AI Project Part II

Group members

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Steps Involved In Training Our Bot For Street Fighter II

1. First data was gathered and accessed through different classes objects in the fight function. Data gathered was:
    a. Data extracted from game

    p1Xcoord,p1Health,p1Ycoord,isJumpP1,isCrouchP1,P1ButtonsUp,P1ButtonsDown,P1ButtonsRight,P1ButtonsLeft,P1ButtonsY,P1ButtonsB,P1ButtonsX,P1ButtonsA,P1ButtonsL,P1ButtonsR,p1PlayerId,P1InMove,P1MoveId,p2Xcoord,p2Health,p2Ycoord,isJumpP2,isCrouchP2,p2PlayerId,P2InMove,P2MoveId,timer,RoundStart,RoundOver,FightResult
2. Then data was stored into a data.csv file with their column names. More and more games were played to generate large dataset to train our model bot
3. Then we had to preprocess the data so we calculated delta distance using x and y coordinates of both the players using distance formula and delta health for both the players were also calculated to maximize the output of the bot.
4. After gathering the data it was analyzed to see which features were dependent and which features were not.

    a. Dependent Features (Y)

    'p1Xcoord', 'p1Health', 'p1Ycoord', 'isJumpP1', 'isCrouchP1', 'p2Xcoord', 'p2Health', 'p2Ycoord', 'isJumpP2', 'isCrouchP2', 'p1PlayerId', 'P1InMove', 'P1MoveId', 'p2PlayerId', 'P2InMove', 'P2MoveId', 'timer', 'RoundStart', 'RoundOver', 'delta_p1_health', 'delta_p2_health', 'delta_distance'

    b. Independent Features (X)

    P1ButtonsUp', 'P1ButtonsDown', 'P1ButtonsRight', 'P1ButtonsLeft', 'P1ButtonsY', 'P1ButtonsB', 'P1ButtonsX', 'P1ButtonsA', 'P1ButtonsL', 'P1ButtonsR'
5. Then Neural network sequential model was trained with 3 layers. TensorFlow library ‘Keras’ was used for it Activation functions of 2 layers were ‘Relu’ and for last layer it was ‘Softmax’. The output were probabilities of different buttons being pressed. The model was saved. We achieved accuracy of around 47% with our model.
6. Model was loaded into fight function and then values were predicted with data coming from each frame and threshold probability was set for button to be pressed.