Tutee/Tutor Pairing

CVUSD Tutoring

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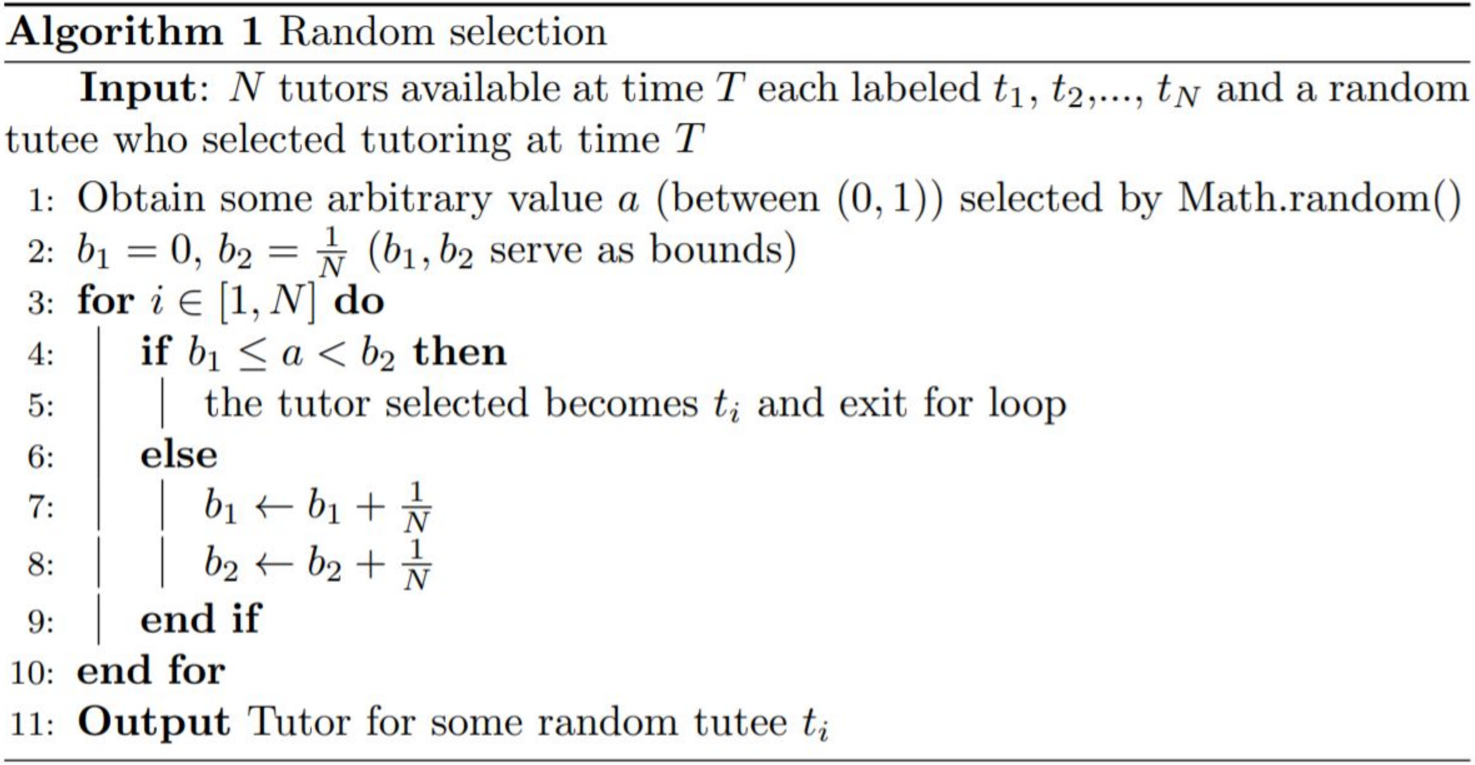
Current Issues

- Some tutors feel tutoring workload is either too light/too heavy

Solution

- Random selection!

Solution



Algorithm 1 Random selection

Input: N tutors available at time T each labeled t_1, t_2,..., t_N and a random tutee who selected tutoring at time T

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Obtain some arbitrary value $a$ (between $(0, 1)$) selected by Math.random()
$b_1 = 0$, $b_2 = \frac{1}{N}$ ($b_1, b_2$ serve as bounds)
for $i \in [1, N]$ do
    if $b_1 \leq a < b_2$ then
        the tutor selected becomes $t_i$ and exit for loop
    else
        $b_1 \leftarrow b_1 + \frac{1}{N}$
        $b_2 \leftarrow b_2 + \frac{1}{N}$
    end if
end for
Output Tutor for some random tutee $t_i$
```

New Changes

- Opportunity for tutees to select multiple subjects
    - Different subjects ranked by importance

New Changes

- Each subject is given a distinct weighting which go as followed from the top selected course (index #1) downward (to index #4): 1, ½, ¼, ⅛
- Begin by randomly scrambling the list of tutors
- If tutee selects 2 subjects (for example Math first, English second), begin by sorting through the list of tutors who have Math+English as their top two prefered courses to teach

New Changes

- If no tutors fit the bill, run an algorithm that compares all tutors available at the time with the tutee’s “wishlist” and select the closest fit

Algorithm

- If the tutee and tutor’s list matches perfectly for some index, the “score” is incremented by the appropriate weighting for the index
- If the tutee and tutor’s list are offset, the “score” is incremented by the lower weighting of the two indexes

Algorithm

- This algorithm will run twice (unless the tutee selects courses for all 4 indexes)
    - First for the case where there are tutors that match all the tutee’s indexes (at the time)
    - Second for all tutee’s who are available (at the time)