DAILY ASSESSMENT

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Topic: Artificial Intelligence
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• Artificeal Intelligence:

Lecture01: Introduction:

- Defination of AI: AI is connected with the design of intelligence in an artificial device.
- McCarthy in 1956 coined the term.
- The Turing Test:
- Typical AI Problems:
  → Mundance tasks. → Expert tasks.
- Practical Impact of AI:
  → AI components are embedded in numerous devices
  eg: copy machines.
  → AI systems are in everyday use.
  → detecting credit card fraud.
  → Configuring products.
- what's easy and what's hard?
  → Symbollic integration.
  → Proving theorems.
  → Playing chess.
  → medical diagnosis.
- Intelligent behaviour:
  → Perception. → Reasoning. → Learning.
  → Understanding Language → Solving problems.
- Applications:
  → Computer vision.

→ Image Recognition.
→ Robotics.

- Internet agents:
  → Monitor user's tasks.
  → Seek needed information.
- Approaches to AI:
  → Human life. → Non human life.
- Limits of AI today:
- What can AI systems do:
- What can't AI systems do yet?
- Foundations:
  → Philosophy. → Biology.
  → Psychology.
  → Linguistics.
- History: • Aristotle. (384-322 BC)
→ Ramon Lull.
→ Descartes (17th Century).
→ George Boole (19th century).
→ Charles Babbage & Ada Byron
→ 1990's: Major advances in all areas of AI.
→ 2000: The Nomad robot explores remote regions of Antarctica looking for meteorite samples.
- Agents: Operate in an environment.
  → Perceives its environment through sensors.
  → Acts upon its environment through actuators / effectors.
- Performance:
- Rationality: ① Perfect Rationality.
  ② Bounded Rationality.

- Environment Determinism:

→ Deterministic: the next state of the environment is described by the current state.

→ stochastic: If an element of interference or uncertainty occurs then the environment is stochastic.

→ Strategic: Environment state wholly determined by the preceding state & the actions of multiple agents is called strategic. Eg: chess.

- Table based agents:

→ Information comes from sensors - percepts.
→ Triggers actions through the effectors.

- State based agents:

→ Information comes from sensors - percepts.
→ Changes the agents current state of the world.
→ Based on state of the world and knowledge, it triggers actions through the effectors.

- Utility based Agent:

→ A more general framework
→ Different preferences for different goals.
→ the agent acts so able to maximize expected utility.

- Repressing knowledge: Successful agent design.

Python:

1) Numpy:

→ What is Numpy?

Numpy is the library for the python programming language, adding support for large, multidimensional arrays and matrices, along with a large collection of high-level mathematical.

- How to convert image to Numpy Arrays using cv's by importing cv's to jupyter
- Indexing, slicing and iterating of Numpy array.
- Stacking and splitting Numpy array.
  Stacking it may be horizontal or vertical
  Stacking. Splitting done horizontal & vertically splitting.
  (h split) (v split)

- **Application 2:** Create webmap with python & Folium
  - → . webmap: How the o/p will look like.
  - → Base map using, creating, Installing, Folium.
  - → Adding points to base map through python program.
  - → Adding multiple points to base map through python programing.
  - → Adding point from files.
  - → Popup windows on map.
  - → HTML on popups.
  - → Color pointer on Map.
  - → Add and stype points (practice)
  - → Knowing about Geojson Data and adding a Geojson polygon Layer to map.
  - → Knowing About choropleth map.
  - → Layer control panel on the map.