1   Introduction

This in-class game is mainly used to engage students in class, and help students to understand public key and private key. More specifically, this game shows how to do a computation without exposing the input. Output: public, Input: private.

2   Problem

Alice and Bob just had their first date. Now they want to know if there is a second date or not. A problem happens if one party wants to go on a second date but the other party doesn't.

3   Solution

The solution is to play this "game of like", a game that only reveals if they both like each other.

- Alice and Bob use five cards: two identical queen of hearts, three identical king of spades.

- Each of them gets one queen and one king.

- Third king is left on the table, face down.

- Bob puts his cards face down on top: Queen on top means he likes Alice. King on top means he does not.

- Alice puts her cards face down on top: King on top means she likes Bob, Queen on top means she does not.

- Alice and Bob take turn cutting the deck - cyclic shift only.

- They open the cards in order on a circle: if queens are adjacent, they like each other.

- Nothing is revealed when the queens are not adjacent: it is unknown whether they both don't like each other or whether one does and one doesn't.

4   Reference

Tal Rabin of IBM Technion-Israel Institute of Technology lecture at Technion Computer Engineering 2014 summer school. https://www.youtube.com/watch?v=NOtsxHoIcWQ