Collaborative filtering
Python
3.8
Python
activate
1
?
DATASET_FOLDER
cosine

$$\cos(x,y) = \frac{x.y}{x.y}$$

(1)

T
D
D_{diag}

(2)
$$D = T.T^T$$

(3)
$$1/D_{diag} = (\,1\,)/D_{1,1}0\cdots001/D_{2,2}\cdots-\ \ 00\cdots1/D_{n,n} = (\,1\,)/T_10\cdots001/T_2\cdots-\ \ 00\cdots1/T_n$$

(4)
$$N = (1/D_{diag}).(1/D_{diag})^T = (\ )1T_1T_11T_1T_2\cdots1T_1T_n1T_2T_11T_2T_2\cdots1T_2T_n\ \ 1T_nT_11T_nT_{12}\cdots1T_1T_n = (\,1\,)/T_10\cdots001/T_2\cdots$$

Engine
Engine
Engine
getAvailableMoves
makeMove
CLI
CLI
Rich
agent
agent
Minimax
engine
Agent
Agent
AbstractAgent
__init__(self,
color)
move(self,
engine)
move
engine.getAvailableMoves
$init_{(self,color):self.color=color}$
Human
Agent
Human
Agent
prompt
$init_{(self,color):self.color=colorself.colorName="Black"ifPLAYERS.BLACK==colorelse"White"}$
Minimax
Agent
MiniMaxAgent
calculateMiniMax
MiniMax
C++
int32_t
C++
parse
$init_{(self,color,depth=7):self.color=colorself.colorName="Black"ifPLAYERS.BLACK==colorelse"White"self.depth=depth}$
agent
agent/__init__.py
$init_{.py}AgentCLI.HumanAgentMiniMaxAgent.$
Minimax
MiniMax
$minimax_eng.cppC++.Alpha-BetaPruningCutoffZobristHashing.$
Zobrist
Hashing
Zobrist
Hashing
$=zobristTable[i][j][grid[i][j]];returnval;$
$=zobristTable[ip][jp][prvColor]^zobristTable[ip][jp][curColor];$
Multithreading
$(is+$
$idir,js+$
$jdir)$
$(is+$
$k*$
$idir,js+$
$k*$
$jdir)$
prvColor
curColor
prvHash
makeMove