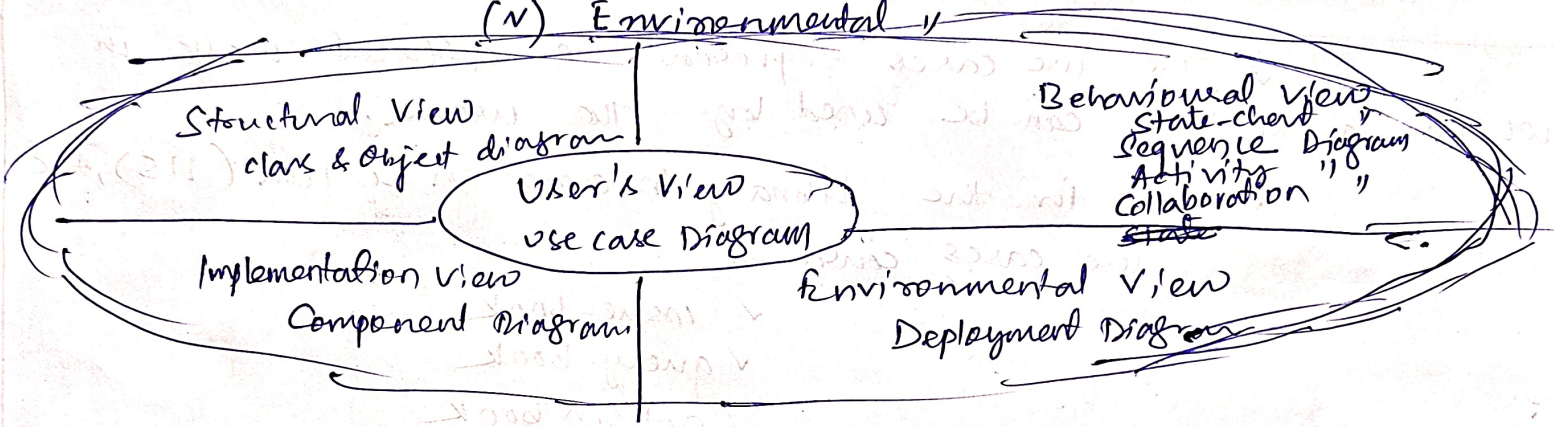
UML Diagrams

✓ Different UML diagrams provide different perspectives of a S/W system to be developed.

✓ A representation of the different views of a system facilitates a comprehensive understanding of the system.

✓ UML diagrams help to capture the following 5 views (models) of a system.

(i) User's view
(ii) Structural view
(iii) Behavioural "
(iv) Implementation "
(v) Environmental "



a) User's View

✓ It captures the functionalities offered by the system to its users.

✓ It is a black box view of the system, where the internal structure, dynamic behaviour of different components, the implementation etc. are ignored.

b) Structural View

✓ Also called static model.

✓ It defines the structure of the problem or solution interms of objects/classes.

c) Behavioural View

✓ Captures how objects interact with each other in time

✓ It also captures the dynamic behaviour of the system.

d) Implementation View

✓ It captures the important components of the system and their interdependencies.

✓ It might show the GUI part, the middleware and the database part.

e) Environmental View

✓ It models how the different components are implemented on different piece of h/w.

The Use Case Model

✓ The use cases represent the different ways in which a system can be used by the users.

✓ Ex for the Library Information System (LIS), the use cases could be

- ✓ issue-book
- ✓ query-book
- ✓ return book
- ✓ create member
- ✓ add-book etc.

✓ A use case can be viewed as a set of related scenarios tied together by a common goal.

✓ A use case consists of one main line sequence and several alternate ~~scenarios~~ sequences, which are called as scenarios or instances of the use case.

✓ The use case model represents a functional or process model of a system.

✓ Representation of Use Cases

✓ Each use case is represented by an ellipse with the name of the use case written inside the ellipse.

✓ All the ellipses of a system are enclosed within a rectangle which represents the system boundary.

✓ The name of the system being modelled appears inside the rectangle.

✓ Different users of the system are represented by using stick person icons, which is reffered to as an actor.

✓ It is possible that the same user may play multiple roles (actors).

Ex A library may create a book in the role of the librarian and issue a book in the role of a library member.

✓ An actor can participates in one or more use cases.

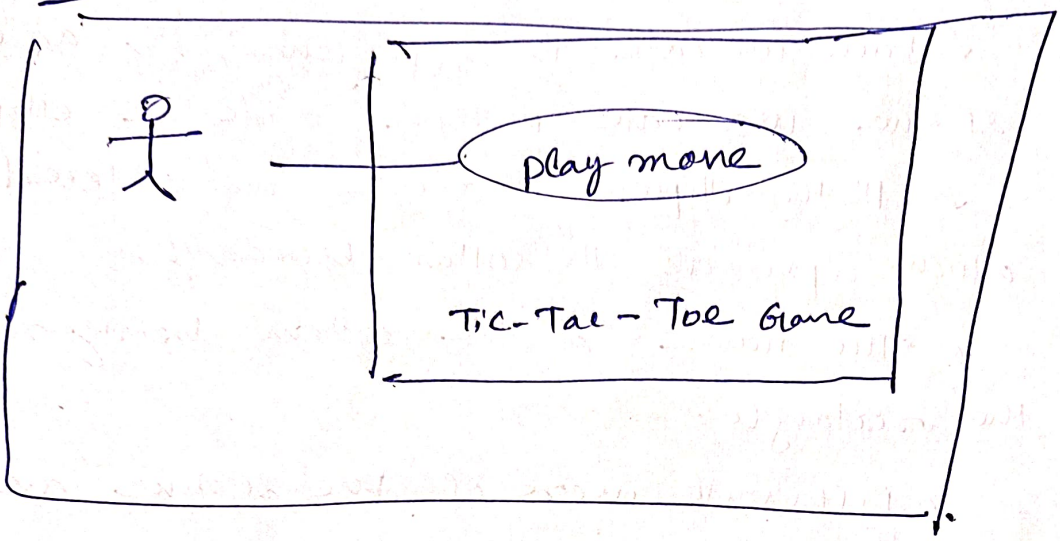
✓ The line connecting an actor and the use case is called the communication relationship.

✓ When a stick person icon represents an external system, it is annotated by the stereotype <<external system>>

✓ Stereotyping can be used to give special meaning to any basic UML construct.

✓ You can draw a rectangle around the use cases, called the system boundary box, to indicate the scope of your system.

ex The use case model for Tic-Tac-Toe game



* The text description should define the details of the interaction between the user and the computer as well as other relevant aspects of the use case.