CSCE 274 Fall 2021

Homework 7 (3% over the final grade)

Assigned: November 16, 2021
Due: November 23, 2021

Instructions

Please read carefully the following questions and make sure to give the answers asked for. Don't give a beautiful answer to the wrong question. If you have any doubts, please let me know.

The document containing the answers should be uploaded on the CSE Moodle (http://dropbox.cse.sc.edu) and should have the following characteristics:

1. Header with the code of the class, the semester and year, the homework number, and your name.
   e.g., CSCE 274 Section 1 Fall 2021 – Homework 7 – Ibrahim Salman
2. Your answers, clearly identifying the answered assignments.
3. The name of the file should be in the following format:
   csce274_fall2021_<hw#>_<last_name>.pdf
   e.g., csce274_fall2021_hw7_salman.pdf

Question

Given a robot in state x that executes a, and the new state in which the robot is going to be is y, with reward 5, the following Q-table, and learning rate parameter 0.2 and discount factor 0.9, **formalize** with the correct symbols the problem and **update** the Q-table using the Q-learning algorithm. **Show** your work.

State	Action	Q
x	a	45
y	a	20
x	b	10
y	b	3
x	c	20
y	c	10