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 something that can perceive its environment through its sensors and react on them using its actuators.
2. Task Environment: Task environments are basically 'problems' , and rational agents are 'solutions', to them.
3. Performance measurement: The desirable attributes that we want our agent to have are called performance measures.
4. Environment: Environment is everything present around the agent. The environment is perceived by the agent.
5. Actuators:Actuators are the components of the agent that allow it to accomplish specific functions.
6. Sensors: Sensors are the components of the agent that allow it to perceive its environment.

Performance Measures	Environment	Actuators	Sensors
Time taken to fetch battery levels	Phone internals	Voltage regulators	Phone OS, Battery

Code:

```python
import random
import time


#This is a program that optimises battery health by balancing the battery requirements according to
#urgency and the voltages for a long lasting battery


def fetchBattery():

    #We can fetch the battery percentage from the phone
    #For now, a random battery percentage from 0 to 100 is assigned

    curr_battery = random.randint(0,100)
    print("\nCurrent battery: ",curr_battery,'%')
    if curr_battery<20:

        #SOS. Need fast charging.
        #We compromise battery health in exchange for fast charging

        print("Fast charging activated at 15V\n\n-----------------")

    if curr_battery>=20 and curr_battery<80:

        #Regular charging is sufficient.
        #This is a good balance of charging rate and battery health consideration

        print("Regular charging activated at 10V\n\n----------------")

    if curr_battery>=80:

        #Relaxed charging is sufficient
        #We are in no urgency for battery. So we charge at a
        #relaxed rate, in favour of battery health
```

```
    print("Relaxed charging activated at 5V\n\n----------------")

while(True):
    fetchBattery()
    time.sleep(5)
```

Conclusion:

While performing this experiment, I learnt what an intelligent agent is and the terms surrounding this concept, like the environment, performance measures, actuators and sensors. Through my project, I understood how a good AI should behave. My program automatically reads the phone battery (sensors) and adjusts the charging voltage(actuators) to optimize battery health without any user input(intelligent). In this way, my program is an intelligent agent.