

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

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 $[\dots]$, because we store $[\dots]$.

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

¹ Complete the report by filling in your correct names, filling in the parts marked $[\dots]$, 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.

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.