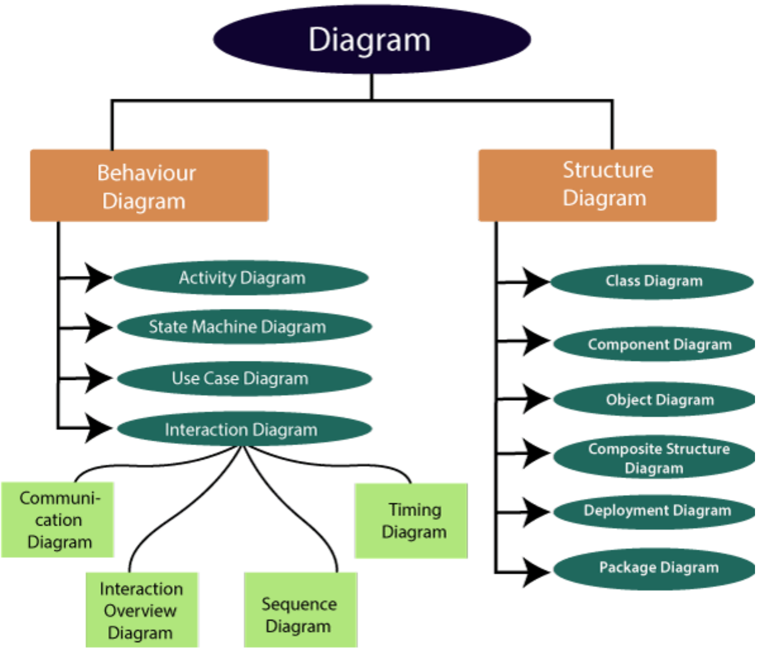
V.LOGESH

UML DIAGRAMS

UML-Diagrams:

The UML diagrams are categorized into structural diagrams, behavioral diagrams, and also interaction overview diagrams. The diagrams are hierarchically classified in the following figure



1. Structural Diagrams

Structural diagrams depict a static view or structure of a system. It is widely used in the documentation of software architecture. It embraces class diagrams, composite structure diagrams, component diagrams, deployment diagrams, object diagrams, and package diagrams. It presents an outline for the system. It stresses the elements to be present that are to be modeled.

Class Diagram:

Class diagrams are one of the most widely used diagrams. It is the backbone of all the object-oriented software systems. It depicts the static structure of the system. It displays the system's class, attributes, and methods. It is helpful in recognizing the relation between different objects as well as classes.

Composite Structure Diagram:

The composite structure diagrams show parts within the class. It displays the relationship between the parts and their configuration that ascertain the behavior of the class. It makes full use of ports, parts, and connectors to portray the internal structure of a structured classifier. It is similar to class diagrams, just the fact it represents individual parts in a detailed manner when compared with class diagrams.

Object Diagram:

It describes the static structure of a system at a particular point in time. It can be used to test the accuracy of class diagrams. It represents distinct instances of classes and the relationship between them at a time.

Component Diagram:

It portrays the organization of the physical components within the system. It is used for modeling execution details. It determines whether the desired functional requirements have been considered by the planned development or not, as it depicts the structural relationships between the elements of a software system.

Deployment Diagram:

It presents the system's software and its hardware by telling what the existing physical components are and what software components are running on them. It produces information about system software. It is incorporated whenever software is used, distributed, or deployed across multiple machines with dissimilar configurations.

Package Diagram:

It is used to illustrate how the packages and their elements are organized. It shows the dependencies between distinct packages. It manages UML diagrams by making it easily understandable. It is used for organizing the class and use case diagrams.

2. Behavioral Diagrams:

Behavioral diagrams portray a dynamic view of a system or the behavior of a system, which describes the functioning of the system. It includes use case diagrams, state diagrams, and activity diagrams. It defines the interaction within the system.

State Machine Diagram:

It is a behavioral diagram. it portrays the system's behavior utilizing finite state transitions. It is also known as the State-charts diagram. It models the dynamic behavior of a class in response to external stimuli.

Activity Diagram:

It models the flow of control from one activity to the other. With the help of an activity diagram, we can model sequential and concurrent activities. It visually depicts the workflow as well as what causes an event to occur.

Use Case Diagram:

It represents the functionality of a system by utilizing actors and use cases. It encapsulates the functional requirement of a system and its association with actors. It portrays the use case view of a system.

3. Interaction Diagrams

Interaction diagrams are a subclass of behavioral diagrams that give emphasis to object interactions and also depicts the flow between various use case elements of a system. In simple words, it shows how objects interact with each other and how the data flows within them. It consists of communication, interaction overview, sequence, and timing diagrams.

Sequence Diagram:

It shows the interactions between the objects in terms of messages exchanged over time. It delineates in what order and how the object functions are in a system.

Communication Diagram:

It shows the interchange of sequence messages between the objects. It focuses on objects and their relations. It describes the static and dynamic behavior of a system.

Timing Diagram:

It is a special kind of sequence diagram used to depict the object's behavior over a specific period of time. It governs the change in state and object behavior by showing the time and duration constraints.

Interaction Overview diagram:

It is a mixture of activity and sequence diagram that depicts a sequence of actions to simplify the complex interactions into simple interactions.