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AI

1) Artificial Intelligence → It is a science of simulating human intelligence, the ability to percieve handfull of matter. understand, analyse, predict & manipulate. AI is field of science & engineering which can be used to build entities that are programmed to think like humans.

4 categories of Artificial intelligence

a] Thinking Humanly. → Cognitive modelling
types
→ through introspection → trying to catch one own thoughts
→ physical experiments → observing a person in action
→ brain imaging → observing the brain in action.
If programs input-output matches the corresponding behaviour of human, that is evidence that some of the program's mechanisms could be operating in humans.
The automation of activities that we associate with human thinking, activities such as decision making, problem solving, learning etc is Thinking humanly.

b] Acting Humanly. → Turing test.
Computer has to possess these capability to be able to act having Acting humanly capacity
⇝ natural language processing ⇒ to enable it to communicate successfully in common English language
⇝ knowledge representation ⇒ to store what it knows / hears in proper format
⇝ automated reasoning ⇒ to use stored information to

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b) continue.

⇝ answer questions & to draw new conclusions
- machine learning ⇝ to adapt to new circumstances. &
  to detect & extrapolate patterns
  There will be no physical interaction between interrogator & computer but can give video signals.
  to pass turing test computer needs.
  - computer vision ⇝ to perceive objects
  - robotics to manipulate objects & move about.

c) Thinking rationally ⇝ Laws of thought.
⇝ This is the study of computations that make it possible to perceive, reason & act
provided a patte a set of patters for argument structures has to yield correct conclusions when given correct premises. But there are obstacles
⇝ Its not easy to take informal knowledge & State it in formal terms required by logistical notation
⇝ There is big difference between solving a problem "in principle" & solving in practice.

d] Acting rationally The rational agent approach.
AI agents / computers are expected to operate autonomously, perceive their environment, persist over prolonged time period, adapt to changes create & pursue goal. A rational agent is one that acts so as to achieve the best outcome or when there is uncertainty, the best expected outcome.

Ans
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2) Peas (Performance, Environment, Actuators, Sensors)

for	① Performance	② Environment	③ Actuators	④ Sensors
Taxi (automated) drivee	Safe, fast, legal, comfortable trip, maximize profits	Roads, other traffic, pedestrians, customers	Steering, accelerator, brake, signal, display horn	Cameras, sonar, speedometer GPS, odometer, accelerometer engine sensors keyboard

① Drivee has to get to correct destination, minimizing fuel consuption, wear & tear, minimizing trip time/ cost minizing traffic laws voilation & also disturbance to other drivers. maximizing safety, comfort of customers profit.

② environment → variety of roads, [rural / urban lanes] traffic → stray animals, police cars, puddles, potholes. driver has to interact with actual passengers. snow, driving left/right of road should be considered.

③ Actuators → control over engine throi accelerator steering, braking, display screen, voice synthesize to talk to passengers & some way to communicate to other vehicles.

④ Sensors → Controllable video cameras to see road with infrared / sonar sensors to detect distances of traffic / obstacles. speedometer to avoid speeding ticket. proper control especially on curves need accelerometer.

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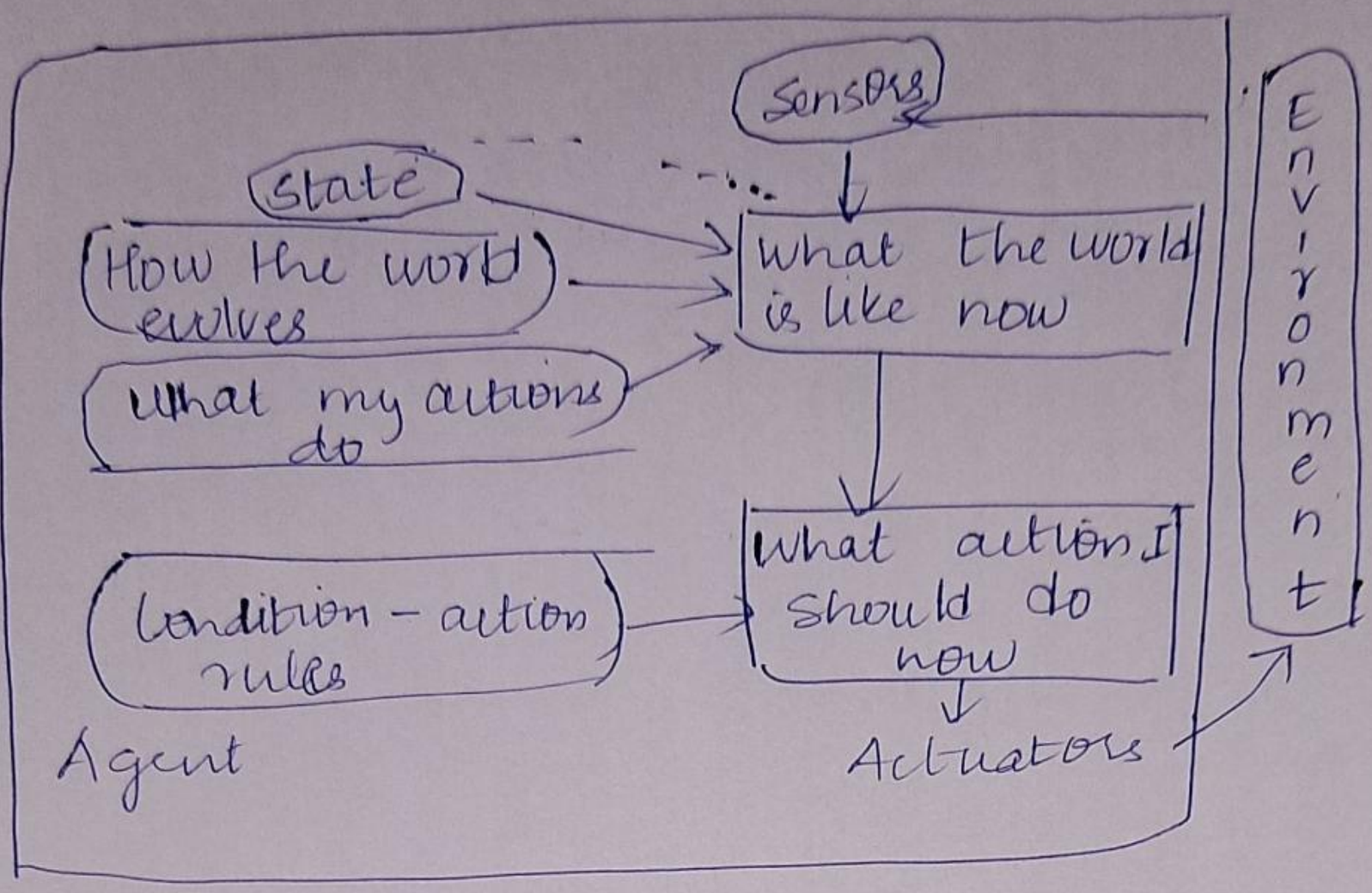
3)



function Model-based-reflex-agent (percept) returns action
persistent: state, the agent's current conception of the world state
model a description of how the next state depends on current state & action
rules a set of condition - action rules
action the most recent action, initially none.

state ← Update-State (state action, percept, model)
rule ← rule-match (state, rules)
action ← rule. ACTION
return action

⇒ This agent keeps track of the current state of the wood, using an internal model. It then chooses an action in the same way as the reflex agent.