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"...dare to dream; care to win..."

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EE932 Assignment-2 Solution

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eMasters in Communication Systems, IITK
EE932: Introduction to Reinforcement Learning
Instructor: Prof. Subrahmanya Swamy Peruru
Student Name: Venkateswar Reddy Melachervu
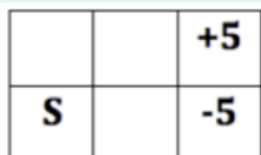**Roll No:** 23156022

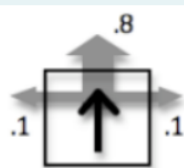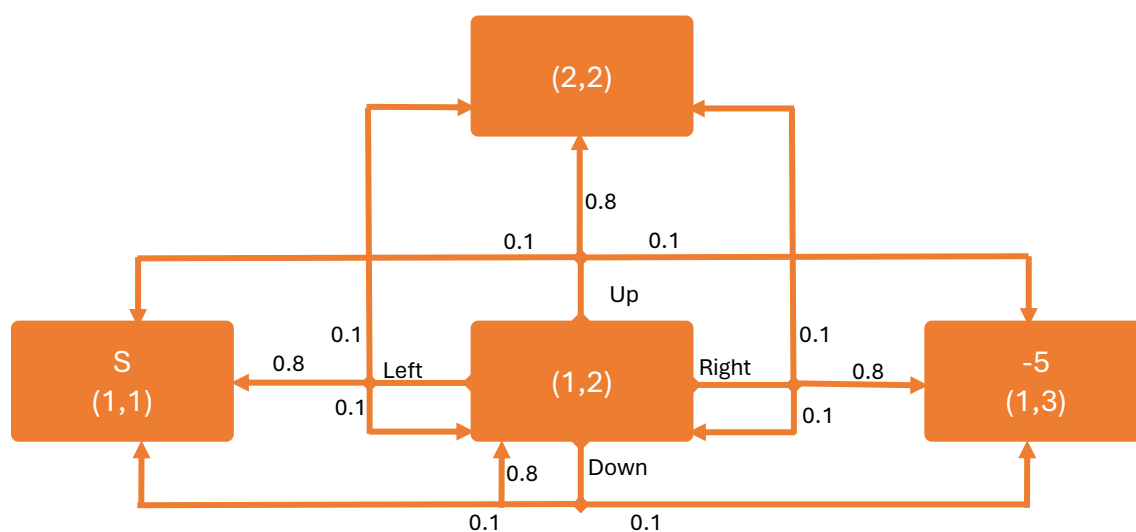**Question 10**:

Figure 1: Grid-World

Figure 2: Tranistion probabilities for an 'UP' action

Consider the grid shown in Figure 1. The states are grid squares, identified by their row and column numbers. The agent always starts in the bottom left state (1,1), marked with the letter S. (Note that the bottom row is denoted by number 1, the top row by number 2). There are two terminal goal states, (2,3) with reward +5 and (1,3) with reward -5. Rewards are 0 in non-terminal states. (The reward for a state is received as the agent moves into the state.) The transition function is such that the intended agent movement (UP, Down, Left, or Right) happens with probability 0.8. With probability 0.1 each, the agent ends up in one of the states perpendicular to the intended direction. Please refer Figure 2.

Draw the usual MDP state diagram like this figure containing all the states with clearly showing the actions and transition probabilities for one of its state (1,2), i.e., the state in between source cell and -5 cell

Solution:

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