AI Week 1 notes

Problem classification based on the assumption

1 Fully Observable
2 Partially Observable

1 Fully observable - An environment is fully observable if it has given you or if you know anything that is needed/required to make a decision.

- Any problem can be solved at some level of abstraction

- Deterministic vs Stochastic

  Stochastic meaning the probability distribution function for any action to take place or say the chance of an action to happen.

- Episodic vs Sequential
- Static vs Dynamic
  Static means the environment never changes however dynamic means the environment keeps on changing.
  Semi dynamic- performance changes based on the particular action.

    - Discrete vs Continuous
      {1,2,3} is the example of discrete
      [1,3] is the example of continuous

- Single Agent vs Multiple Agent-
  Like your computer program(single)
  Like you (can do multiple tasks)

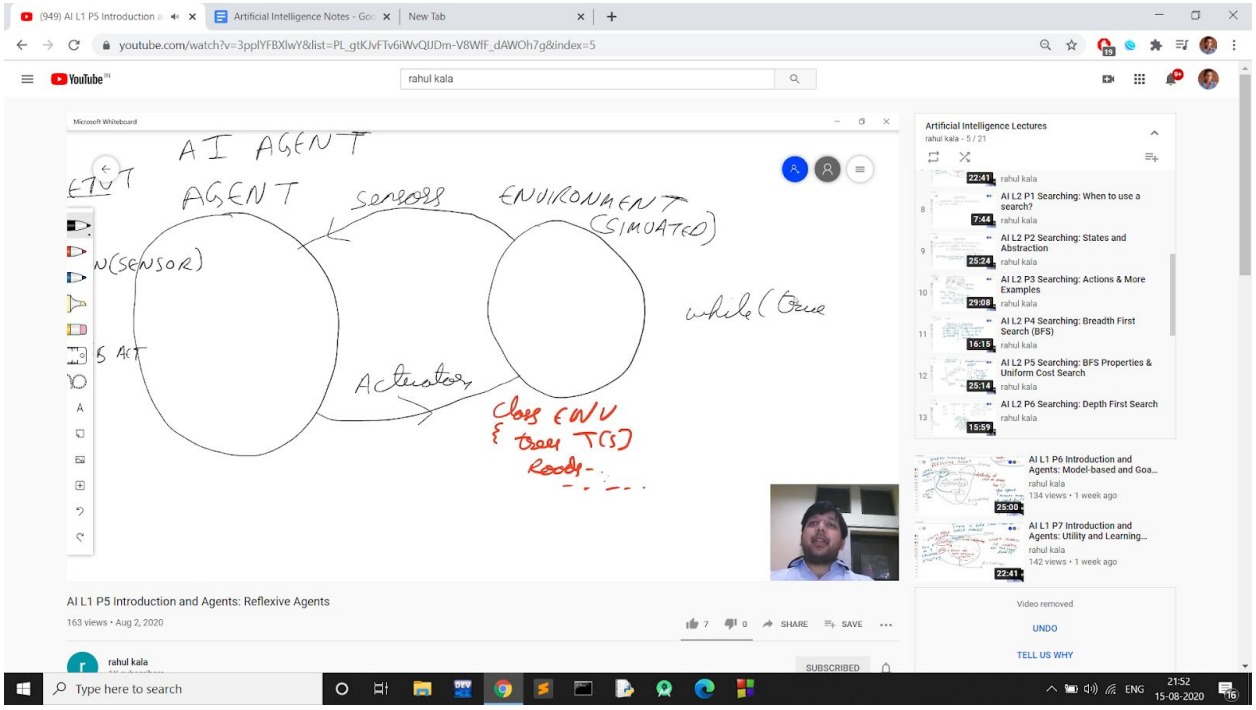
Multiple agents are further classified into two categories -
Cooperative agent
Competitive agent(on the basis of agent)

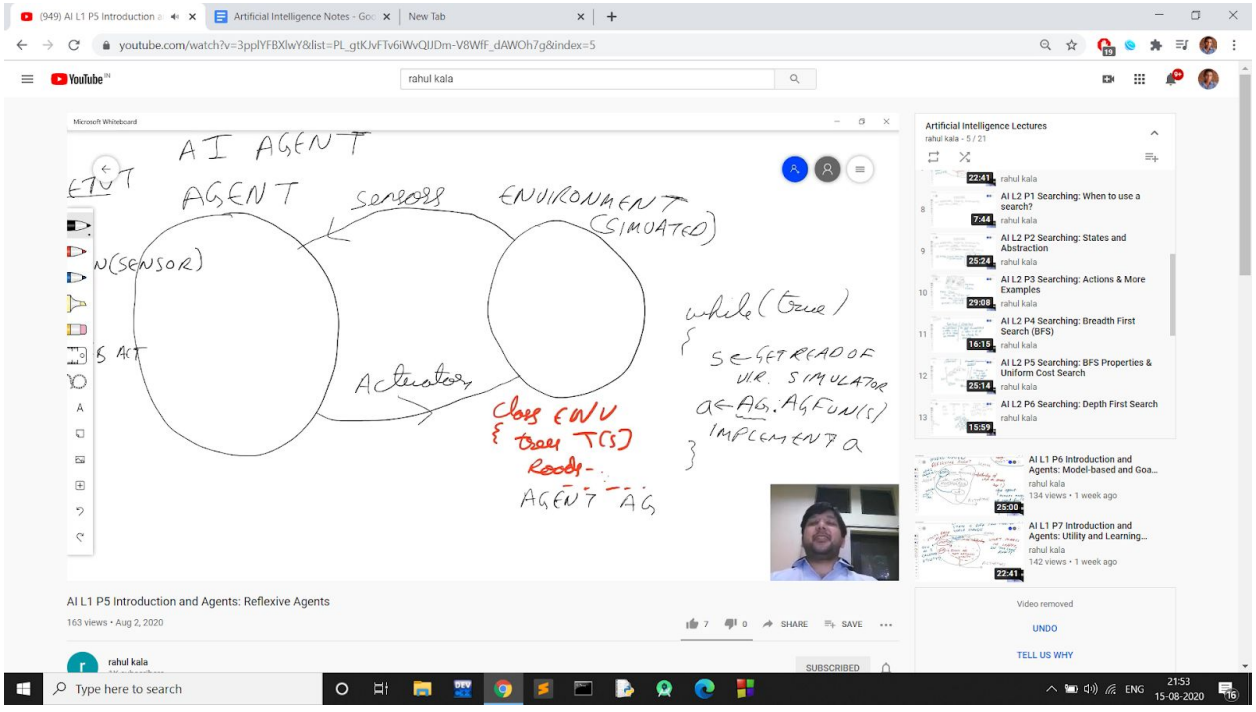
Competitive agent- A system is competitive , when both the agents are having different goals and different performance measures.
Cooperative agent- A system is cooperative , when both the agents are having exactly the same objectives and performance measures too.

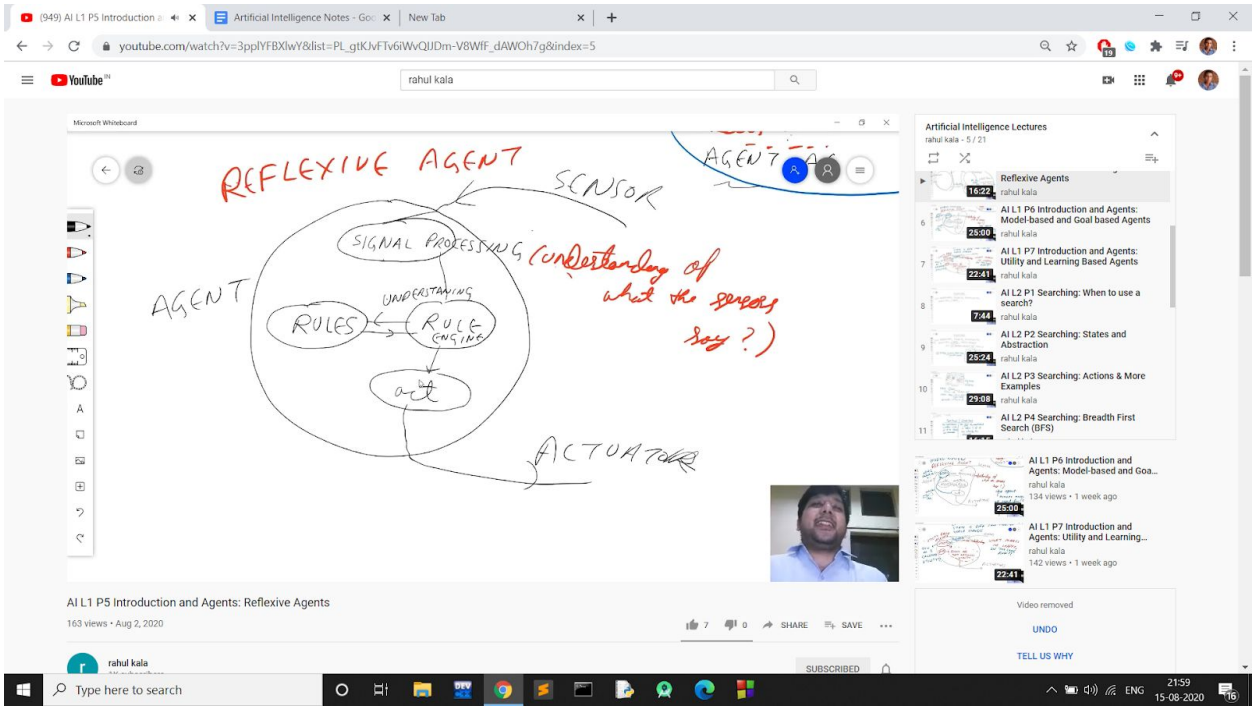
- Multi-agent systems(on the basis of communication)

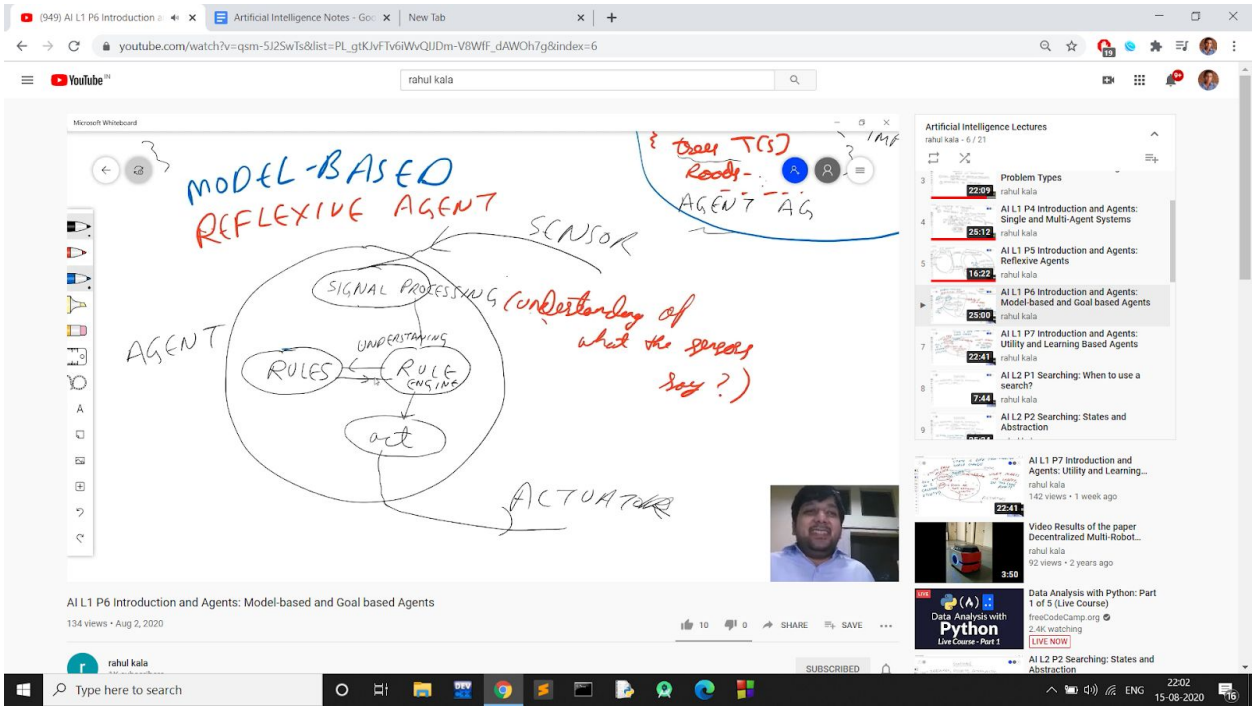
1 Direct Communication (when an agent is connected with wifi , LAN , BT etc)
2 No direct communication(when an agent can see, hear each other but can't communicate directly)

Randomization- An action needs to have random elements

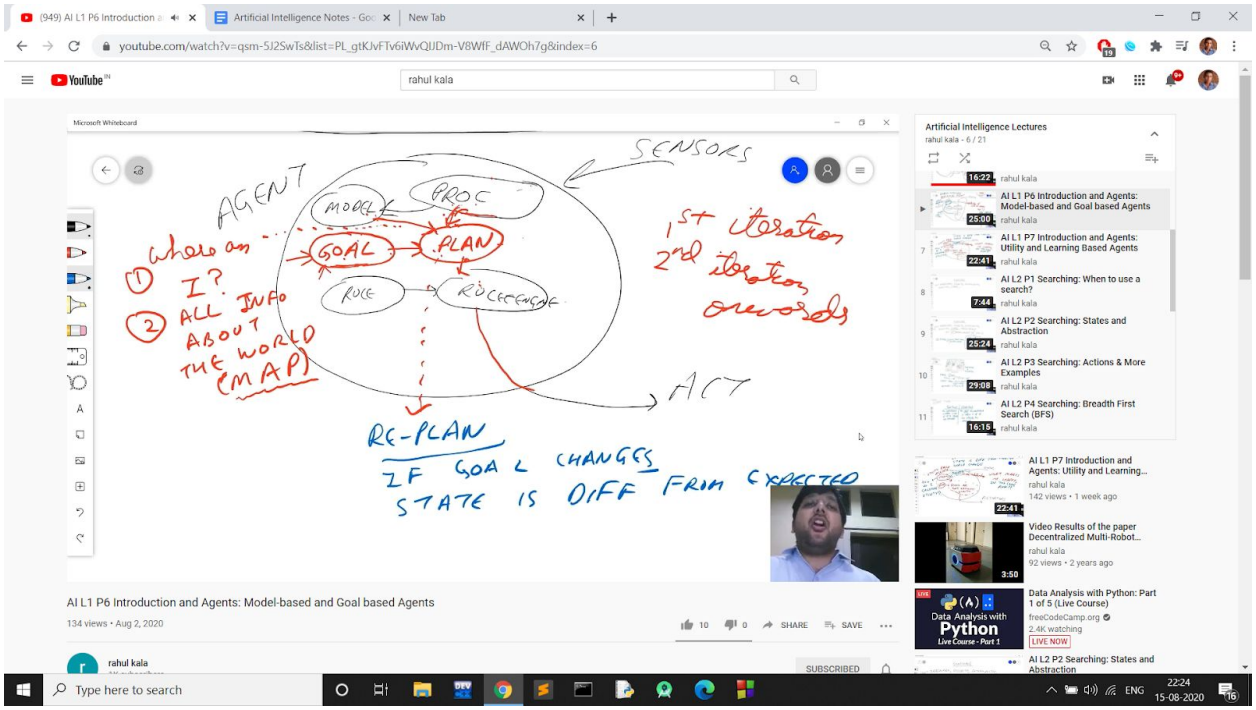








Exploration - It means gathering of information (you go to washroom during exams just to check if your friend is there)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AGENT
SENSORS
MODEL
PROC
GOAL
PLAN
RULE
RULE CONDITION
ACT
1 Where am I?
2 ALL INFO ABOUT THE WORLD (MAP)
1ST iteration
2nd iteration onwards
RE-PLAN
IF GOAL CHANGES
STATE IS DIFF FROM EXPECTED
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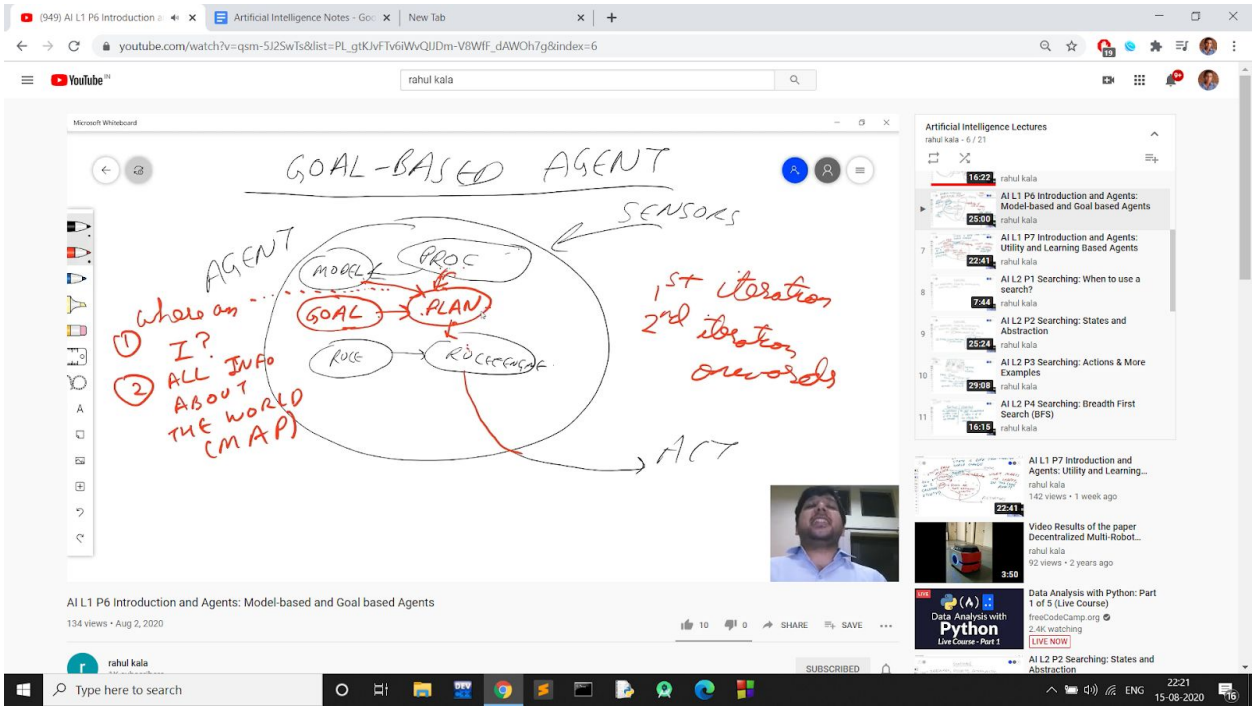
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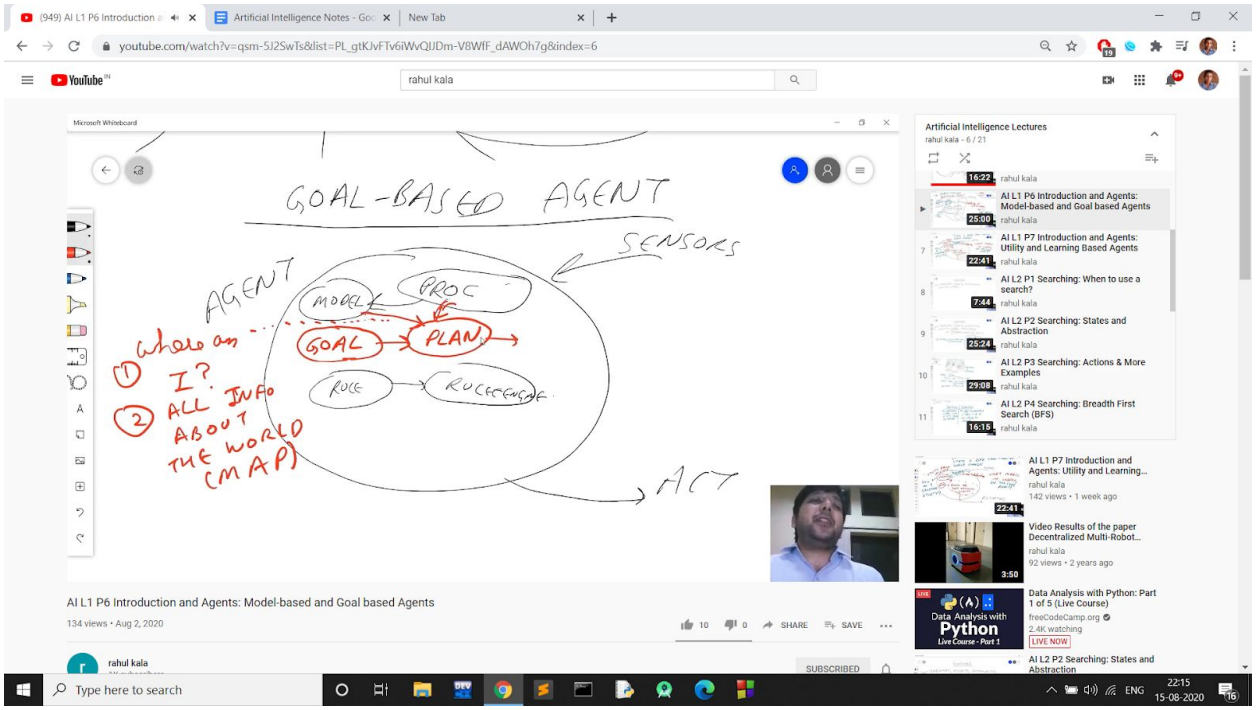
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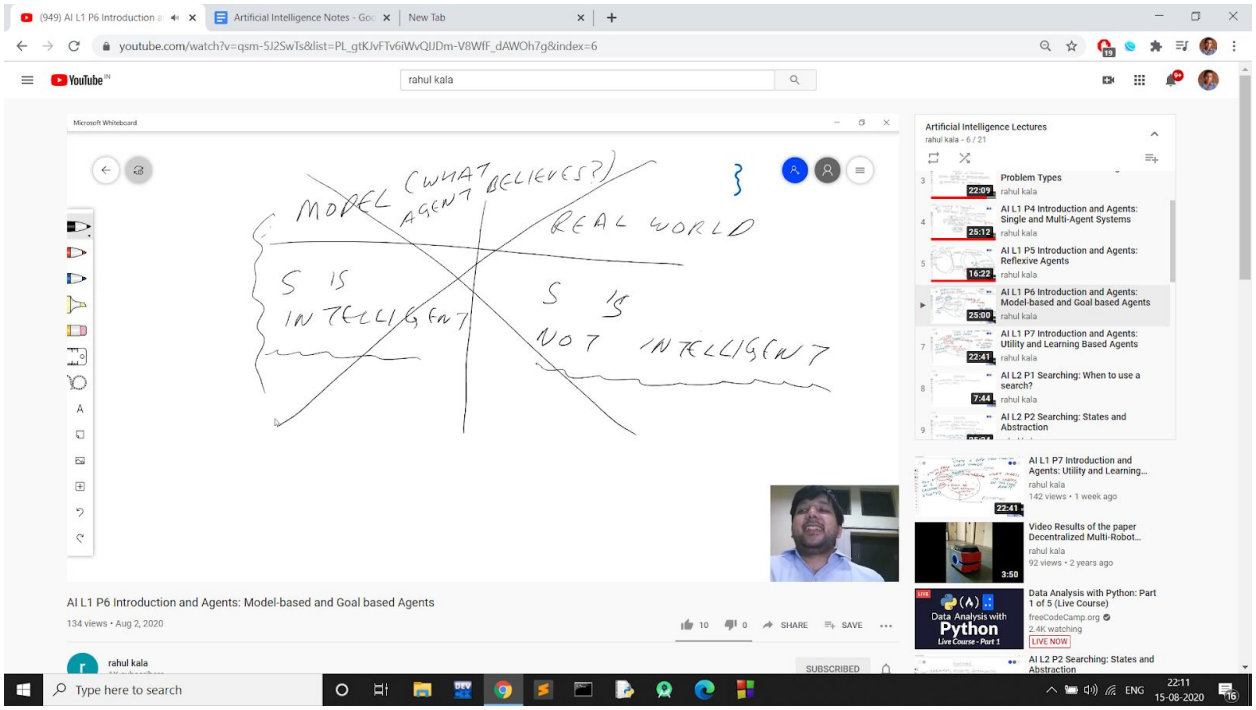
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MODEL (WHAT AGENT BELIEVES?)
REAL WORLD
S IS INTELLIGENT
S IS NOT INTELLIGENT
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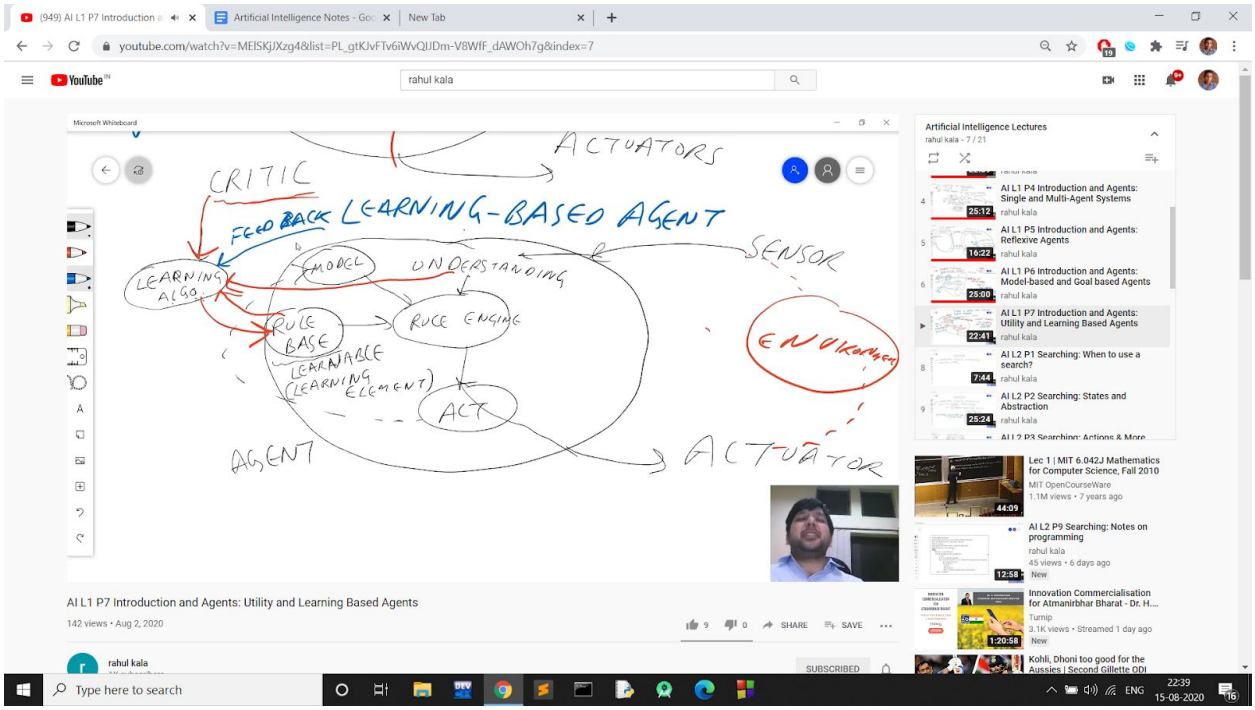
Reflexive Agent (immediately decides what to do and take the required decision)
Classical AI
Model Based or Goal Based agent
Utility and learning based agents(select actions that maximize utility)
Learning Algo(critic) - (what was to be done)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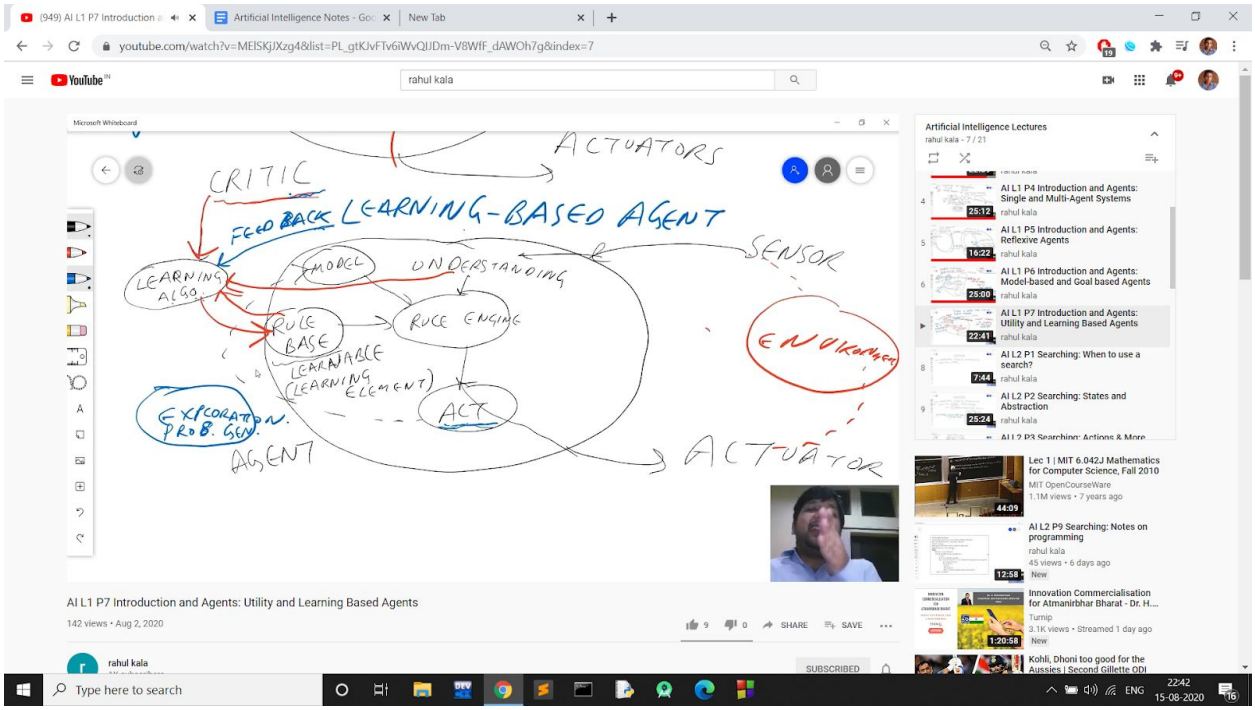
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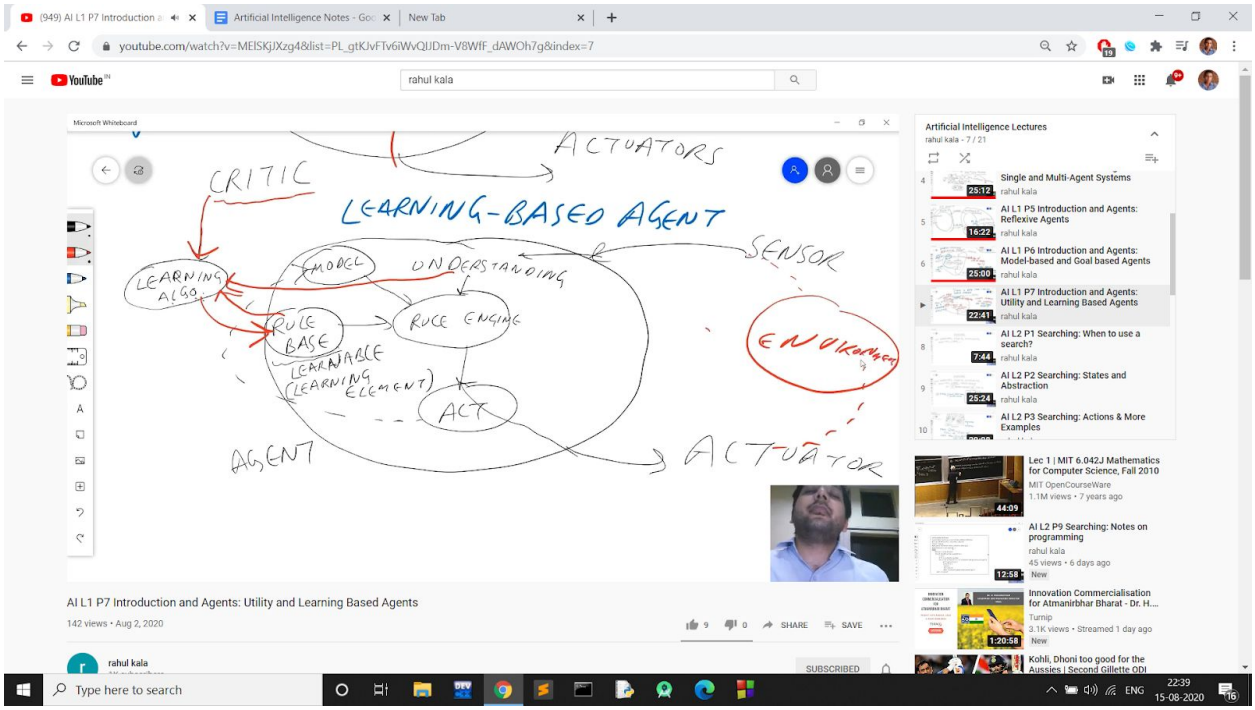
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