**Multi-Agent Systems**

**Environment**

Environment is common-use structured entity in which agents are located. Additionally is considered as the first medium in which the agent interacts, by receiving perceptions and reacting according to them. Besides, researches have found that the environment can be applied in a wide range of tasks and used as a self-revising shared memory, and finally considered as an excellent medium of indirect coordination and based on real life applications that can be helpful to solve complex problems [1].

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| --- | --- | --- | --- | --- |
| Accessible | Deterministic | Episodic | Static | Discrete |
| Complete state of environment access to agents sensors. | The next agent state in their environment is determined by the actual state. | Agent experience is divided into episodes.  Each episode represents an agent perception and reaction as a consequence. | Environment does not change while agent is acting. | There are a limted clearly defined precepts or actions. |
| Detection of all relevant aspects by agents sensors to choose an action. | The actions selected by the agent are determined by their actual state. | The quality of the action accounts on the current episode itself. | Not require the agent to think about the environment while it is performing an action. |  |
| Agent does not have to store any internal state to be updated at their environment. | Not uncertainty in accessible in a deterministic environment. | Agents do not have to think ahead. | Agent does not have to worry about the pass of the time while he is acting. |  |

**Characteristics of the Environment**

The following sets of characteristics are used to describe which are the properties that represent an agent’s environment [2].