Stable Matching Report

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Results

Our implementation produces the expected results on all input–output file pairs, except `sm-random-100.txt`, where it matches 54 with 12 instead of 2. We have no idea why this happens.[1]

On input `sm-bbt-in.txt`, we produce the following matching:

Sheldon–Amy, Rajesh–Penny, Howard–Bernadette, Leonard–Priya. [2]

[1] Complete the report by filling in your correct names, filling in the parts marked [...], and changing other parts wherever necessary. For instance, if your implementation passes all tests, then write that. Remove the sidenotes in your final hand-in.

[2] Replace with your results.

Implementation details

The men's preferences are stored in a left-leaning red–black B-tree with $B = 12$ and no inverse anti-snails,[3] as described in Section 5.2 of Kleinberg and Tardos, *Algorithms Design*, Addison–Wesley 2013.[4] The women's preferences are stored in a heap.[5]

We can check find a free man who has not proposed to every woman in time [...], because we store [...].

With these data structures, our implementation runs in time $O(n \log n)$ [6] on inputs with n men and n women.

[3] Replace with whatever data structure you actually use.

[4] If you refer to something, like a book or a stackexchange debate, or an external library, be professional about it.

[5] Replace with whatever data structure you actually use.

[6] Replace with your actual running time.