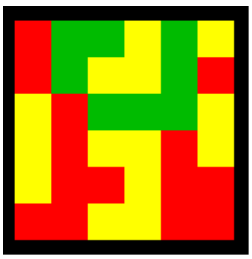
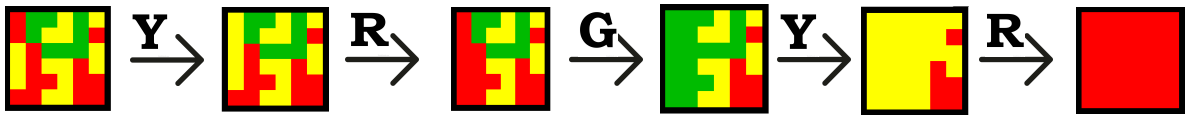
UNITED INTERNATIONAL UNIVERSITY

Department of Computer Science and Engineering (CSE)

MID ASSIGNMENT

SN	Questions	Marks
1	The "Flood It" game is a popular puzzle, similar in some ways to the 8-puzzle problem, which you have previously solved in class. Your task is to adapt the code used for the 8-puzzle to solve the "Flood It" game. The goal is to fill the entire **6x6** grid with a single color using the fewest moves possible. Initially the blocks of the grid are filled with **3 different random colors** as shown in the image .For further exploration, here is the link to the game. Apply the A* search algorithm in order to solve the Flood it puzzle. Represent the game board as a 2D numpy array of size 6x6. The grid will consist of 3 different colors, represented by integers (e.g., 0, 1, 2).  Adapt the existing code from the 8-puzzle problem to work with the "Flood It" game. Override the necessary functions, such as: __equals__, goal_state() , print_state(), A_start_search(), etc. in order to solve the puzzle. You need to choose **two different heuristics** and use those together in order to solve the puzzle. Finally, print the step by step solution of the puzzle. You can print the **2d matrices** and the **color choices** for this similar to the 8 puzzle problem. Sample Output 	10
2	You need to develop the KNN algorithm based on the following dataset. Finally consider the given test dataset. How many of the test dataset rows were predicted correctly? Print those rows. Note : You must implement the **code from scratch**. Do not use any libraries other than **pandas and numpy**.	5
3	Quiz/Viva : It will be based on your submitted work. So have a thorough understanding regarding the working of your code and the topics taught in class.	10