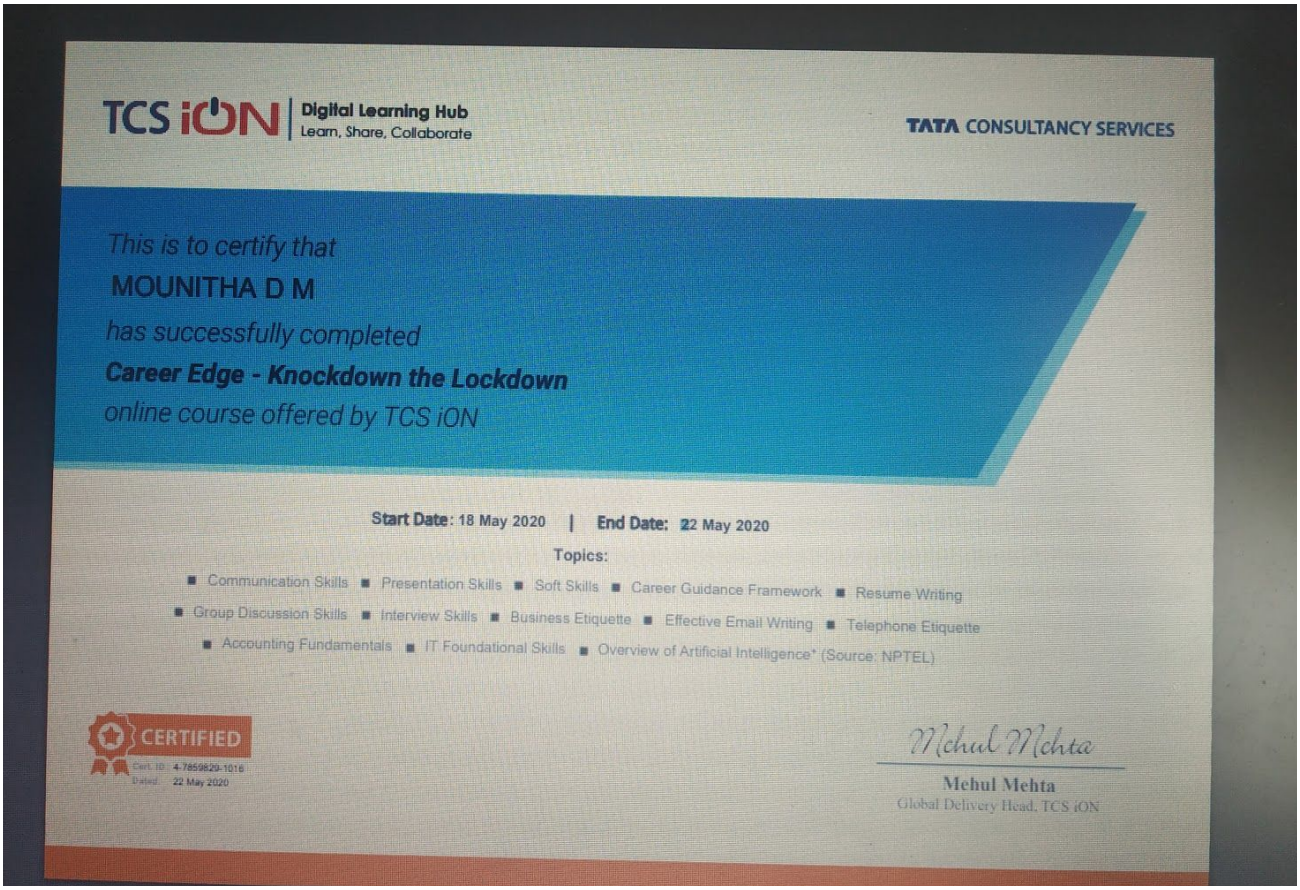
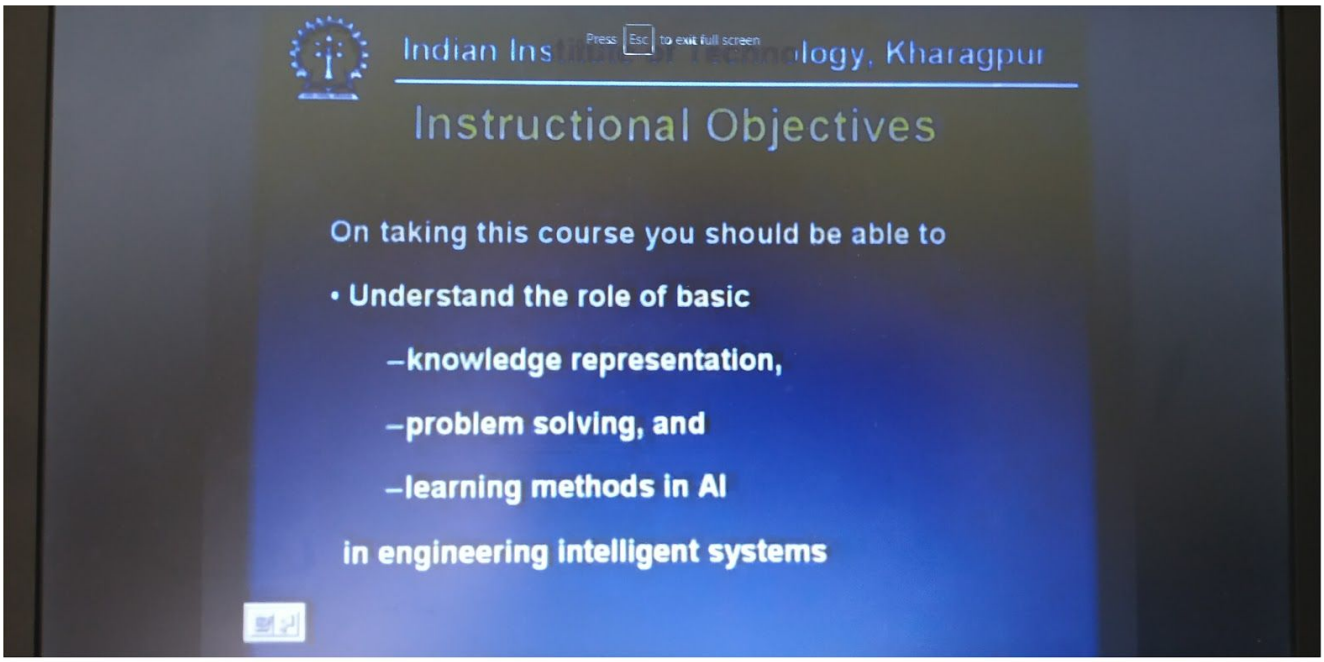
DAILY ASSESSMENT FORMAT

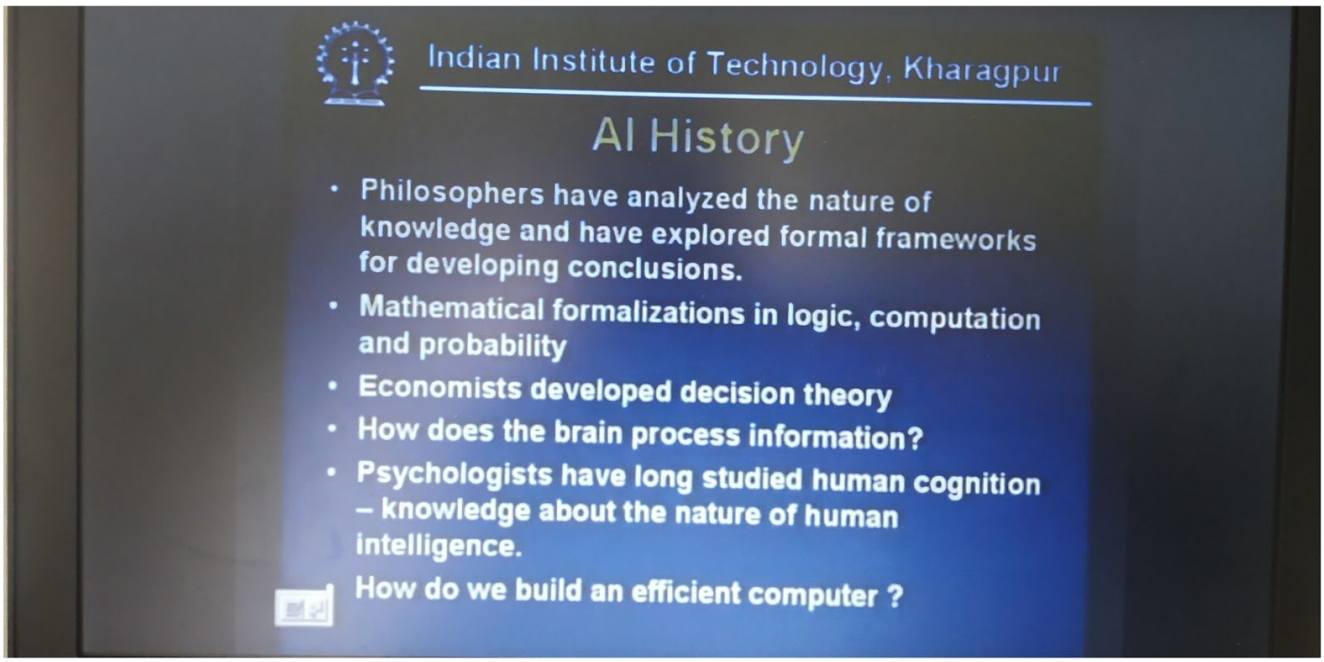
Date:	**22-05-2020**	**Name:**	**MOUNITHA D M**
Course:	**TCS ION DIGITAL LEARNING**	**USN:**	**4AL17EC055**
Topic:	**Understand (AI) PART1 Artificial Intelligence PART 2**	**Semester & Section:**	**6TH SEM "A" SEC**
Github Repository:	**MOUNA123**		

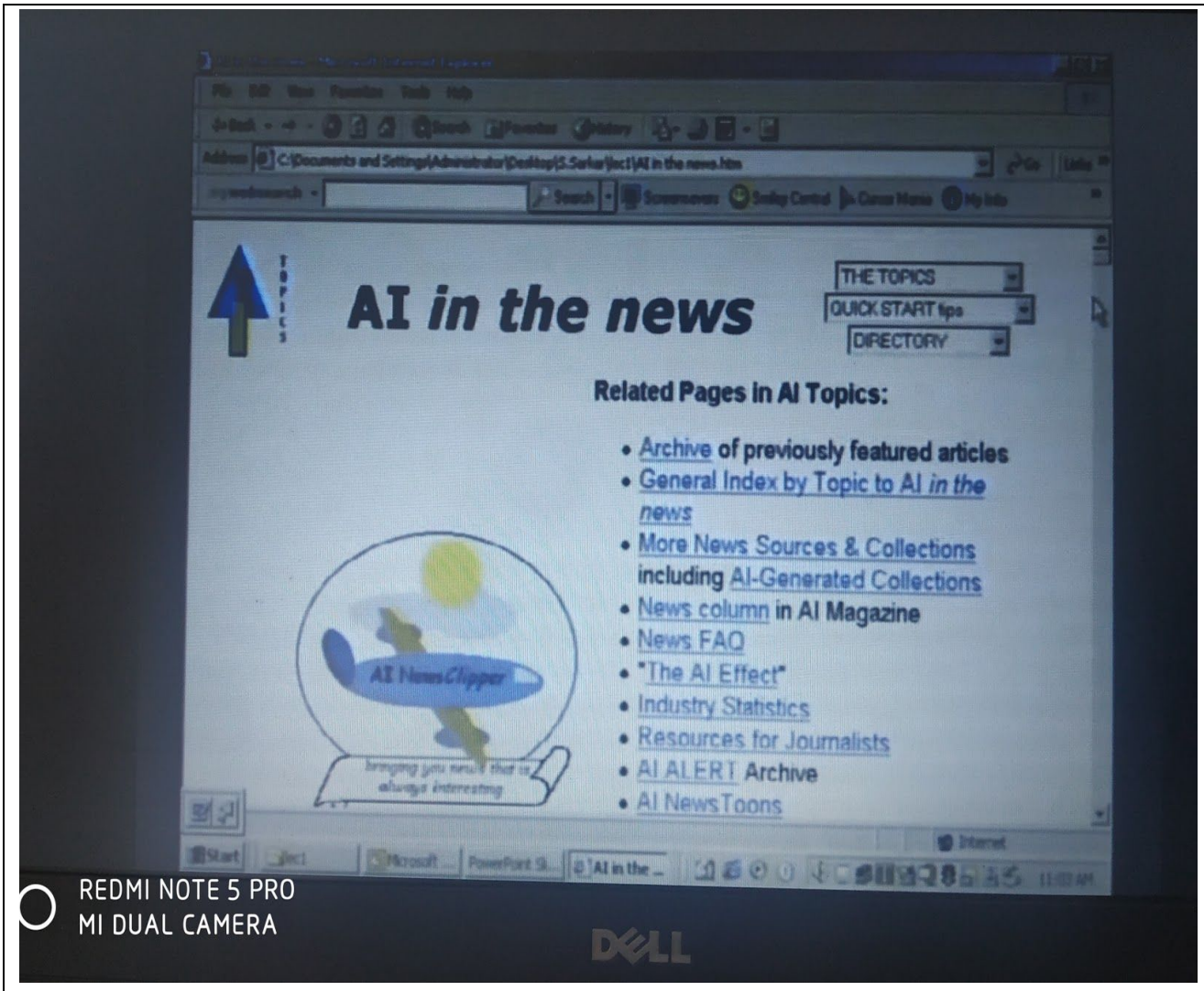
FORENOON SESSION DETAILS

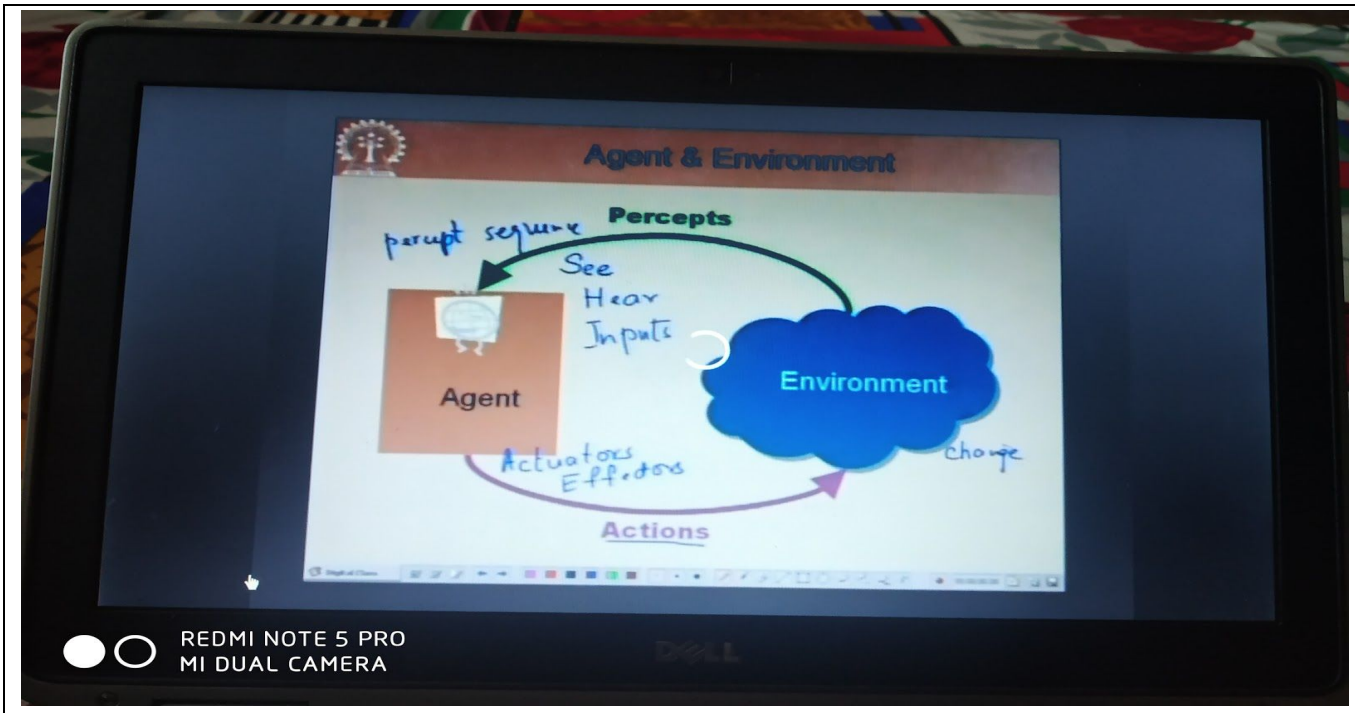
Image of session

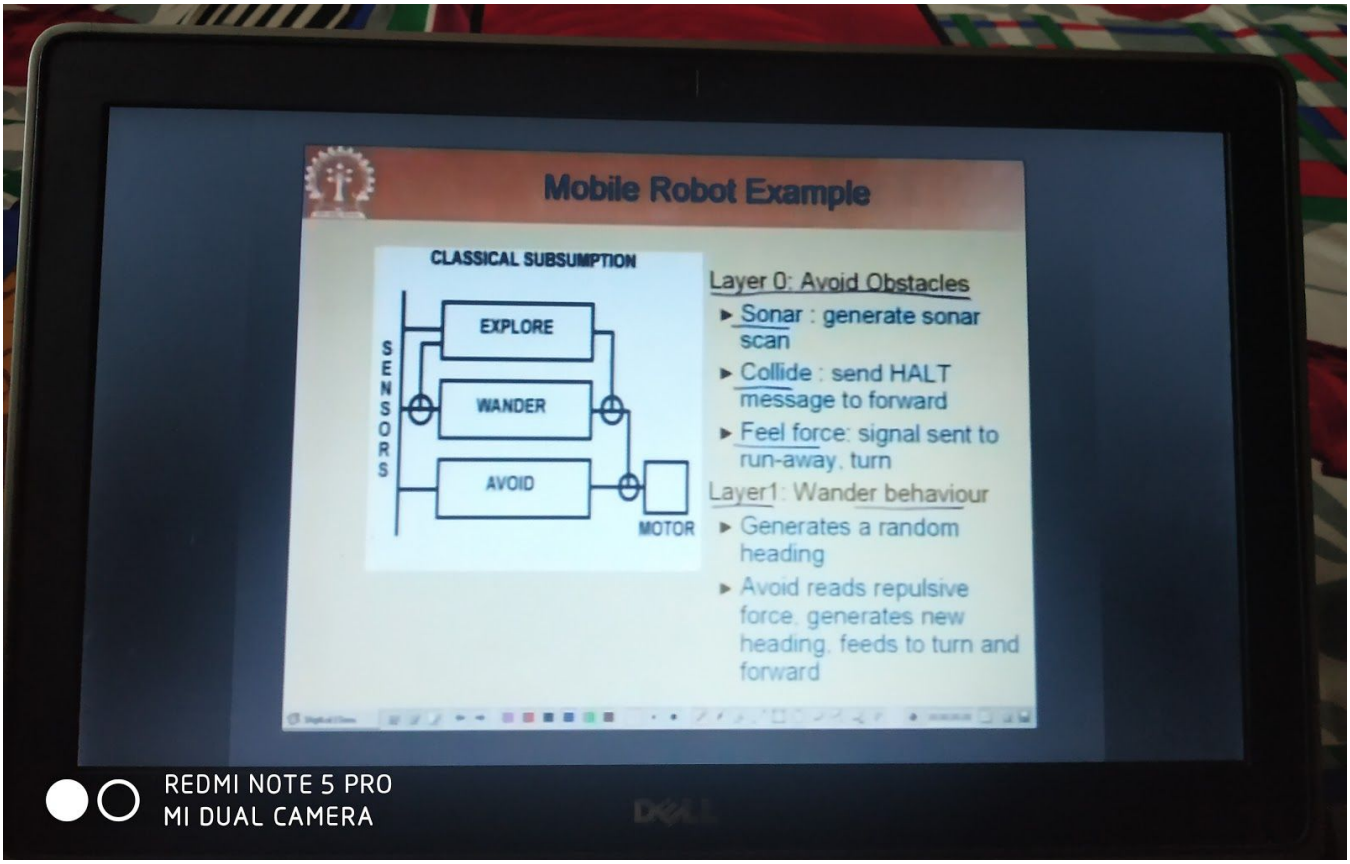



Press Esc to exit full screen
Indian Institute of Technology, Kharagpur
Instructional Objectives
On taking this course you should be able to
• Understand the role of basic
–knowledge representation,
–problem solving, and
–learning methods in AI
in engineering intelligent systems


Indian Institute of Technology, Kharagpur
AI History
• Philosophers have analyzed the nature of knowledge and have explored formal frameworks for developing conclusions.
• Mathematical formalizations in logic, computation and probability
• Economists developed decision theory
• How does the brain process information?
• Psychologists have long studied human cognition – knowledge about the nature of human intelligence.
How do we build an efficient computer ?


AI in the news
THE TOPICS
QUICK START tips
DIRECTORY
Related Pages in AI Topics:
Archive of previously featured articles
General Index by Topic to AI in the news
More News Sources & Collections including AI-Generated Collections
News column in AI Magazine
News FAQ
"The AI Effect"
Industry Statistics
Resources for Journalists
AI ALERT Archive
AI NewsToons
AI NewsClipper
REDMI NOTE 5 PRO
MI DUAL CAMERA
DELL


Agent & Environment
Percepts
See
Hear
Inputs
Agent
Environment
Actuators
Effectors
change
Actions
REDMI NOTE 5 PRO
MI DUAL CAMERA


Mobile Robot Example
CLASSICAL SUBSUMPTION
SENSORS
EXPLORE
WANDER
AVOID
MOTOR
Layer 0: Avoid Obstacles
Sonar : generate sonar scan
Collide : send HALT message to forward
Feel force: signal sent to run-away, turn
Layer1: Wander behaviour
Generates a random heading
Avoid reads repulsive force, generates new heading, feeds to turn and forward
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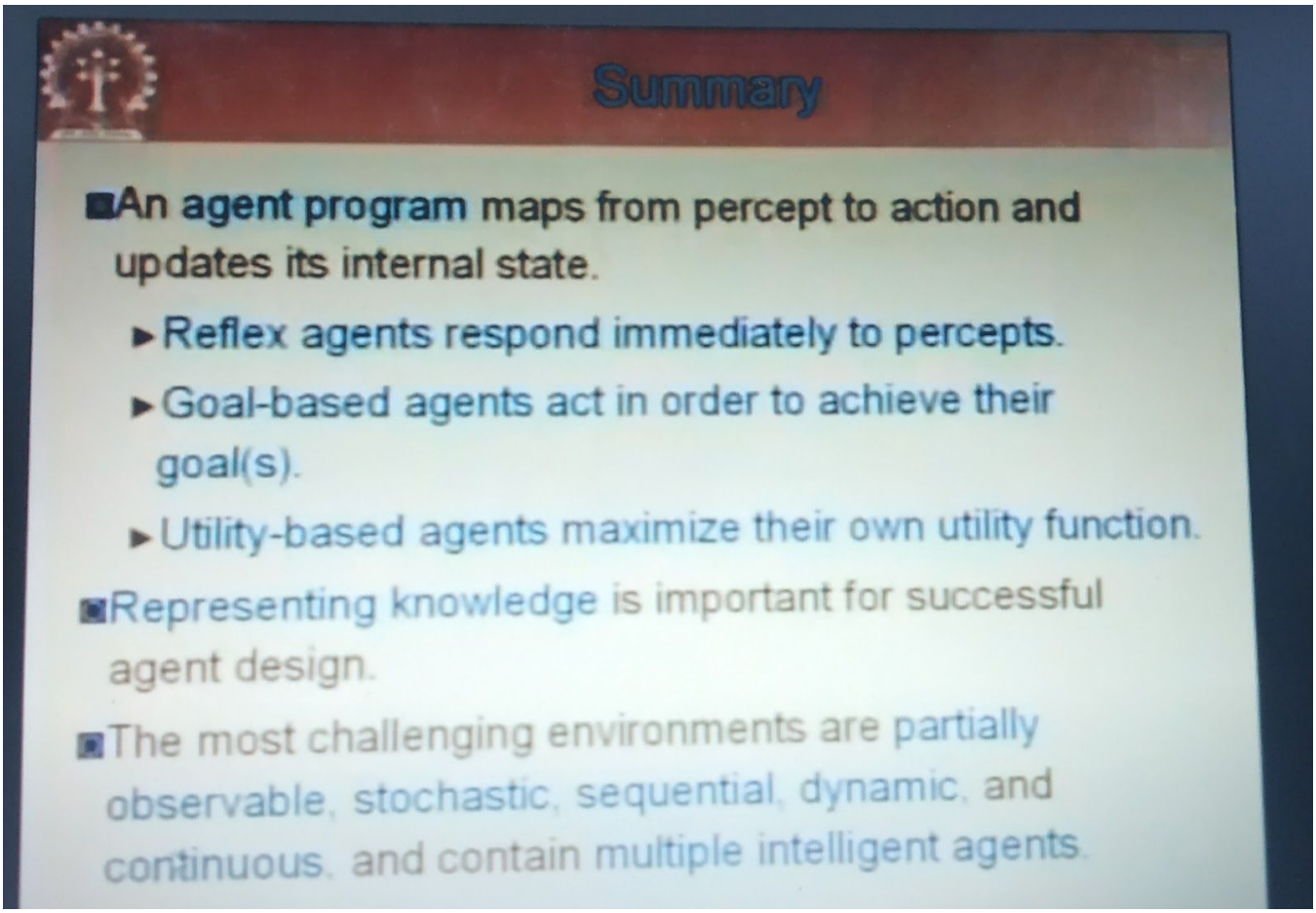

Summary
An agent program maps from percept to action and updates its internal state.
Reflex agents respond immediately to percepts.
Goal-based agents act in order to achieve their goal(s).
Utility-based agents maximize their own utility function.
Representing knowledge is important for successful agent design.
The most challenging environments are partially observable, stochastic, sequential, dynamic, and continuous, and contain multiple intelligent agents.

Report – Report can be typed or hand written for up to two pages

Day5 TCS ION 22/5/2020.

Day 13: Understand Artificial Intelligence (AI) part 1

Introduction

Goals of this Course

- To introduce you to the field of Artificial Intelligence
- To Explain the challenge inherent in building an "intelligent System
  - → To Explain the
    - Key paradigms
    - core Techniques
    - Algorithms

Textbooks

→ Artificial Intelligence A Modern Approach 2nd Edition
→ Stuart Russell & peter Norvig
→ prentice Hall

What is AI

→ Artificial intelligence
→ Is concerned with the design of intelligence in an artificial device
→ Term coined by McCarthy in 1956

Definition of AI

→ What to look at
  thought process / reasoning vs. behaviour
→ how measure performance
  human like performance vs. ideal performance

Intelligent behaviour

→ perception * Reasoning * Learning * understanding
language * solving problems

Machine translation

→ Meanwhile, the US military is giving a Simpler one-way translation device a rugged road test in Iraq. US forces are using the phrasebook to communicate with injured.

AI topics

- Core areas

→ Perception
  * Vision, * Natural language * Robotics
→ Uncertainity
  * probabilistic approaches
→ General algorithms
  * Search * planning * Constraint satisfaction.
→ Applications
  * Game playing. * AI and Education
→ Decision theory
→ Reasoning with Symbols data

What can't AI systems do yet?

* Understand natural language robustly
  • (eg read and understand article in a newspaper
  • Surf the web
  • Interpret an arbitary visual scene
  • learn a natural language.
  • Construct plans in dynamic real time domains
  • Exhibit true autonomy and intelligence

AI History

→ Mathematical formalization in logic, computation and probability
→ Economists developed decision theory
→ How does the brain process information?
→ Psychologists have long studied human cognition
→ Knowledge about the nature of human intelligen

Agent and Environment

→ Sensors and Effectors

An agent perceives its environment through sensors

* The complete set of inputs at a given time is called percept
* The current percept or a sequence of percepts can influence the actions of an agent

→ It can change the environment through effectors

* An operation involving an actuator is called an action
* Actions can be grouped into action sequences

Agents → Have a sensors actuators

Performance

* Behaviour and performance of IAs in term of agent function
→ perception history (sequence) to Action Mapping
→ Ideal Mapping : specifies which actions an agent ought to take at any point in time

Performance measure

→ A subjective measure to characterize how successful an agent is

(eg Speed power usage, accuracy

Examples of Agents

Humans

→ Eyes, ears, skin, taste buds etc. for sensors

→ Hands, fingers, legs.

Robots

→ camera, infrared bumper, etc. for Sensor

→ grippers wheels, lights, speakers etc.

Agents

→ Fundamental faculties of intelligence
  * Acting * Sensing * Understanding learning
→ In order to act you must sense. Blind actions is not a characterization of intelligence.
→ Robotics, Sensing and acting, Understanding not necessary
→ Sensing needs understanding to be useful

Rational Action: The action that maximizes the expected value of the performance measure given the percept sequence to date.

→ Fully observable
  * All of the environment relevant to the action being considered is observable

→ partially observable
  * The relevant feature of the Environment are only partially observable.

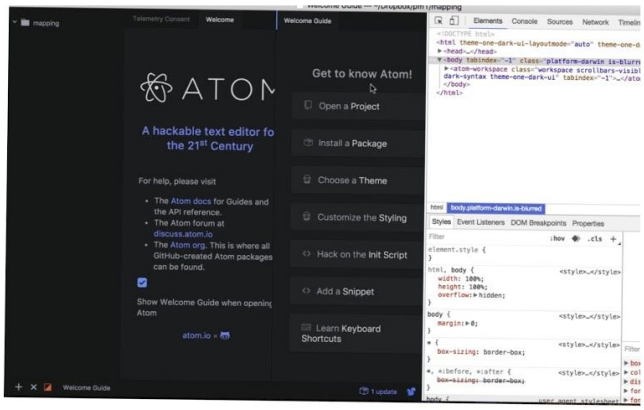
→ In a table is simple way to specify a mapping from percepts to actions
  * tables may become very large
  * all work done by the designer
  * learning might take a very long time
→ Mapping is implicitly defined by a program
  * rule based
  * neural network
→ Subsumption architecture → built in layer
  * Different layers of behaviours.

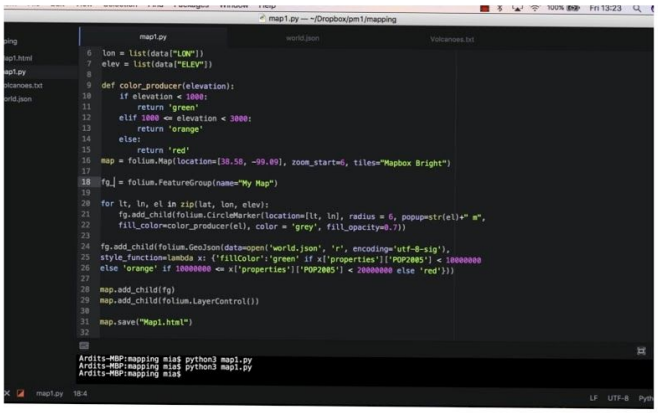
An agent program maps from percept to action
Representing knowledge is important for successful agent design.

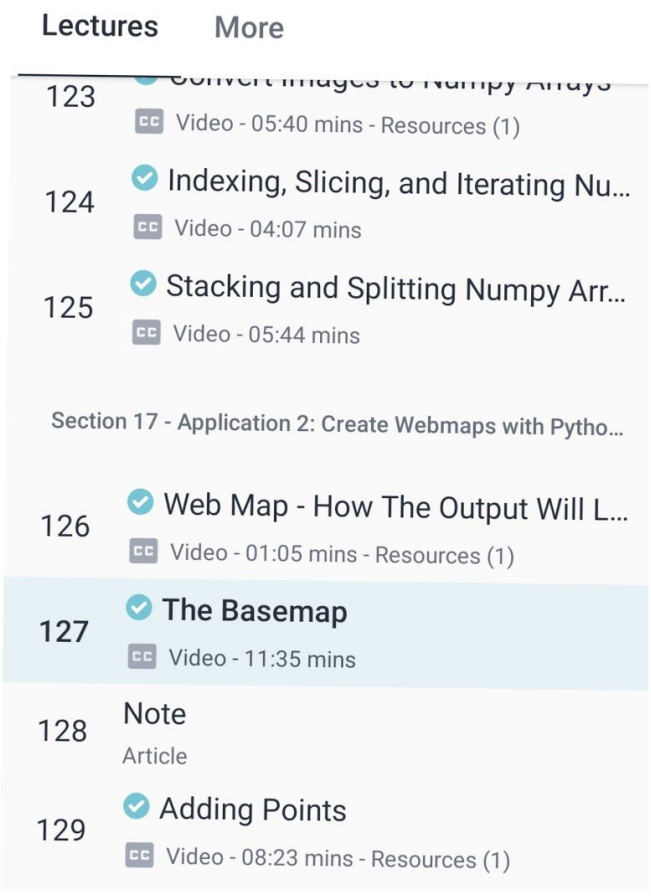
DATE	22-05-2020	Name:	MOUNITHA DM
Course:	PYTHON	USN:	4AL17EC055
Topic:	Application 2:Create Webmaps with Python and Folium	Semester & Section:	6TH SEM "A" SEC

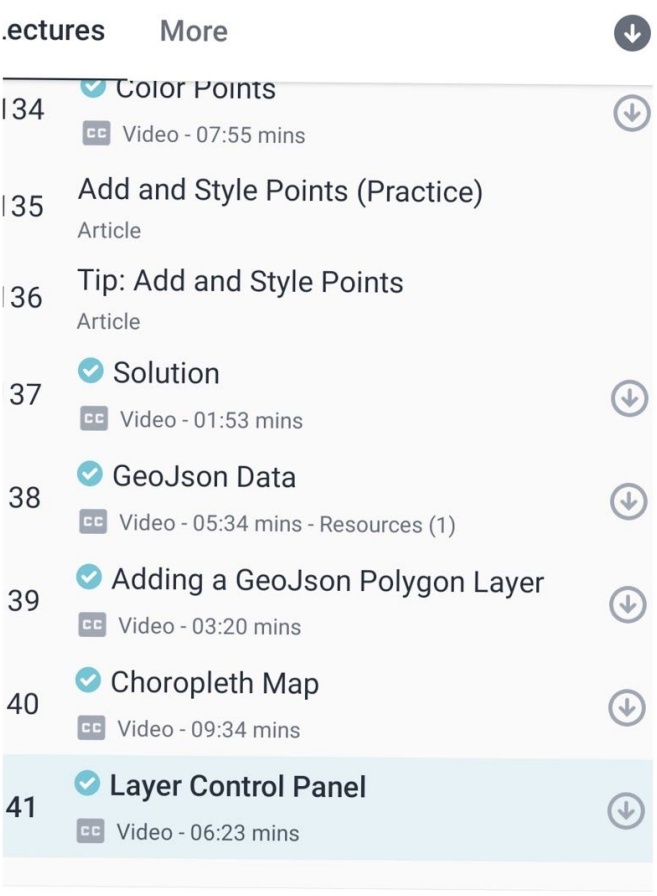
AFTERNOON SESSION DETAILS

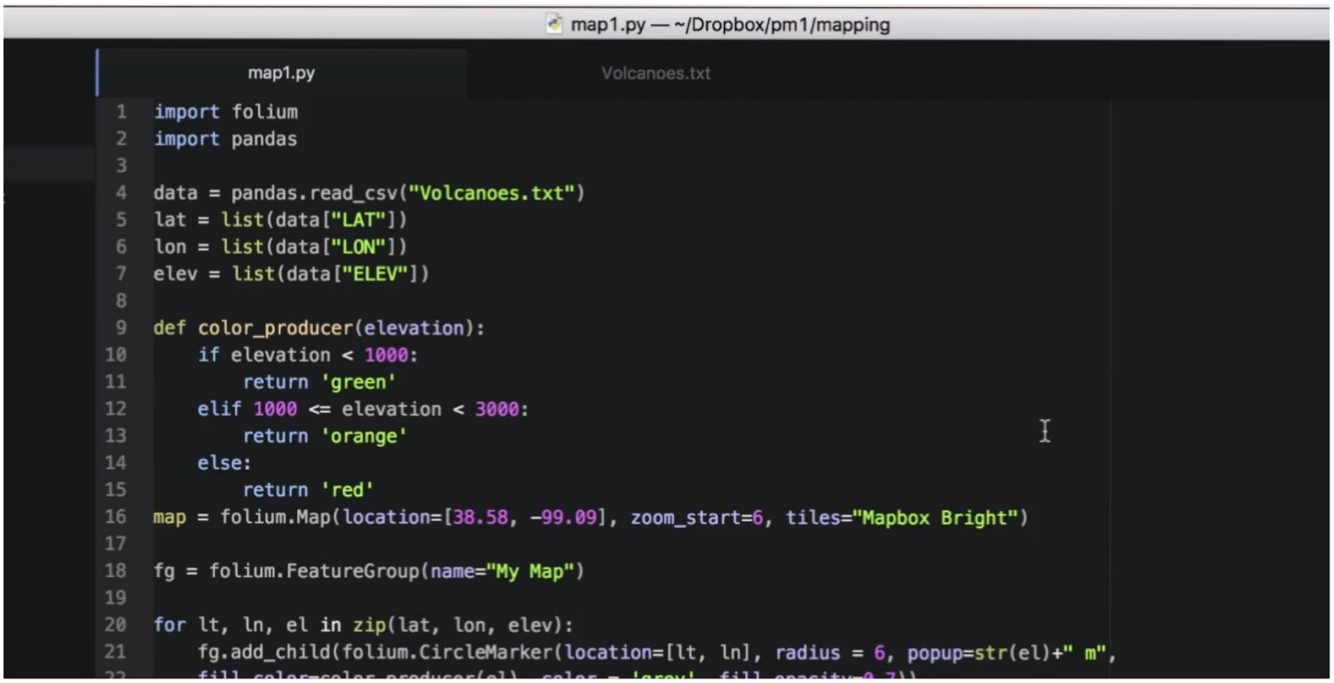
Image of session

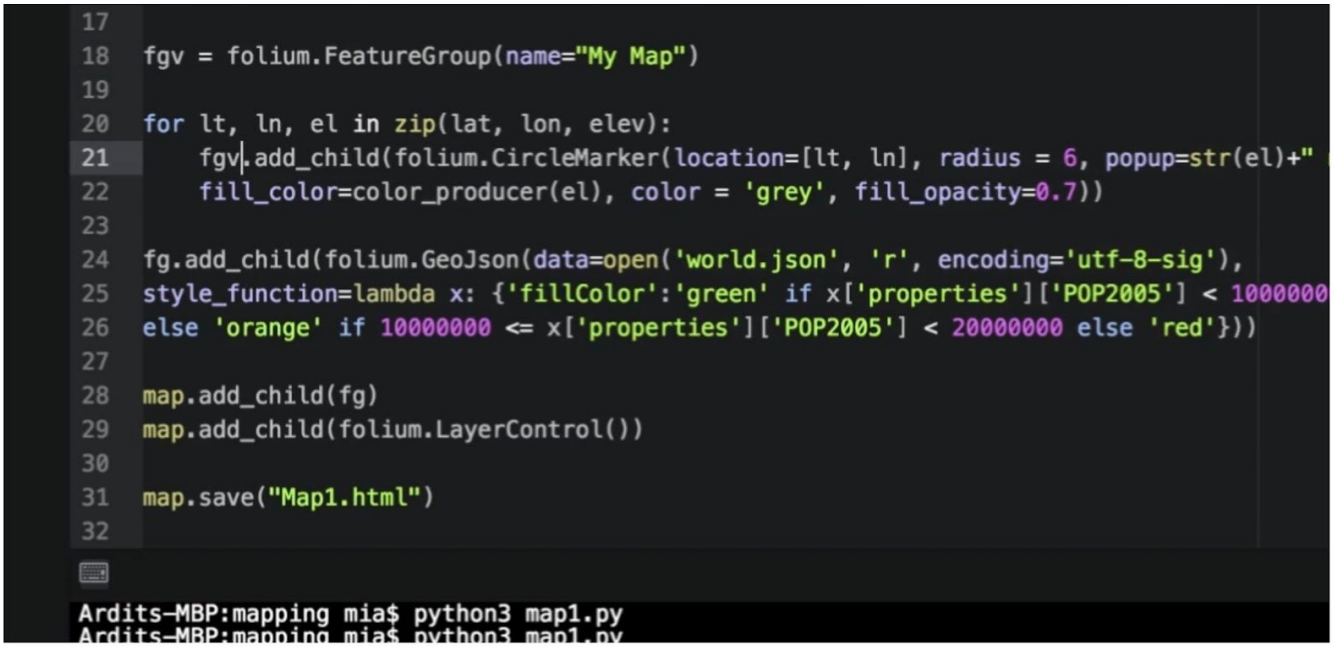









map1.py — ~/Dropbox/pm1/mapping
map1.py
Volcanoes.txt
import folium
import pandas
data = pandas.read_csv("Volcanoes.txt")
lat = list(data["LAT"])
lon = list(data["LON"])
elev = list(data["ELEV"])
def color_producer(elevation):
if elevation < 1000:
return 'green'
elif 1000 <= elevation < 3000:
return 'orange'
else:
return 'red'
map = folium.Map(location=[38.58, -99.09], zoom_start=6, tiles="Mapbox Bright")
fg = folium.FeatureGroup(name="My Map")
for lt, ln, el in zip(lat, lon, elev):
fg.add_child(folium.CircleMarker(location=[lt, ln], radius = 6, popup=str(el)+" m",


fgv = folium.FeatureGroup(name="My Map")
for lt, ln, el in zip(lat, lon, elev):
fgv.add_child(folium.CircleMarker(location=[lt, ln], radius = 6, popup=str(el)+"
fill_color=color_producer(el), color = 'grey', fill_opacity=0.7))
fg.add_child(folium.GeoJson(data=open('world.json', 'r', encoding='utf-8-sig'),
style_function=lambda x: {'fillColor':'green' if x['properties']['POP2005'] < 1000000
else 'orange' if 10000000 <= x['properties']['POP2005'] < 20000000 else 'red'}))
map.add_child(fg)
map.add_child(folium.LayerControl())
map.save("Map1.html")
Ardits-MBP:mapping mia$ python3 map1.py

Report – Report can be typed or hand written for up to two pages.

Day5 python. 22/5/202

Section 17 - Application 2 : create webmaps with python and Follum

Web Map - How the output will the python

The Basemap.

mapping

→ Get to Know Atom

- open a project
- Instal a package
- choose a Theme
- Customize the styling
- Hack on the init Script
- Add a Snippet

Adding points

```
import folium
map = folium.Map(location = [38.58, -99.89],
                 zoom_start = 6)
map.save("Map1.html")
```

```
import folium
map = folium.Map(location = [38.58, -99.89], zoom_start = 6
                 tiles = "Mapbox Bright")
map.add_child(folium.Marker())
map.save("Map1.html")
```

Adding Multiple points

```
fg = folium.FeatureGroup(name = "My Map")
fg.add_child(folium.Marker(location = [38.2, -99.1], popup = 'Hi I
    Marker', icon = folium.Icon(color = 'green')))
```

popup windows on Map

```
import folium
import pandas
data = pandas.read_csv("volcanoes.txt")
lat = list(data["LAT"])
```

fg = folium.FeatureGroup(name = "My Map")

for lt, ln in zip(lat, lon):

fg.add_child(folium.Marker(location=[lt, ln],

popup = "Hi I am a Marker" ; icon = folium.Icon(color='green')))

map.add_child(fg)

map.save("Map1.html")

→ HTML on popups

→ eg: * data = pandas.read_csv("volcanoes.txt")

lat = list(data["LAT"])

Lon = list(data["LON"])

elev = list(data["ELEV"])

map = folium.Map(location = [38.58, -99.09], zoom_start = 6,

tiles = "Mapbox Bright")

for lt, ln, el, in zip(lat, lon, elev):

fg.add_child(folium.Marker(location=[lt, ln], popup = str(el)+"m",

icon = folium.Icon(color='green')))

map.add_child(fg)

map.save("Map1.html")

→ Geojson data

→ Adding a Geo json polygon layer

→ fg.add_child(folium.GeoJson(data = open('world.json',

'r', encoding='utf-8-sig')))

→ Choropleth Map

* style_function = lambda x : {'fillcolor': 'green' if x['properties']

['POP2005'] < 10000000

else 'orange' if 10000000 <= x['properties']['POP2005']

< 20000000 else 'red'}.

→ Layer control panel

map.add_child(fg)

map.add_child(folium.LayerControl())

map.save("Map1.html")