Phang Teng Fone 1003296 HW4
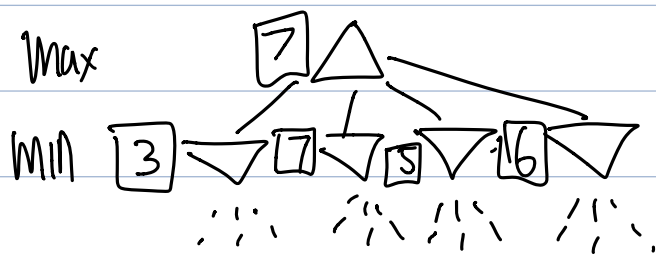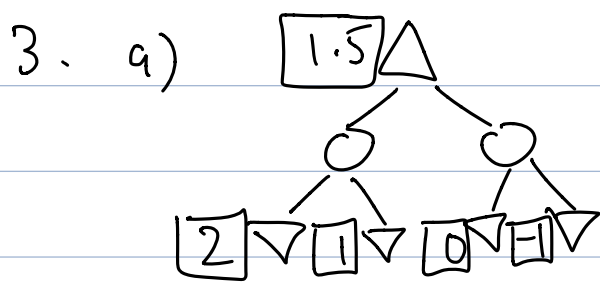
1. a) Max

b) Starting from the bottom, the opponent will want to minimize the utility score, as such the smallest score will be close to prevent the other player to win, as such 3, 7, 5, 6 are chosen at the min level. At the max level, the player wants to maximize his chance of winning thus choosing the best possible score available which is 7.

c) $a_2 c_1$

2. a) d_2, d_3, d_4, e_4

b) After exploring b and c, the current α is 7. With that when we hit $d_1 = 5$, we can safely say that β is $< \alpha$. Thus the remaining subtree of path d can be prune as it guarentee that no matter the minimial value of the sub tree, it will be no bigger than α. However for e path, e_{1-3} has to be traversed as the β value is $>$ the current α. Once e_3 is seen to be $\leq \alpha$, the remaining sub tree (e_4) can be prune.

3. a)

$(2 \times 0.5) + (1 \times 0.5) = 1.5$

$(0 \times 0.5) + (-1 \times 0.5) = -0.5$

b) $a_{1\%}$