VinU Mini-Lecture
Introduction to Optimization
Homework 3
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Problem 1

Consider the MDP described in fig 1, this is a modification of the maze run MDP discussed in lecture 2. All actions have zero cost, except the one action from state 4 to state 5 and the red action from state 3 to state 4. Consider the problem of computing the cost-to-go values of the optimal policy for each state. Formulate this as a linear program where the decision variables are the cost-to-go values of the decision states and the discount factor is 0.7.
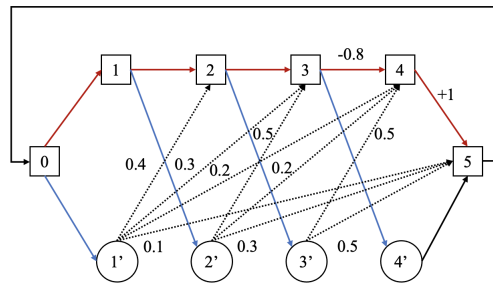

Figure 1: Modified Maze Run

Problem 2

True or False: if a linear program has more than one solution, it has infinitely many solutions.

Problem 3

True or False: if the feasible set of a linear programming problem is bounded and not empty, then the optimal solution exist.

Problem 4

True or False: Consider a linear program with a bounded feasible set. If x is an optimal solution, then it must be a corner point of the feasible region (if the feasible region has a corner point.