Exercise 14: Algorithmic Game Theory

1. Consider the selfish load balancing game on m machines. Let the processing times of the players be $\{1, 1, 2, 2, 3, 3, 4, 4, 5, 5\}$. Find a Nash equilibrium that is as inefficient as possible.

2. In the lecture, we showed that the Vickrey-second price mechanism is strategy-proof. Use the VCG mechanism to deduct the Vickrey-second price mechanism.

3. In the shortest path game, what happens if a player misreported its value to its edge?