CS 221. HW. [PACMAN].

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By turning in this assignment, I agree by the Stanford honor code and declare that all of this is my own work.

Problem 1: Minimax

(a). $V_{opt}(s,d) = \begin{cases} \text{Utility}(s), & \text{if } \text{IsEnd}(s) \\ \text{Eval}(s), & \text{if } d=0 \\ \max_{a \in \text{Actions}(s)} V_{opt}(\text{Succ}(s,a),d), & \text{if player}(s)=a_0 \\ \min_{a \in \text{Actions}(s)} V_{opt}(\text{Succ}(s,a),d), & \text{if player}(s)=a_1,a_2,\dots a_{n-1} \\ \min_{a \in \text{Actions}(s)} V_{opt}(\text{Succ}(s,a),d-1), & \text{if player}(s)=a_n. \end{cases}$

Problem 3: ExpectiMax.

(a). $V_{opt,\pi}(s,d) = \begin{cases} \text{Utility}(s), & \text{if } \text{IsEnd}(s) \\ \max_{a \in \text{Actions}} V_{opt,\pi}(\text{Succ}(s,a)), & \text{if player}(s)=a_0 \\ \sum_{a \in \text{Actions}(s)} \pi_{opp}(s,a) V_{opt,\pi}(\text{Succ}(s,a)), & \text{if player}(s)=a_1,a_2,\dots a_n. \end{cases}$