

Ročníkový projekt – report za LS 2022

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Našou prvou úlohou tento semester bolo definovať, čo je to kartová hra. Ako sa ukázalo definovať kartovú hru vo všeobecnosti nie je vôbec jednoduché a preto a pre časové obmedzenia sme sa rozhodli obmedziť svoje skúmanie len na hru faraón (a potenciálne jej varianty).

Definovali sme základné pojmy, mechaniky a pravidlá hry faraón na základe ktorých sme začali implementovať herné mechaniky v pythone. Následne sme naprogramovali jednoduchý konzolový interface na hranie hry. Implementovali sme aj niekoľko počítačových hráčov – náhodného, hráča, ktorý vždy zahrá maximálny možný počet kariet a hráča, ktorý zahrá najmenší zmysluplný počet kariet. Na záver sme implementovali hráča pomocou algoritmu Monte Carlo Tree Search s náhodným prehľadávaním (tzv. light playout).

```
Run - card_games
main
"C:\Users\asus\OneDrive - Univerzita Komenskeho v Bratislave\School\rp\ca
## CONSOLE PHARAOH ##
enter your commands behind '>>>'
>>> play
top card: ♠A valid for next 1 moves
It's your turn.
Your cards are:
[0] ♠8
[1] ♠10
[2] ♠♠
[3] ♠♣
[4] ♠A
>>> help
enter 'play' number for each card you want to play (e.g. 'play 1 4 2')
enter 'draw' to draw cards
enter 'status' to see, how many cards each player has
enter 'top' to show the top card
enter 'hand' to see your cards
table of symbols:
HEART = ♥
BELL = ♀
ACORN = ♠
LEAF = ♣
VII = 7
VIII = 8
IX = 9
X = 10
UNDER = ▽
OVER = ▲
KING = ♣
ACE = A
>>> status
jakub: 5, computer1: 5, computer2: 5, random1: 5
>>> top
top card: ♠A valid for next 1 moves
>>> hand
Your cards are:
[0] ♠8
[1] ♠10
[2] ♠♠
[3] ♠♣
[4] ♠A
>>>
>>> ddd
unknown command
```

```
Run - card_games
main
random1: DRAW 1
It's your turn.
Your cards are:
[0] ♠10
[1] ♠♠
[2] ♠♠
>>> play 1
Enter suit to which you want to change:
>>> ♠♠
jakub: PLAY ♠♠ CHANGES TO ♠
random1: DRAW 1
It's your turn.
Your cards are:
[0] ♠10
[1] ♠♠
>>> play 1
Enter suit to which you want to change:
>>> ♠
unknown suit, enter 'help' for help
Enter suit to which you want to change:
>>> ♠♠
unknown suit, enter 'help' for help
Enter suit to which you want to change:
>>> ♠♠
jakub: PLAY ♠♠ CHANGES TO ♠
random1: DRAW 1
It's your turn.
Your cards are:
[0] ♠10
[1] ♠♠
>>> play 0
jakub: PLAY ♠10
jakub finished.
Result:
[0] computer1
[1] computer2
[2] jakub
[3] random1
>>> help
enter "play", to start the game
enter "exit", to exit the game
enter "rules", to view game rules
>>> exit
Process finished with exit code 0
```