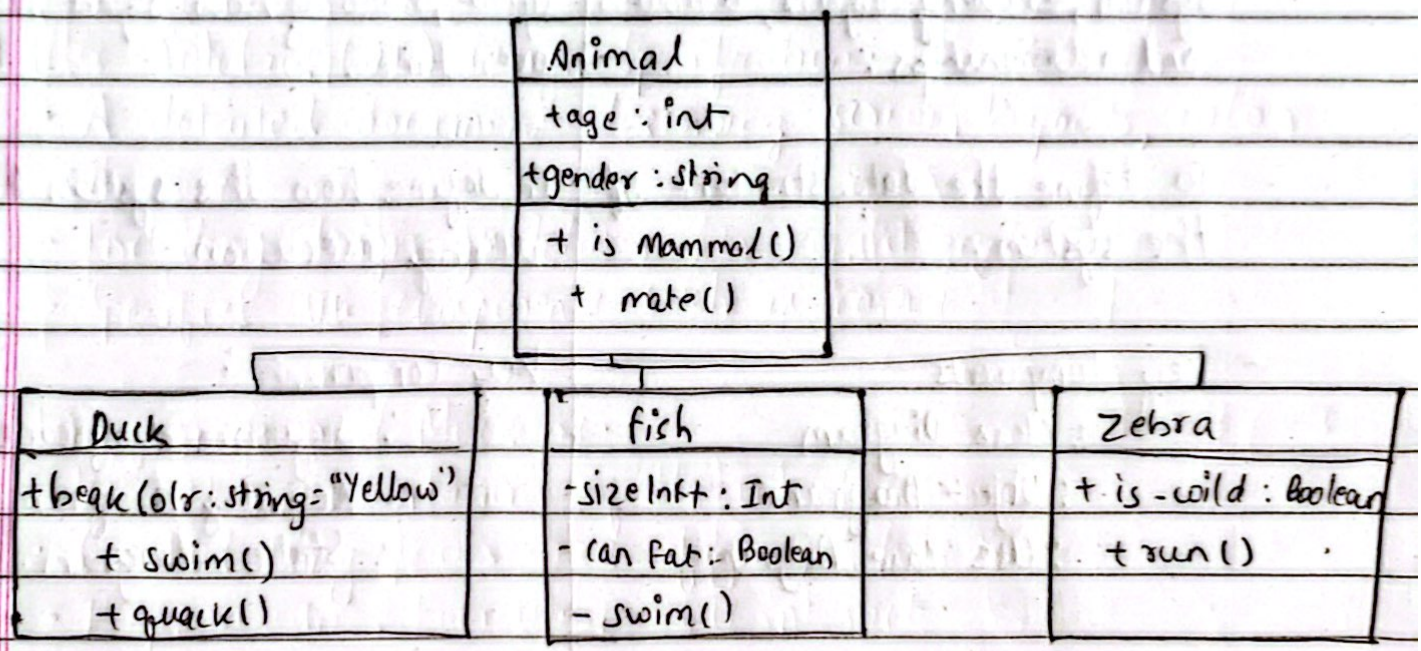

Fig: Class Diagram

Q. Differentiate between Object Modelling and Dynamic Modelling.

Ans→ The differences are :-

Object Modelling	Dynamic Modelling
- Represents the static structure of a system, showing objects, attributes and relationships.	Represents the dynamic behaviour of a system, showing how object interact over time.
- To define the data structure of the system.	To define how the system behaves during execution.
- Key components : Class Diagram : Object Diagram : Use Case Diagram	Key components : : Sequence diagrams. : Activity diagrams : State diagram.
- Continues what the system is made of.	Continues how the system behaves.
- Eg : A class diagram showing different entities in a library Management system (Book, Member, Librarian).	- Eg : A sequence diagram showing the process of issuing a book to a member.

Q. What are the major differences between Analysis and Design?

Ans → The differences are:

Analysis	Design
- Focuses on understanding the problem domain and gathering requirements.	Focuses on defining the architecture and components to build the function.
- Identifies what the system should do.	Defines how the system will do it.
- Key Activities • Requirement Gathering • Use Case Modeling • Identifying System Constraints.	Key activities :- Designing system architecture. : Database Design : UI / UX design
- Output : Functional requirements. : Use Case diagrams : Object Models.	Output : Class Diagrams : Sequence diagrams : Database schema
- Eg : Understanding User requirements for an E-commerce Website (Login, Browse Product, Add + Cart).	Eg :- Designing the database schema and class structure for the E-commerce website.