

## ID2209 Distributed AI and Intelligent Agents: Homework 2

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### Task 2

#### Strategies for Artist Manager Agent

- SLQ ( Sell Low Quality)
- SHQ (Sell High Quality)

#### Strategies for Profiler Agent

- V (View)
- NV (Not View)

#### Strategies for Curator Agent

- OD (Price on Demand)
- OI (Price on Interest)

As we see, Curator agent receives the art piece at a fixed price from Artist Manager. The Curator then marks-up the price based on one of the two strategies before selling it to Profiler Agent. But the strategy followed by Curator has no connection to the quality of the product. And also Curator's choice of strategy does not affect Profiler agent's experience of the buy. So, we may exclude Curator's strategy from payoff – utility analysis.

Artist Manager \ Profiler Agent	Not View	View
Sell Low Quality	-1,0	2, -2
Sell High Quality	-2, 0	1, 2

If AM sells LQ and PA rejects it -> low negative payoff for AM, 0 payoff for PA

If AM sells LQ and PA views it - > high (max) payoff for AM, negative payoff (least) for PA

If AM sells HQ and PA rejects it -> negative (least) payoff for AM, 0 payoff for PA

If AM sells HQ and PA views it -> positive payoff for AM, maximum payoff for PA

From this analysis, it appears that if AM sticks to 'Sell Low Quality' and PA sticks to 'Not-View' strategy then we have a Nash equilibrium. This is because given each other's strategy none of the agents have an incentive to switch strategies.

Note: This is just a theoretical deduction because here we have ignored some strategies for both agents which are very probable in the real world. For example, Profiler Agent considering the past behavior of Artist Manager of selling low quality product may decide to switch to a more reliable Artist Manager (one with better probability of High Quality product). Similarly, Artist Manager may follow a mischievous strategy of selling low quality products in every 10 high quality products to keep some payoff coming.