# 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
```

```python
    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. I successfully built a program to optimize battery health by balancing the battery requirements according to urgency and the voltages for a long lasting battery.