kx: No:5 MiniMax Algorithm. Date: of ment was state). program code: " work, x rop [x x]] well. from math import inf as infinity from vandom import choice import time (which is to be) from 08 import system (100) brown is HUMAN, COMP = -1, +1. return their board = [[0] * 3 for - in range (3)] def evaluate (state) del della commina por if wire (state , COMP): return +1 if wins (state, HUMAN): vieturin). of depth == 0 or game (a) (Olymphe def wins (state, player): win state = [[State [0][0], State [0][1], State [0][2], [State [1][0]], State [1][1], State [1][2]], L state [2][0]], State [2][1], State [2][2], State [0][0], State [1][0], State [2][0]],].

return [player, player, player] in vein-state del game-over (state). return [[x,y] for x, now in enumerate (state) for y, cell in enumerate (now) if from sandy import chairs no del set_move (x, y, player): from Do inject igiten (x)[x] broad fr board [x][y] = player return True vieture falsenier in raf & [01] brosel. def min mase (state, depth, player); af player == xOMP : best = [-]. - infinity] ulse: best = [-1, -1, + infinity] if depth == 0 or game_over (state): return [-1, -1, evaluate (state)] for x. v in sempty = cells (state); State [x][v] = player Score = minimax (state, depth -1, [froite] player) to the state to be at the

if player = = COMP: if score [2] > best [2]: best = score. else: (01.1) spruk in for work show if Score [2] (best [2] : best = Score. return best when I torque time - some (1. James 1 (mars : 1, 3) del clean (): system ('ils'if 'rvin' in platform system (). Lower () else 'clear') during I vain but I than lover. print (snowled supert !): () report ! bury chars = (HUMAN: 'x', comp: '0', 0: ") dy main(): print (in' + '-- - '* 3) for now in board: Minder D print ('1'+'1'. join ([charis [cells] for rell in row]) + '1') igum - own (beard): point ('---' * 3) def ai two () (brook 1 + 200 - 1, 100) move = minmas (board : len (emptycells (board)), (OMP) set move (move [0], move [1], (OMP). time ! steep (1)

del human twen (); while move not in range (1,10); thy: time : (c) time ; (c) time ; move: int (input ('Enter move (1:9);')) x, y = dwinod (move : 1, 3) if not set_move (x, y, HUMAN): print (Invalid move! Try again.) except (value broon, Index levror); prunt ('Invalid Input!'): def main (); (E+ - - + 1/1) Lund clean () किर अधार के अवस्ता render () while ten (empty- cells (board)) >0 and not game_over (board); human - twin () ul game_over (board): break dyne siturn Col promision - work render () (que e), (chand I alles of wins (board, HUMAN): print (you win!) ely wins (board, comp): print ('you lose!)

else: print ('Draw!') If_name == '_main__': main (). Brogum rode output: instruction of choose x or o inne I want chosen: x Appalle (Shelle) First to start ? [Y/n]: y male Lewis Human twn [x]. (with I dotty) 1 1) 11 1 finale (jary) fronte (lisa) (1) (1) genale (helen) use numped (1..9); grasunt of 1 whis, peten) computer turn [0]. powert Of (while, billy) forest of (helen, peter) Result: from to be (Silver to be by) Thus the program for Mini Man Algorithm. is successfully executed & the output is vivilied favort Of Gory, john, front of the sent server