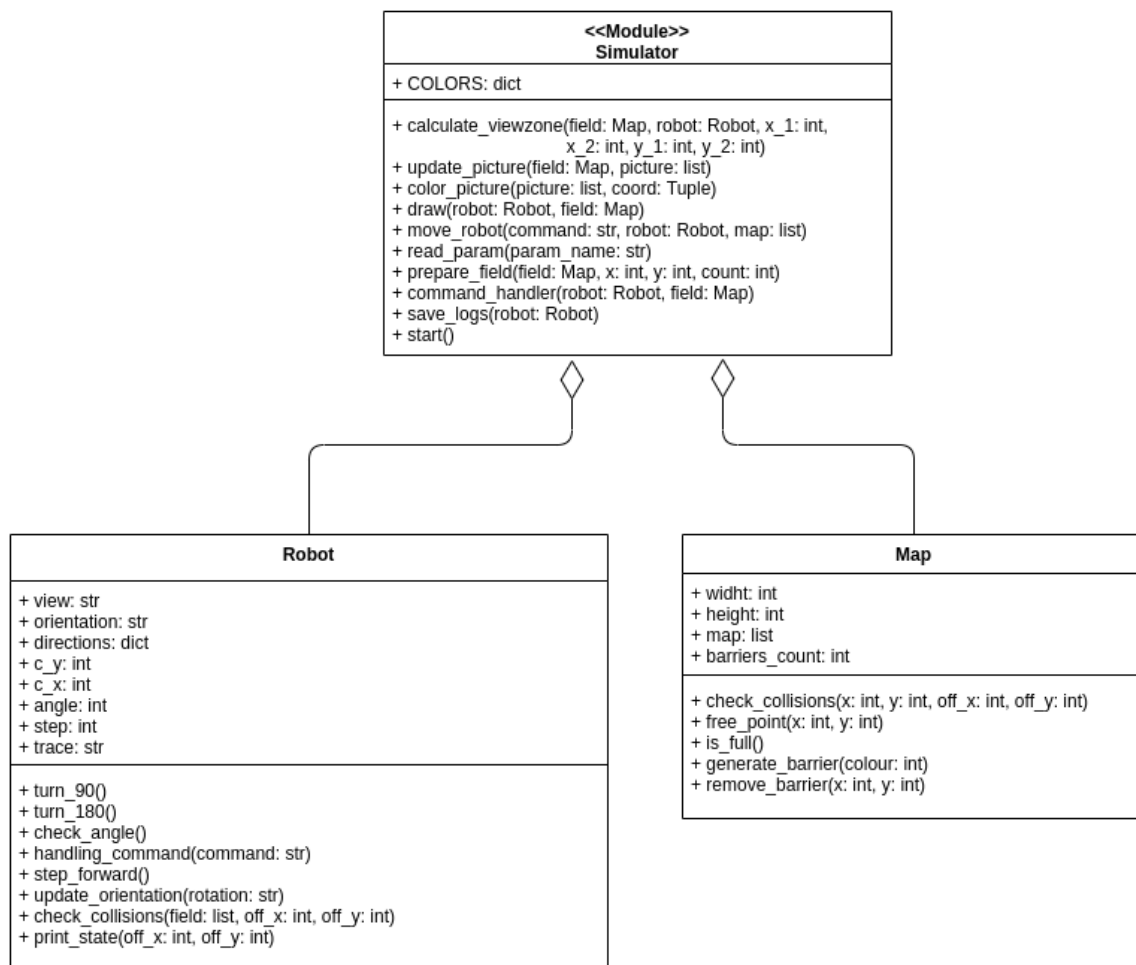


Architecture description:



Picture1 — UML class diagram

The program consists of three modules: map-contains the Map class, robot-contains the Robot class, simulator-contains the simulator functionality. Some functions of the simulator module contain objects of the Map and Robot classes, so you can see the aggregation relationship in the diagram.

Description of the general logic of the simulator:

There are 3 parameters at the input: X - field width, Y - field height, N - number of barriers. After that the field object with the previously entered dimensions is created and the barriers of random size are generated on it, and also the robot object is created, which will be located in the center of the field. Immediately after, the user is prompted to enter one of the commands to manipulate the robot. After processing the command, the program displays to the user information about the direction of the robot and the arrival point, all this is accompanied by a graphical output to the terminal of a small area in which the robot is now. During the program all movements of the robot are recorded. When you enter a command to exit the interactive menu, the user is asked to save information about the movement of the robot in the json file. After the user answers, the program performs the corresponding action and finishes its work.