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Py-school-match: Matching algorithms to assign students to schools

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Software

- Review
- Repository
- Archive

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Summary

The problem of assigning students to schools in a fair way is a long-lasting problem with many proposed solutions. These solutions go from simple "lotteries" to more complex graph algorithms, all of which have strengths and weaknesses. Given the nature of the problem and the fact that in the real world there is an extra layer of requirements (quotas, special conditions, ranks of preference, etc.) it is vital to analyze and simulate every available option.

`py-school-match` is a Python library that implements multiple matching algorithms and allows users to simply specify the country's conditions or requirements, and then run interchangeably the different algorithms. What makes `py-school-match` different from other libraries is that it is specifically created to be used in the student-to-school assignation problem. Another distinctive characteristic is that it allows the use of quotas, priorities, capacities, among others, without much effort. These characteristics allow researchers to evaluate accurately the different algorithms, without the need of developing case-by-case solutions.

`py-school-match` implements the following algorithms:

```
- Top Trading Cycles (TTC)
- Deferred acceptance with multiple tie-breaking (DAMTB)
- Deferred acceptance with single tie-breaking (DASTB)
- Stable improvement cycles (SIC)
- Deferred Acceptance with multiple tie-breaking, plus stable cycles (MSIC)
- Deferred Acceptance with single tie-breaking, plus non-stable cycles (NSIC)
```

References