Project Report

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How to run the Blackjack.py file:

* Please make sure to have the random, names, msvcrt, math libraries.
* Run the program in fullscreen.

The additional rules of the game:

* There must be at least two players.
* There can only be ONE UNIQUE winner each game.

+ If there are multiple players with the winning score. The first person to achieve that scores wins.

* During the first turn, if a player gets a straight blackjack:

+ The game does not ask for bets.

+ The winner is awarded 20 kopecs.

* If there is only one person left in play AND he or she has the winning score, the game ends.
* The winner gets two times his or her kopecs back.
* The losers lose all their bets on that turn.

Flow chart on the 2nd page

Diagram

Description automatically generated

Explanation of botSmart:

Text

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* Using the winner function, if the bot sees it does not have the winning score, it draws. Since there is no different between going bust and second place, either win or lose.
* Else if the bot score is lower than 12 or 12, it draws. Since the risk is low.
* Else we do not draw.

Comparison of all the bot functions:

Chart, bar chart

Description automatically generated

Letting the bots play 100000 games, we have counted the wins (excluding straight blackjack) of each bot.

Explanation of botSmart’s bet:

Text

Description automatically generated

* Using the winner function, if the bot sees he is the winner, he takes in account his own score. The closer it is to 21, the more he bets.
* If he is not the winner, than he takes in account the winner’s score. The closer it is to 21, the less he bets.
* All bet value is a percentage of his bank.

Comparison of all the bet functions:

Chart

Description automatically generated

After 1000 games, Bot Random, Bot Always and Bot Fixed ran out of money.

Bot Never got 1279 kopecs.

Bot Smart got 23900705377756243410429289959679136864322856670773 7856988016515375705426004020854811380 kopecs.