(A 1)

Question No → 1 :-

Modelling is an important activity in every day Explain how does it help to solve real life problem?

Defination of Modelling :-

* A model is an abstract representation of a systems that enables us to answer questions about the system.
* Models are usefull when dealing with systems that are too large too small, too complicated, or too expensive to experince firsthand.
* Models also allows us to visulize and understand systems that either no longer exist or that are only claimed to exist.

→ Modeling Importance in Software engering :-

⇒ Software is getting increasingly more complex.

⇒ Window OS > 50 million lines of code, Google has roughly 2 billion

⇒ A singe programmer cannot manage this amount of code

(A2)

in its entirety.

→ code is not easily understandable by developers why did not write it

→ We need simpler representations for complex systems.

→ Modeling is a means for dealing with complexity.

Real Life Importance of Modeling-

Here we take example of school The school principle make schedule which runs its schedule or model on a daily routine. It indicates which school activites and functions will be held at what time. If the principle and students does not follow this model or schedule then the school system will be in disarry.

A (3)

Without Modelling what problem can be faced by a Software Developer during software development:-

→ Project Management Problem.
→ Design influences.
→ Development Expectation and Outcome.
→ Quality Assurance

→ Bad architecture.
→ System Designing Problems.
→ System Implimentation Problem
→ Scalability Problem.
→ Testing Problem.
→ Analysis and Information requirment Problem.

B 1

Question No → 02:-

Analysis Model is composed of 3 individual models. Name and explain all three. Mention how each one of them is represented.

Ans:-

→ A model is a simplification of reality.

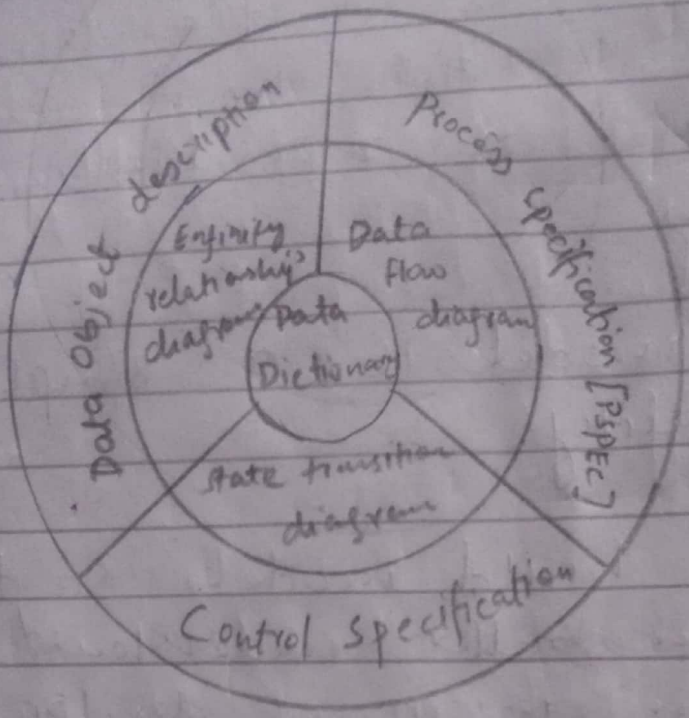
→ We build models so that we can better understand the system we can developing

→ We build models of complex system ~~because~~ because we cannot comprehend such a system in its entirety.

→ Analysis modeling is about creating data, functional. and behavioral models of the system
→ Entity relationship diagram.
→ Data flow diagram.
→ State-transition diagram.

B 2

Structure of Analysis Model



Data flow diagram (DFD):-

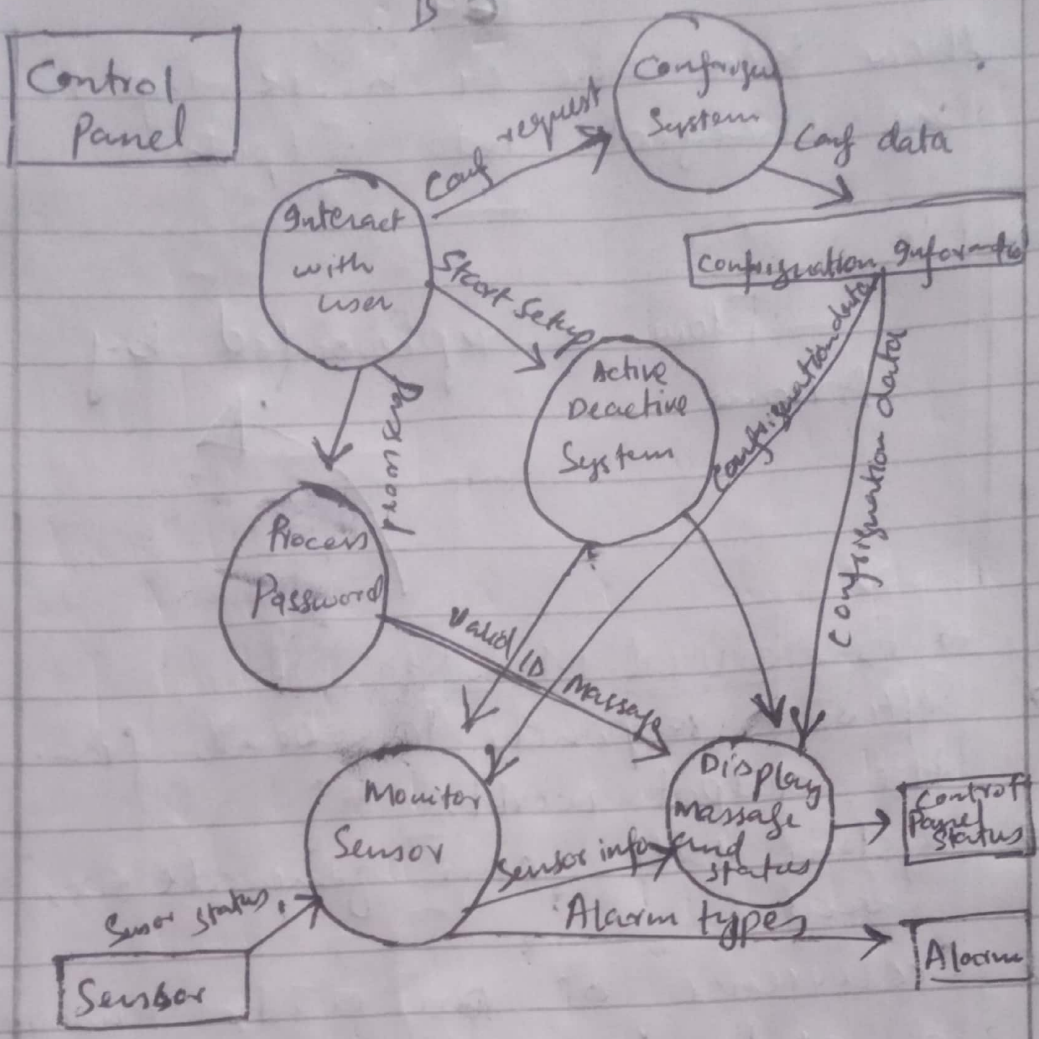
"The dataflow diagrams model the system as a network of processes, connected to one another by 'flow' and "data stores"

⇒ Most commonly used systems modeling tools.

→ Operational systems in which the functions of the system are of more important and complex then the data that the system manipulates.

⇒ It hardly needs to be explained

B3



Components of DFD:-

→ Process
→ Flows
→ Data Store
→ External Entities.

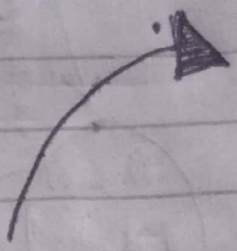
→ Process:-

Also known as bubble, function, and transformation The process shows a part of the system that transforms inputs into outputs that is, it

show how one or more inputs are changed into outputs

⇒ **Flow:**

Flow is represented by Arrow



⇒ **Behavioral Models:**

⇒ Software responds to events from the output world.

⇒ System itself can generate as event

⇒ Occurrence of an event causes a state transition

⇒ It creates a representation of the software and the events.

⇒ A state-transition diagram (STD) can be used to represents the behavior of the system.

Steps of behavioral modeling.

⇒ Make a list of the different states of system.

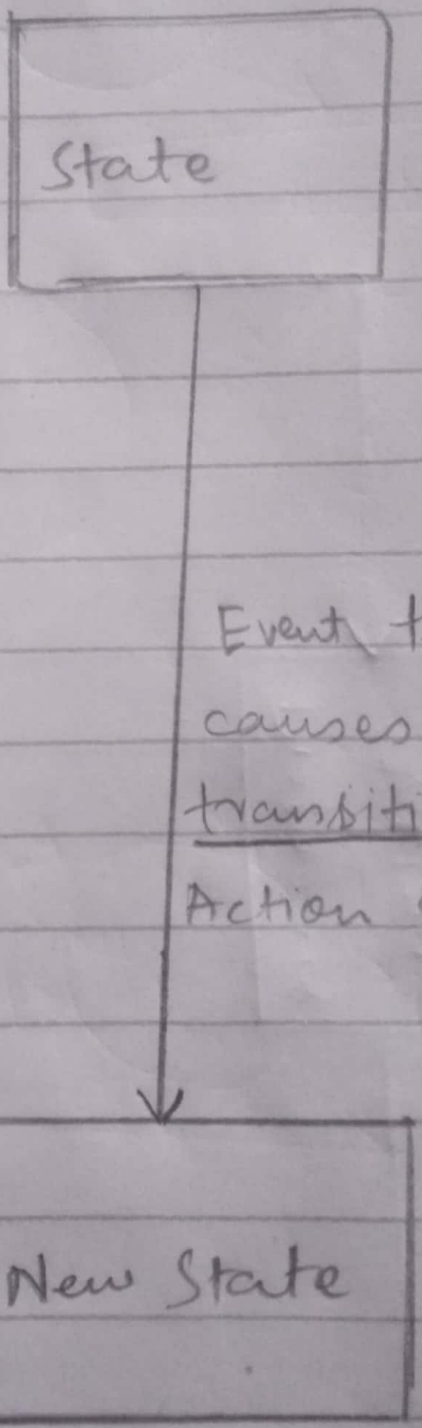
⇒ Indicate how the system makes a transition from one state to another.

⇒ Indicate event

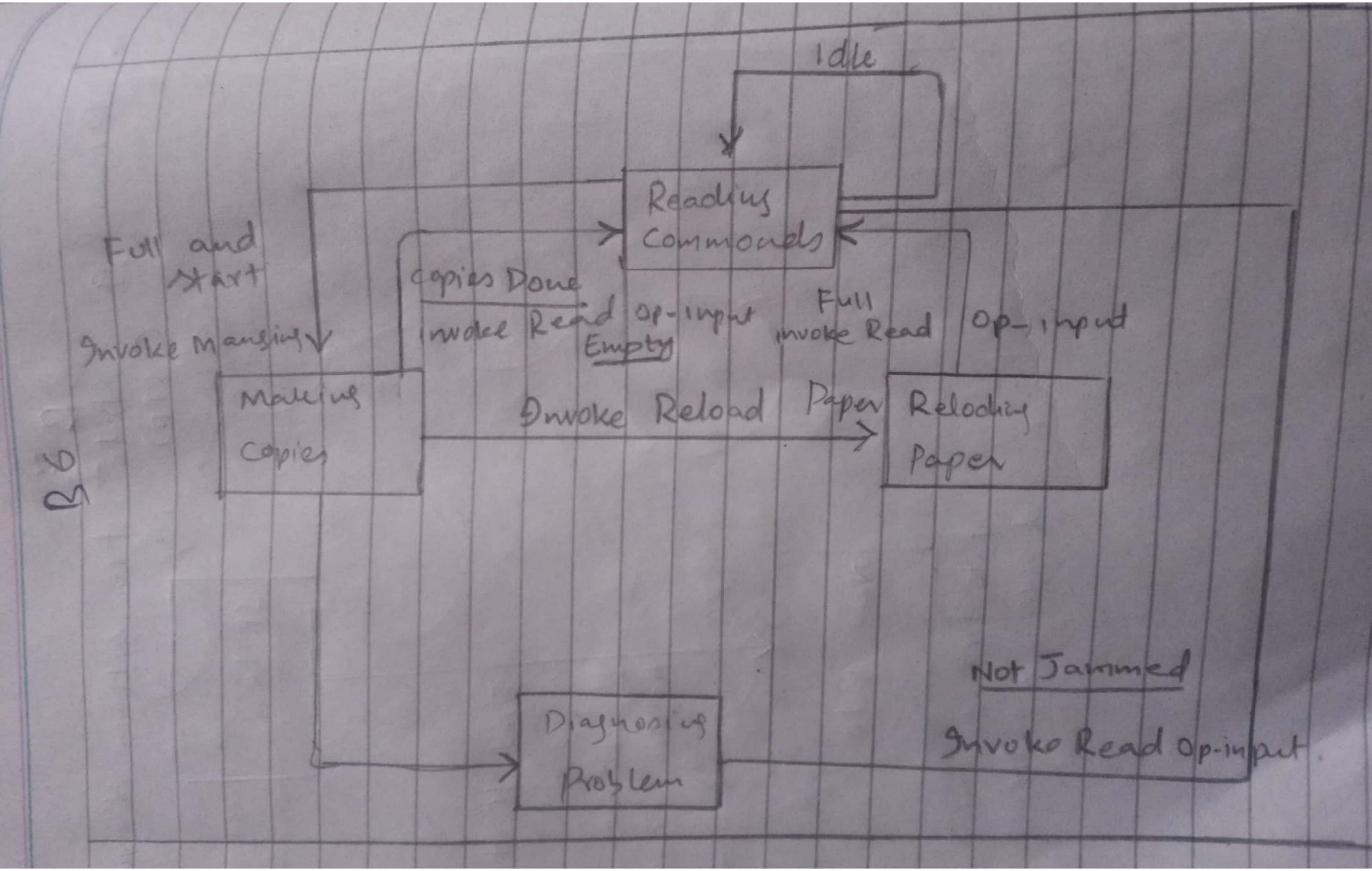
⇒ Indicate action.

B 5

Draw a State transition diagram (STD)



State transition diagram notation



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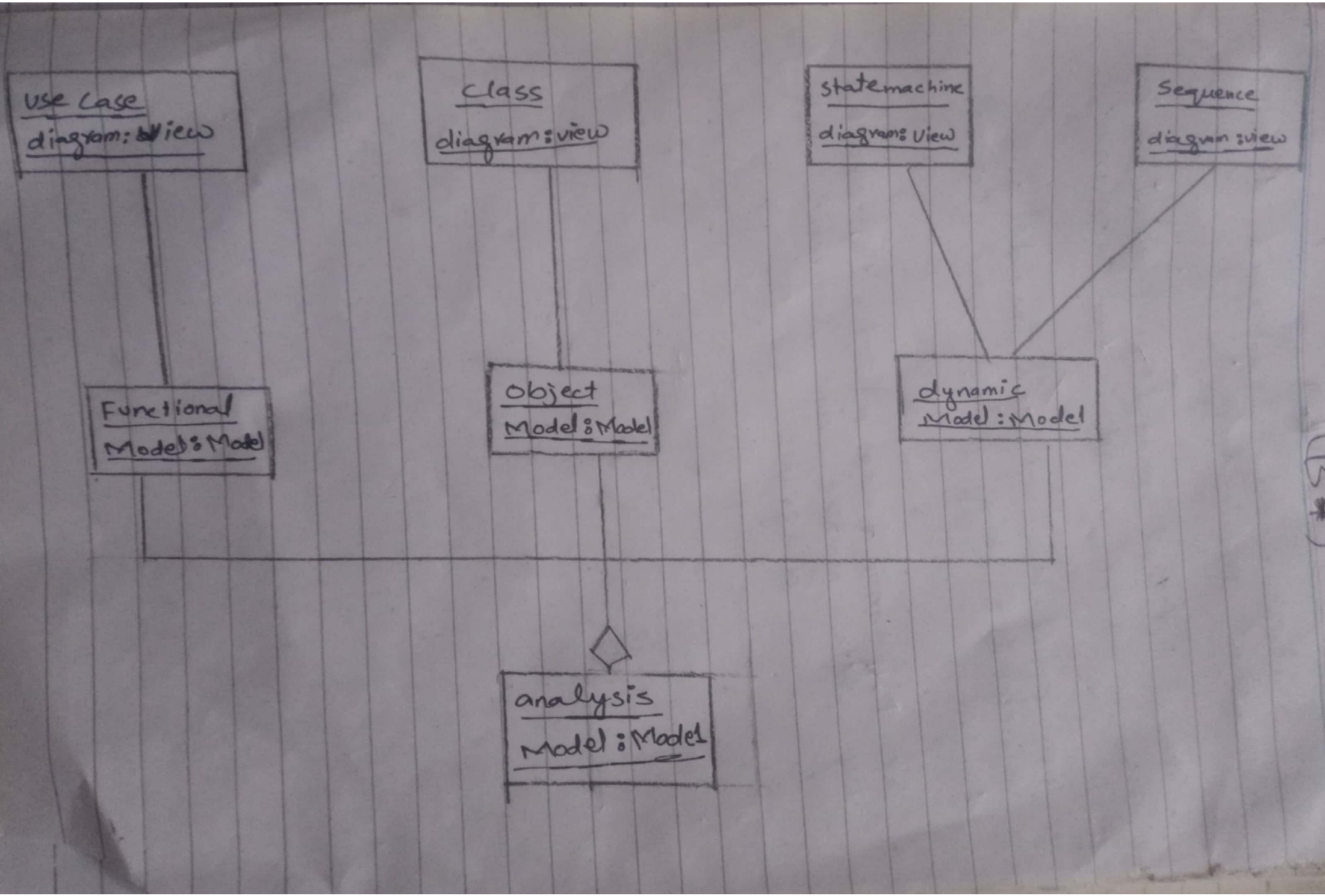
The analysis model is composed of Three Individual model:

- The Functional model: represented by use cases and ~~sen~~ Seenarios.
- The analysis object model: represented by class and object diagrams
- the Dynamic ~~dom~~ model, Represented by state machine and Sequence diagrams.



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Dear. SANA Jeehan