Experiment 1: Intelligent Agent

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Aim: To develop a simple intelligent agent using python and identify a task environment for it.

Theory:

1. Agent: An agent is anything that can perceive its environment through its sensors and can act upon it with the help of its actuators.
2. Task Environment: Task environments are essentially the “problems” to which rational agents are the “solutions.”
3. Performance measurement: Performance measures are the desirable qualities that we want our agent to have.
4. Environment: Environment is everything present around the agent. Agent perceives the environment.
5. Actuators: Actuators are the elements of the agent through which the agent performs certain tasks.
6. Sensors: Sensors are the elements of the agent through which the agent perceives the environment.

Performance Measures	Environment	Actuators	Sensors
Comparison between the temperature signal received from thermocouple and the desired temperature	Room and the vicinity	Temperature Controller	Thermocouple

Code:

```
import requests
import random
import time

API =
"https://api.openweathermap.org/data/2.5/weather?q=India&appid=66393efdc89
1a96ae1ccbb315a72c37f"

def setMyRoomConditions():
   def convertFtoC(F):
       C = (F - 32) / 9
       return C

   def getWeatherTemperature():
       response = requests.get(url=API)
       responseJSON = response.json()
       weatherTemperature = responseJSON['main']['temp']
       return weatherTemperature

   def getRoomTemperature():
       return random.randint(0, 27)

   def setRoomTemperature(currentWeatherTemperature):
       return round(54 - currentWeatherTemperature, 2)

   currentRoomTemperature = getRoomTemperature()
   currentWeatherTemperature = getWeatherTemperature()
   currentWeatherTemperature = convertFtoC(currentWeatherTemperature)
   newTemperature = setRoomTemperature(currentWeatherTemperature)

   print('Current Room Temperature is ' +
str(round(currentRoomTemperature, 2)))
   print('Current Weather Temperature is ' +
str(round(currentWeatherTemperature, 2)))
   if newTemperature > currentRoomTemperature:
```

```
        print("Increasing the room temperature by " +
str(round(newTemperature - currentRoomTemperature, 2)))
    elif newTemperature < currentRoomTemperature:
        print("Dropping the room temperature by " +
str(round(currentRoomTemperature - newTemperature, 2)))
    else:
        print("Conditions are alright! Sit back and relax!")

while(True):
    setMyRoomConditions()
    time.sleep(10)
```

Conclusion:

I learned how to make a temperature controller for this experiment. I learned about the task environment of the agent(Performance, Environment, Actuators, Sensors). Agents are the problem's answer.