

Title: Hearthstone simulator

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Abstract: The goal of this work was creation of a Hearthstone simulator in *C#* which would open possibilities for analyzing quality of decks and tactics with the use of artificial intelligence as well as easy implementation of new cards and game rules. Our simulator implements mechanics and cards of the base set. It also implements three heroes, (hero represents certain card set and a special ability), including their base cards and special ability. Simulator is capable of effectively simulating large amount of games played by two artificial intelligencies against each other. It also allows the user to test game mechanics and behaviour of his artificial intelligence in a graphically visualised environment. There are two artificial intelligencies, which are capable of playing and winning the game, already implemented for demonstration purposes. Simulator supports implementation of all remaining mechanics. It also enables easy creation and implementation of custom mechanics and cards and their testing, which makes it possible to create better artificial intelligencies, decks and cards and their optimisation. Analysis of the speed of our simulator has shown that our simulator can simulate games fast enough while being faster than any of the other simulators we tested for comparison. This makes our simulator a valid choice for anyone interested in application of artificial intelligence in Hearthstone.

Keywords: simulator, card game, Hearthstone, artificial intelligence