Q1>

Suppose there are two players A and B. They have two actions in each state: 0 or 1.

First A plays then B then again A and then B. That is, each gets turn twice.

Nobody can observe action of the other player. Somehow A forgets what he/she had played in the past. B remembers what he/she had played in the past perfectly.

Utility to A is 1 if action 1 is played odd number of times during the game, 0 otherwise. E.g. If A plays 1 in both turns and B plays it once, it gets 1.

Utility to B is 1 if action 1 is played even number of times during the game, 0 otherwise. E.g. If A plays

1. Describe its extensive form formally.
2. Draw an extensive form graphical representation of the game.(You may use either (i) any windows based tool to draw, save it as png and include it in your latex or (ii) you can use xfig/tikz which are latex based tool. There may be some learning curve for these two tools).

Q2>

Consider the game in Figure 1. Does this game have a dominant strategy equilibrium? What is it? Explain your answer mathematically.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Player B | | |
| Player A |  | B1 | B2 |
| A1 | -1, 1 | 0, 4 | |
| A2 | 2, 2 | 3, 3 | |
| A3 | 0, 1 | 2, 2 | |

Figure 1.