Game Theory 2024
## Iterated Prisoner's Dilemma Tournament

You are invited to take part in the *Iterated Prisoner's Dilemma Tournament.* You can compete as a team of any size (including size 1). The winning team gets ₵100 (and this prize is shared equally amongst all winning teams in case of a tie).

> **Deadline: Monday, 8 April 2024, 13:00**

You compete by submitting a description of a strategy for playing the iterated variant of the Prisoner's Dilemma discussed in class (with an unknown number of rounds):

You can describe a (deterministic) strategy by specifying your next move (either C or D) for every possible situation. One way of doing this is to use a *finite state machine.* To be a little more precise, we are going to use a *Moore machine* with *states* $\{0, 1, 2, \ldots, K\}$, *initial state* 0, and (output and input) *alphabet* $\{C, D\}$. The *output function* specifies for each state the move you make next. The *transition function* specifies for each state and for each move of your opponent what state you go to next. Below, on the left, you see a graphical representation of the strategy under which you cooperate as long as your opponent does not defect twice in a row, and under which you defect eternally once she does defect twice in a row. On the right you see a textual representation of the same strategy. Each line corresponds to a state (here from 0 to 2), listing (*i*) the name of the state, (*ii*) the action played in that state, (*iii*) the state you move to in case your opponent cooperates, and (*iv*) the state you move to in case she defects. The initial state here is taken to be 0.


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0:  C, 0, 1
1:  C, 0, 2
2:  D, 2, 2
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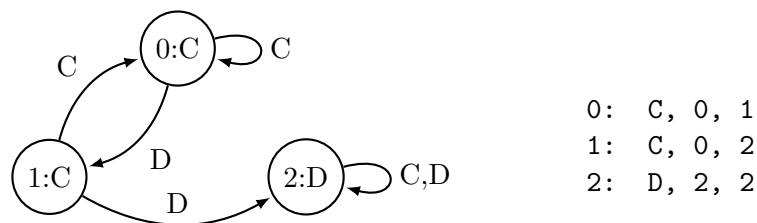
Come up with a strategy that differs significantly from the strategies you can easily find out about on the Internet (such as the famous tit-for-tat strategy) and submit it via the Game Server. Define your strategy using the textual representation explained above. Pay attention to syntax (uppercase C and D, use of colon and commas). You will also be asked for a name for your strategy as well as for a short motivation for using that strategy.