python = 3.7

packages = TensorFlow; Networkx; nxviz; matplotlib

**Agent Critic**: the decision makers and critics are defined in this script, It is an implementation of the MADDPG paper.

**Network**: All the elements necessary for the environment (the Network class) in which the agents will navigate and learn. The environment is made of several nodes and

traffic requests between these nodes. Several agents can play the game, each round every agent can build one connection between two nodes, the connections are

oriented. By creating connections agents can meet the traffic demands, and if it the case traffic will flow through their connections. The bigger the flow is in an agent's

connection the bigger its reward. Rewards are computed between each round. The requests do not change over time, i.e. they remain constant.

Clarification concerning vocabulary: a connections are operator specific, links are related to the network itself, this means that for one link there can be several matching connections, one for each operator who created a connection.

**Algorithm**: In this script the game takes place, the agents and the environment interact, and the agents learn from the returns of the environment.

**Testing:** for the sake of testing a simple problem has been submitted to the algorithm. Two operators are involved in this example. The network can be described by the following graphic.

Une image contenant photo, stationnaire, carte, table

Description générée automatiquement

All the arcs represented on the graph are the connections the operators can create. Therefore, they do not exist at the beginning of the game. Each one of these potential links has a capacity of 10. So, if two operators decide to create a connection between the same pair of nodes the capacity of the link will be 20

The only request for traffic is from the node 0 to the node 4.