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Assignment No : 1

1 define in your own words the following terms : agent , agent function , agent program , performance measure , rational agent .

→ 1] Agent :-
→ ① Agent is just Something / Someone who acts.
→ ② all computer program do Something , but all computer agent do Something more , i.e operate autonomously , perceive there environment.
→ ③ So agent in compulational term can be defined as a Anything that can be viewed as percieving it environment through Sensors and acting upon that environment through actuators.
→ ④ Example human as a agent has eyes , nose and other Sensory organs as actuator through which he can get information of the environment or can perform action in environment.
→ ⑤ robotic agent might have cameras and infrared range finder for Sensors and various motor for actuator.
→ ⑥ for a Software agent file content , network packet act as Sensory inputs and actions performed as displaying info of Screen.
→ ⑦ Agent need Strong Sense of percept . i.e agent 's choice of action depends on percept Sequence observed to date.

(2) Agent function :

→ We say that agents behaviour is described by agent function.

→ agent function is the one which maps any given inputs of agent to an action.

→ Agent function for a random agent would be set of infinite data unless we restrict it to some base.

→ Agent function is an abstract mathematical description.

→ Example : for Vaccum cleaner the agent function is bound to Square 1 & Square 2, if dirt is detected, clean the dirt else move right or left.

→ thus agent is someone who acts based on agent ms function & agent function is action taken based on percept.

(3) Agent program

→ The agent program is described as concrete implementation, running within some physical System.

→ agent program is code written in a programming language to find the / follow the sequence of action

→ Eg for Vaccum cleaner the actions of cleaning & moving to left or write are written in a programming language.

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④ performance measure

→ The notion of desirability is captured by performance measure that evaluates any given sequence of environment states

→ When an agent is plunked down in environment it generates sequence of states.

→ if sequence is desirable, then agent has performed well.

→ there is not one fixed performance measure for all tasks and agents

→ typically designer will devise one appropriate to circumstances

→ example for vaccum cleaner we may measure performance by amount of dirt cleaned up in single shift.

→ rational agent will maximize the performance measure.

→ design performance measure according to what one wants actually wants in environment.

⑤ Rational Agent

→ the Agent for each possible percept sequence selects an action that is expected to maximize its performance measure, given the evidence provided by percept sequence and whatever built-in knowledge agent has

→ the rationality at given time depends on four things

① performance measure that defines criterion of Suc
② agent's prior knowledge of environment
③ action that agent can perform
④ agent's percept sequence to date

Q2. give the task environment description of following Scenarios (fully observable Vs partially observable) Deterministic Vs Stocastic. Episodic Vs Sequential Static Vs dynamic / Semi dynamic ? discrete Vs continous ? Single Vs multi agent

→ taxi Driving
  → Partially observable
  → Stochastic
  → Sequential
  → Dynamic
  → Continuous
  → multiagent

→ Playing Soccer
  → fully observable
  → Steategic
  → Sequential
  → Dynamic
  → Continuous
  → multiagent

→ Backgammon :
  → fully observable
  → Stochastic
  → Sequential
  → Static
  → Discrete
  → multi agent.