DAILY ASSESSMENT FORMAT

Date:	22-May-2020	Name:	Mahima Shetty
Course:	TCS iON	USN:	4AL15EC045
Topic:	Artificial Intelligence	Semester & Section:	8th sem & 'A' section
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MORNING SESSION DETAILS

Image of session

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This is to certify that

Mahima Shetty

has successfully completed

Career Edge - Knockdown the Lockdown

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Start Date: 18 May 2020 | End Date: 22 May 2020

Topics:

- Communication Skills ▪ Presentation Skills ▪ Soft Skills ▪ Career Guidance Framework ▪ Resume Writing
- Group Discussion Skills ▪ Interview Skills ▪ Business Etiquette ▪ Effective Email Writing ▪ Telephone Etiquette
- Accounting Fundamentals ▪ IT Foundational Skills ▪ Overview of Artificial Intelligence* (Source: NPTEL)

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Dated: 22 May 2020

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REPORT

Objectives

- Understand the definition of artificial intelligence
- Discuss the different faculties involved with intelligent behavior
- Examine the different ways of approaching AI
- Look at some example systems that use AI
- Familiar with the different ways of defining AI
- Understand what are the different components of intelligent behaviour
- Develop an appreciation of the vast scope of AI and the intellectual challenges in this field.

What is AI?

- Artificial Intelligence is concerned with the design of intelligence in an artificial device.
- What is intelligence?
  Humans?
  - ❖ Behave as intelligently as a human
  - ❖ Behave in the best possible manner
  - ❖ Thinking
  - ❖ Acting

Typical AI Problems

- Intelligent entities (or "agents") need to be able to do both "mundane" &"expert"

- Mundane tasks:
  - ❖ Planning route, activity.
  - ❖ Recognizing (through vision) people, objects.
  - ❖ Communicating (through natural language).
  - ❖ Navigating round obstacles on the street
- Experts tasks:
  - ❖ Medical diagnosis.
  - ❖ Mathematical problem solving.

What's easy and what's hard?

- It has been easier to mechanize many of the high-level tasks we usually associate with "intelligence" in people.
  - ❖ Symbolic integration.
  - ❖ Proving theorems.
  - ❖ Playing chess.
  - ❖ Medical diagnosis.
- It has been very hard to mechanize tasks that lots of animals can do
  - ❖ Walking around without running into things
  - ❖ Catching prey and avoiding predators
  - ❖ Interpreting complex sensory information
  - ❖ Modeling the internal states of other animals from their behavior

Intelligent behaviour

- Perception
- Reasoning
- Understanding language
- Solving problems

Applications

- Computer vision
- Image Recognition
- Robotics
- Language processing

- Speech processing

Internet agents

- The explosive growth of the internet has also led to growing interest in internet agents to
  - ❖ Monitor users tasks
  - ❖ Seek needed information
  - ❖ Learn which information is most useful

Approaches to AI

- **Strong AI:** aims to build machines that can truly reason and solve problems which is self aware and whose overall intellectual ability is indistinguishable from that of a human being.
  - ❖ Human like
  - ❖ Non-human-like

- **Weak AI:** deals with the creation of some form of computer-based artificial intelligence that cannot truly reason and solve problems, but can act as if it were intelligent.
- Weak AI holds that suitably programmed machines can simulate human cognition.
- Strong AI maintains that suitably programmed machines are capable of cognitive mental states.

- **Applied AI:** aims to produce commercially viable "smart" systems.

- **Cognitive AI:** Computers are used to test theories about how the human mind works.

Limits of AI Today

- **Today's successful AI systems**
  - ❖ Operate in well-defined domains
  - ❖ Employ narrow, specialized knowledge

- **Commonsense Knowledge**

  - ❖ Needed in complex, open-ended worlds
  - ❖ Understand unconstrained Natural Language

Agents
- Operate in an environment
- Perceives its environment through sensors
- Acts upon its environment through actuators/ effectors
- Have goals
- Implement mapping from percept sequence to actions
- Performance measure to evaluate agents

Types of Agents
- Soft bots
- Expert Systems
- Autonomous spacecraft
- Intelligent buildings

Summary
- An agent perceives and acts in an environment, has architecture, and is implemented by an agent program.
- An ideal agent always chooses the action which maximizes its expected performance, given its percept sequence so far.
- An autonomous agent uses its own experience rather than built-in knowledge of the environment by the designer.
- An agent program maps from percept to action and updates its internal state.
- Representing knowledge is important for successful agent design.
- The most challenging environment are partially observable, stochastic, dynamic, and continuous, and contain multiple intelligent agents.