Lab 1 - Documentation

Linus Savinainen, Mahmut Osmanovic

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1 Abyss

Due to the general rules that applies to both of the two players during a game of The Abyss, we decided to make two general functions, checkSum and checkStatus, which are called upon during the gameplay loop to effectively check if either of the five rules' criteria has been fulfilled. The function checkSum handles rules two, three and four and the function checkStatus handles rules one and five. Because of the logic behind all the rules is identical for both the human player and the npc[1], they share these functions instead of having two functions per player.

If a rule was applied (e.g a player rolls back to 12 points, rule three) we made a function, printAppliedRule, which prints a message if rule two, three or four was applied, e.g "Player back to 12 points!" if rule three was applied on the human player. This makes it clear for the human player of what is happening and why.

2 Pig

Unlike The Abyss where the human player and the computer has identical actions during their respective turns, in Pig the computer has a predetermined strategy whereas the human player can, in theory, keep rolling dice until she wins without the computer ever rolling a die. This made us do separate functions for the human player and the computer, pigsPlayerTurn and pigsNPCTurn. They return an integer value which is added to their respective total scores in accordance with the rules. To put it simple, these functions will end when either a one is rolled, the human player decides to hold or when the computer has rolled a maximum of three times. These functions are called in the gameplay loop and a simple check is done afterwards if anyone has reached a score of 100 or greater.

One noteworthy detail is that when the npc does a turn, the function pigsNPCTurn is called with an argument containing the npc's total score for the game. If the algorithm detects that what the npc has rolled thus far in the turn is enough to reach a score of at least 100, it discontinues the rolling of dice and "holds", even if it only rolled a single time. This leads to a guaranteed win for the npc. Otherwise the npc could roll enough points to win, then roll a one and gain nothing and thus losing the opportunity for a secured win.

3 General

Both games utilize the function rollDie, which gives the effect of rolling a die by returning an integer between one and six with equal chances for all possible outcomes. It also prints a message when a die is thrown, e.g "NPC rolled 4" or "Player rolled 3" with the help of the bool parameter (true for npc, false for human player).

Throughout both games we have also added several sleep() which pauses the flow of the game for one to two seconds in order to achieve a sense of gameplay flow. Otherwise everything happens almost instantly which is not preferred from the human perspective.

[1] npc is an abbreviation of non-player character, i.e the computer