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CS 470

Assignment #7

Robocode, or “Robot Code”, is a programming game that can be used to supplement learning programming languages and artificial intelligence. Robocode is useful, in particular, for the Java and .net programming languages. In the game, a player can program a robot to simulate battles against the other robots. Robocode offers a variety of sample robots to battle as well as information to build your own or download others.

The game originated from Matthew A. Nelson. The first implementation was a personal project that became professional after Nelson presented Robocode to IBM in 2001. Later in 2005, Robocode was launched on SourceForge. Professional development, at this time, was slowed and taken over by open-source community development.

The game is carried out in a battle arena. Robots enter the arena, and based on programming, begin to attack each other. Multiple robots can enter the arena, can battle one on one, or run another selected variant. To score the battles, a total score percentage is calculated from metrics such as survivability, survival bonuses, bullet damage, bullet bonuses, ram damage, and first, second, and third placements. A rank is then given to each robot in order of the highest total score percentage. The battles occur on-screen and in real-time. Each battle, by default, consists of ten rounds. At the end of each round, the metrics are added to the cumulative battle total. The rules within Robocode can also be altered to allow for a more diverse setting. The number of rounds, battlefield size, and fire cooling rate are all examples of settings that can be altered.

Given the default rules and sample robot package, I chose to analyze the Corners, Crazy, Fire, Ramfire, and MyFirstJunior robots. To determine a ranking, I created a table with rows and columns representing the robots. I ran each robot against the others in the table three times in a one on one battle. After the three battles, I took the highest and corresponding lowest scorse and recorded them in the table. After, I create a new totals column to add the results from each row. In the end, my score totals were 282, 237, 174, 177, and 161. These scores represented the bots, in descending order, MyFirstJuniorRobot, Ramfire, Crazy, Fire, and corners.

For my robot, I built a bot called LeeDonald. The main strategy is to always scan for targets and fire multiple shots. If hit, LeeDonald attempts to perform evasive maneuvers.