

How to Use SFM

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1 Options

We need to set some options in order to execute SFM.exe.

1.1 Oracle

We can set a submodular function oracle by "-o" option.

- 0: Undirected Cut
- 1: Directed Cut
- 2: Connected Detachment
- 3: Facility Location
- 4: Graphic Matroid
- 5: Set Cover
- 6: Non Positive Symmetric Matrix Summation
- 7: Binary Matroid

See "Document
DataCreator
DataCreator.pdf" for details.

1.2 Submodular Functions

We can set an algorithm for submodular function minimization by "-a" option.

- 0: Iwata-Fleischer-Fujishige weakly polynomial time algorithm
- 1: Iwata-Fleischer-Fujishige Strongly polynomial time algorithm
- 2: Schrijver's algorithm
- 3: Iwata's hybrid weakly polynomial time algorithm
- 4: Iwata's hybrid strongly polynomial time algorithm
- 5: Orlin's algorithm
- 6: Iwata-Orlin weakly polynomial time algorithm
- 7: Iwata-Orlin strongly polynomial time algorithm
- 8: Fujishige-Wolfe algorithm

1.3 Input File

We can set the file for the input data by "-f" option. See "Document DataCreator DataCreator.pdf" for the format of input data.

1.4 Output File

We can set the file for writing output by "-r" option.

1.5 Numerical Error Tolerance

We can set the numerical error tolerance by "-e" option. We do not need to set this value and in that case, the tolerance is 10^{-10} . Note that if we use severe error tolerance or non-integer submodular function, it is possible for the program to take huge time.

References