

COMP 110 Object-Oriented Programming

Assignment 3 – Cat Simulation

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Algorithm Explanation

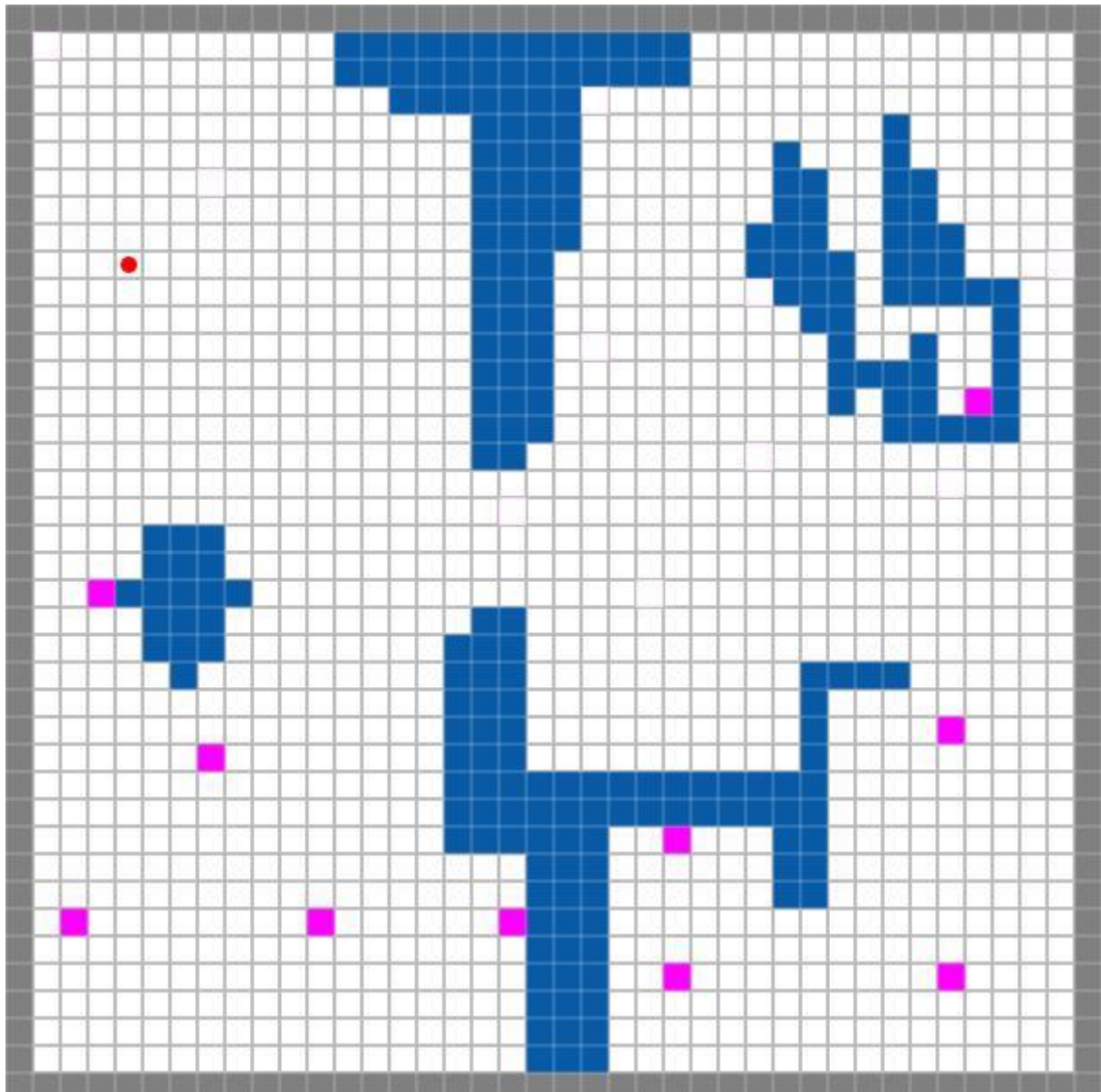
In this assignment, I used a graphics library. this program creates a canvas with a 600X600 mm width and height. It sets the canvas Xscale (0,40) and Yscale (40,0) Then, it takes world size from a text file. after that, according to world size it creates a two-dimensional array. In a loop takes String values and parse to int after that assign to our two-dimensional array.

In a for loop it reads the array and creates the world areas (sea, wall, food and flat).

I created a cat object it moves randomly, however it can not pass the sea or wall and if it has a near food resource it directly goes to the food. When the cat eats a food, food remove from the map and add 1 to food count.

Sample Outputs

When cat moves 5000 time

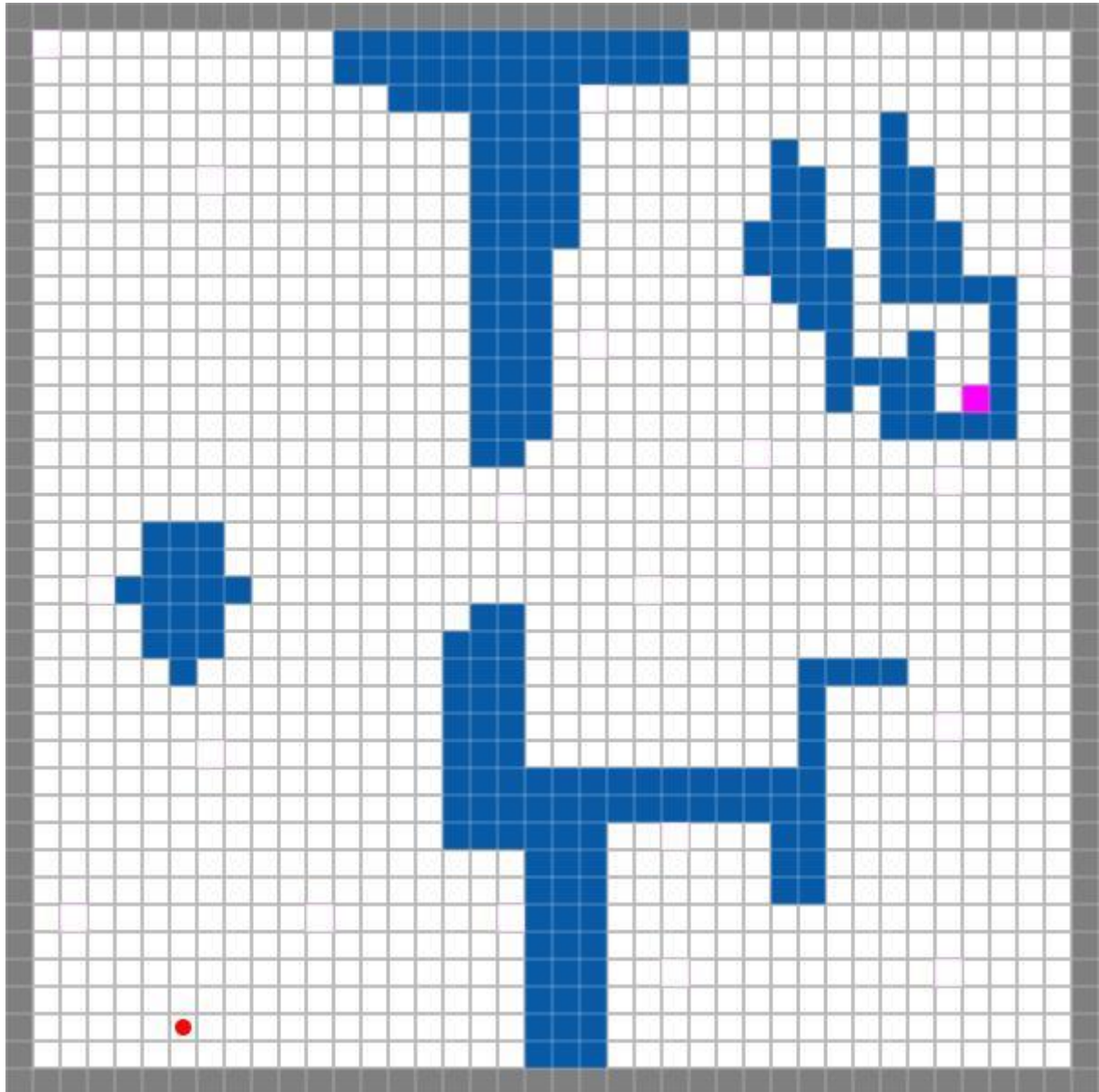


(food counter is 10)

The grid world environment is a 20x20 grid. The red starting point is located at (10, 10). The green goal point is located at (15, 15). Blue obstacles are located at the following coordinates: (10, 1), (10, 2), (10, 3), (10, 4), (10, 5), (10, 6), (10, 7), (10, 8), (10, 9), (10, 11), (10, 12), (10, 13), (10, 14), (10, 15), (10, 16), (10, 17), (10, 18), (10, 19), (11, 1), (11, 2), (11, 3), (11, 4), (11, 5), (11, 6), (11, 7), (11, 8), (11, 9), (11, 11), (11, 12), (11, 13), (11, 14), (11, 15), (11, 16), (11, 17), (11, 18), (11, 19), (12, 1), (12, 2), (12, 3), (12, 4), (12, 5), (12, 6), (12, 7), (12, 8), (12, 9), (12, 11), (12, 12), (12, 13), (12, 14), (12, 15), (12, 16), (12, 17), (12, 18), (12, 19), (13, 1), (13, 2), (13, 3), (13, 4), (13, 5), (13, 6), (13, 7), (13, 8), (13, 9), (13, 11), (13, 12), (13, 13), (13, 14), (13, 15), (13, 16), (13, 17), (13, 18), (13, 19), (14, 1), (14, 2), (14, 3), (14, 4), (14, 5), (14, 6), (14, 7), (14, 8), (14, 9), (14, 11), (14, 12), (14, 13), (14, 14), (14, 15), (14, 16), (14, 17), (14, 18), (14, 19), (15, 1), (15, 2), (15, 3), (15, 4), (15, 5), (15, 6), (15, 7), (15, 8), (15, 9), (15, 11), (15, 12), (15, 13), (15, 14), (15, 15), (15, 16), (15, 17), (15, 18), (15, 19), (16, 1), (16, 2), (16, 3), (16, 4), (16, 5), (16, 6), (16, 7), (16, 8), (16, 9), (16, 11), (16, 12), (16, 13), (16, 14), (16, 15), (16, 16), (16, 17), (16, 18), (16, 19), (17, 1), (17, 2), (17, 3), (17, 4), (17, 5), (17, 6), (17, 7), (17, 8), (17, 9), (17, 11), (17, 12), (17, 13), (17, 14), (17, 15), (17, 16), (17, 17), (17, 18), (17, 19), (18, 1), (18, 2), (18, 3), (18, 4), (18, 5), (18, 6), (18, 7), (18, 8), (18, 9), (18, 11), (18, 12), (18, 13), (18, 14), (18, 15), (18, 16), (18, 17), (18, 18), (18, 19), (19, 1), (19, 2), (19, 3), (19, 4), (19, 5), (19, 6), (19, 7), (19, 8), (19, 9), (19, 11), (19, 12), (19, 13), (19, 14), (19, 15), (19, 16), (19, 17), (19, 18), (19, 19).

(food counter is 12)

When cat moves 20000 times



(food counter is 19)