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**Section: BSAI-3A**

**Subject: Artificial Intelligence (Lab)**

**Task: 8**

At the beginning, the program imports the **math** library because it needs the logarithm function to calculate the depth of the game tree. Then, the **minimax ()** function is defined. This function takes five parameters — the current depth (curDepth), the node index (nodeIndex), a boolean to check whose turn it is (maxTurn), the list of scores (scores), and the target depth of the tree (targetDepth). Inside the function, there’s a condition that checks if the current depth has reached the target depth. If it has, the function returns the score at that node. If it’s the maximizer’s turn, it picks the maximum value between two child nodes. If it’s the minimizer’s turn, it picks the minimum value. This process repeats recursively until the target depth is reached.

The **scores** list in this program is [3, 5, 2, 9, 3, 5, 2, 9]. The tree depth is calculated using math.log(len(scores), 2), which gives 3.0. So, as maximizer has first turn so he will pick maximum values to win score [5,9,5,9] then minimizer turn so he will choose minimum value to win score [5,5] so again it’s maximizer’s turn so as now both values are same so he will choose any of them and score [5]

The program gives an **output of 5**.