STABLE MARRIAGE PROBLEM

Data bases and programming

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Juraj Uhlár

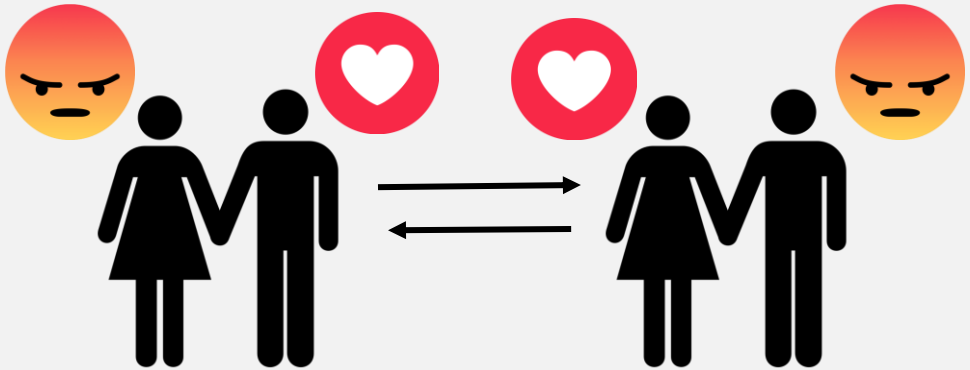
Rastislav Machava

STABLE MARRIAGE PROBLEM

- You have **N men** and **N women** (each with an ordered list of preferences)
- Arrange N marriages that are **stable**

A marriage is **not stable** if:

- A man and a woman **like each other more** than the people they are currently married to



SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

SOLUTION

TOM	BOB	ROMAN
KATE	SARA	SARA
ASHLEY	KATE	ASHLEY
SARA	ASHLEY	KATE

KATE	ASHLEY	SARA
ROMAN	TOM	ROMAN
BOB	ROMAN	BOB
TOM	BOB	TOM

PSEUDOCODE

```
function stableMatching {
    Initialize all m ∈ M and w ∈ W to free
    while ∃ free man m who still has a woman w to propose to {
       w = first woman on m's list to whom m has not yet proposed
       if w is free
         (m, w) become engaged
       else some pair (m', w) already exists
         if w prefers m to m'
            m' becomes free
           (m, w) become engaged
         else
           (m', w) remain engaged
    }
}
```

THANK YOU FOR ATTENTION