SamplePackage -- a package for combinatorial optimization

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Areas: Combinatorics

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Description

This package leverages matroids for algorithms in combinatorial optimization such as shortest paths in graphs.

```
i1 : R = QQ[x,y,z]

o1 = R

o1 : PolynomialRing
```

```
i2 : I = ideal R_*

o2 = ideal (x, y, z)

o2 : Ideal of R
```

Contributors

The following people have generously contributed code, improved existing code, or enhanced the documentation: Doug Torrance, Mahrud Sayrafi.

Acknowledgement

The development of this package was primarily done at the Macaulay2 Workshop held at Tulane University in April 2025.

References

Oxley, Matroid Theory, second edition. Oxford University Press, 2011.

Certification a gold star

Version **1.0** of this package was accepted for publication in volume 11 of The Journal of Software for Algebra and Geometry on 04 July 2025, in the article SomePackage: a Macaulay2 package (DOI: 10.2140/jsag.2025.7.04). That version can be obtained from the journal.

Citation

If you have used this package in your research, please cite it as follows:

```
@misc{SamplePackageSource,
  title = {{SamplePackage: combinatorial algorithms. Version~1.0}},
  author = {Sean Grate and Diane Maclagan and Kalina Mincheva and Frank-Olaf Schreyer},
  howpublished = {A \emph{Macaulay2} package available at
    \url{https://somewebsite.com}}
}

@article{SamplePackageArticle,
  title = {{SomePackage: a \emph{Macaulay2} package}},
  author = {Sean Grate and Diane Maclagan and Kalina Mincheva and Frank-Olaf Schreyer},
```

```
  journal = {The Journal of Software for Algebra and Geometry},
  volume = {11},
  year = {2025},
}
```

Exports

- Symbols
  - `MyCustomClass` -- see SamplePackage -- combinatorial algorithms