Due: 4 October, 2020

#### **ASSIGNMENT 3: NEUTRON**

# • LIST OF COMMANDS FOR PLAYER W:

- o W1 UP
- o W1 DOWN
- o W1 LEFT
- W1 RIGHT
- o W1 LEFT UP
- W1 LEFT DOWN
- W1 RIGHT UP
- W1 RIGHT DOWN
  - LEFT UP/DOWN and RIGHT UP/DOWN are diagonal movements.
  - These commands work for all W's. So, if you want to move W2, you can type "W2 UP", "W2 DOWN"...etc. Likewise, you can say "W5 LEFT DOWN", "W5 RIGHT UP",...etc, if you want to move W5.
  - There cannot be a space after the last word of a command.
    - So, "W1 UP" is not allowed, but "W1 UP" is allowed.

#### • LIST OF COMMANDS FOR PLAYER B:

- B1 UP
- o B1 DOWN
- o B1 LEFT
- o B1 RIGHT
- o B1 LEFT UP
- o B1 LEFT DOWN
- o B1 RIGHT UP
- B1 RIGHT DOWN
  - LEFT UP/DOWN and RIGHT UP/DOWN are diagonal movements.
  - These commands work for all B's. So, if you want to move B2, you can type "B2 UP", "B2 DOWN"...etc. Likewise, you can say "B5 LEFT DOWN", "B5 RIGHT UP",...etc, if you want to move B5.
  - There cannot be a space after the last word of a command.
    - So, "B1 UP" is not allowed, but "B1 UP" is allowed.

# • LIST OF COMMANDS FOR BOTH PLAYERS WHEN MOVING THE NEUTRON:

- N UP
- N DOWN
- N LEFT
- o N RIGHT
- o N LEFT UP

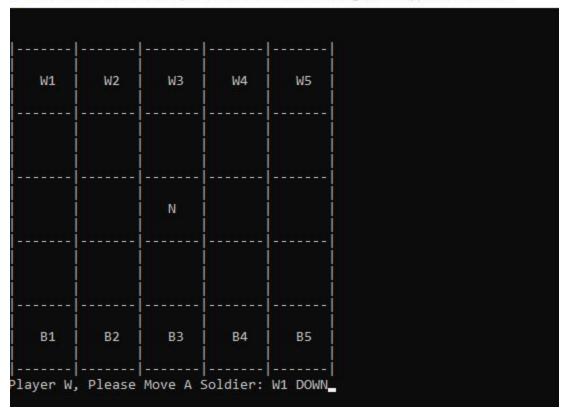
- N LEFT DOWN
- N RIGHT UP
- N RIGHT DOWN
  - These commands only work when it is a player's turn to move the neutron.

# • SOLDIER AND NEUTRON MOVEMENT:

- Both Soldiers and the Neutron move in a direction until they collide with another piece or the edge of the board. Once this collision occurs, The Soldier or Neutron that was moving ends up in the last available square that it travelled through.
- Both Soldiers and the Neutron are allowed to move in a direction that causes them to not actually change position. So, if W1 is already the farthest down it could be, the command "W1 DOWN" is allowed and would not change W1's position on the board.
- If, however, the Neutron is completely trapped such that it cannot move at least 1 square in any direction, then the player who completely trapped the Neutron wins.

# • EXAMPLES:

C:\Users\Charles\source\repos\Neutron\Neutron\bin\Debug\netcoreapp3.1\Neutron.exe



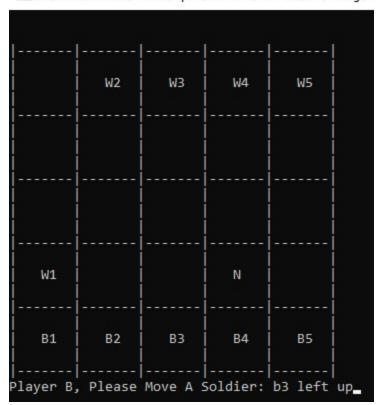
Will move the soldier W1 down.

C:\Users\Charles\source\repos\Neutron\Neutron\bin\Debug\netcoreapp3.1\Neutron\neutron\Debug\netcoreapp3.1\Neutron\neut



• Will move the Neutron diagonally, such that it moves right one and then down one.

C:\Users\Charles\source\repos\Neutron\Neutron\bin\Debug\ni



• Will move B3 diagonally such that it moves 1 up and then 1 left until it collides with the wall of the board.

# WIN CONDITION: GETTING NEUTRON TO A STARTING ROW

- o In the above picture, notice that the command "N LEFT UP" will place the Neutron on Player W's starting row. This would mean Player W would win.
- After entering the command, this is what is displayed on screen:

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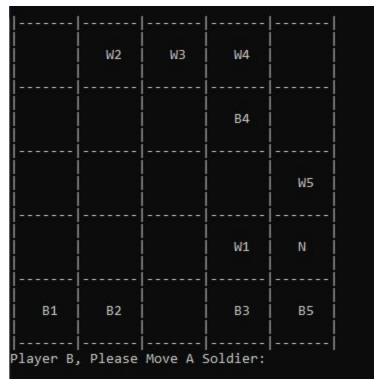
PLAYER W WINS!!!!

C:\Users\Charles\source\repos\Neutron\Neutron\bin\Debug\netcoreapp3.1\Neutron.

To automatically close the console when debugging stops, enable Tools->Options
le when debugging stops.

Press any key to close this window . . .

WIN CONDITION: COMPLETELY TRAPPING THE NEUTRON



• Notice that the Neutron is almost completely trapped. It is Player B's turn to move a soldier. Once Player B inputs "B4 DOWN", Player B wins.

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PLAYER B WINS!!!

C:\Users\Charles\source\repos\Neutron\Neutron\bin\Debug\net
To automatically close the console when debugging stops, er
le when debugging stops.

Press any key to close this window . . .
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