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These environments have the purpose of completing the project assigned in the subject Computer Systems at ULA.

Instructions

1. You need to install gym and python on your computer.
2. Install requirements.
3. Go to the V0 folder.
4. Execute the main file to solve the respective puzzle.

#V0: The Pirate Ship

Version 0 of environment.

— Action Space = Discrete(4)
— Observation Space = Discrete(3.891.888)
— Import = gym.make("Pirate-Ship-v0")

Description

The Pirate Ship is a game adventure of a Pirate saving his ship. She needs to move 2 boxes, one of them must be in a strategic location to move the other box into the coin symbol. But, there are bombs that will affect the life of the pirate, and it will cause the ship to sink if the 2 bombs explode.

Map

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7 6 = Character position.
7 2 = Box #1.
5 3 = Box #2.
3 2 = Solution point.
4 4 = Bomb #1.
6 0 = Bomb #2.

Actions Agent

There are 5 discrete deterministic actions:
— 0: Move left.
— 1: Move down.
— 2: Move right.
— 3: Move up.
— 4: Push box.

Actions Push Box

There are 4 discrete deterministic actions:
— (0, -1): Left.
— (1, 0): Down.
— (0, 1): Right.
— (-1, 0): Up.

Observations

The observation is a value that represents the current position of the agent (n_rows * n_cols), so there will be 81 positions that the character will have. The boxes will have 78 and 77 respectively, and the 2 bombs must be included along with the 4 directions.

In total, there will be around **3.891.888** possible observations.

Rewards

- -1 any move.
- -10 there is no movement, it stays in the same place.
- 0 if you have finished the game.
- -30 if a bomb has exploded.
- -100 if the second bomb has exploded.

Arguments

gym.make("Pirate-Ship-v0")