Contributing to SageMath: a guide for mathematicians

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NOSH talk

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Motivations

Process

Useful resources

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Useful resources

Why contributing?

- Community:
  - SageMath is used by a wide range of people
  - Be part of a new community
- Useful:
  - For research (e.g. `https://arxiv.org/abs/2401.12618`)
  - For learning
  - Make your work visible
- Develop valued skills:
  - Skills applicable to most *Free and Open Source Software* (FOSS) projects
  - Diversify your skillset
  - Contributions are visible
- Have your work recognized (e.g. ISSAC *Software Demonstrations*)

Why SageMath?

- *Free and Open Source Software* (FOSS)
- Python-based
- Widely used
- A lot of computational facilities
- Very active development and community

What to contribute?

Examples:

- Typos and small fixes
- Enhance documentation
- Add an algorithm
- Create a brand new module
- Solve existing issues

Super duper honesty time

- **Get your supervisor's approval!**
- The process can be frustrating (like peer-review)
- Compiling SageMath = 

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Starter pack

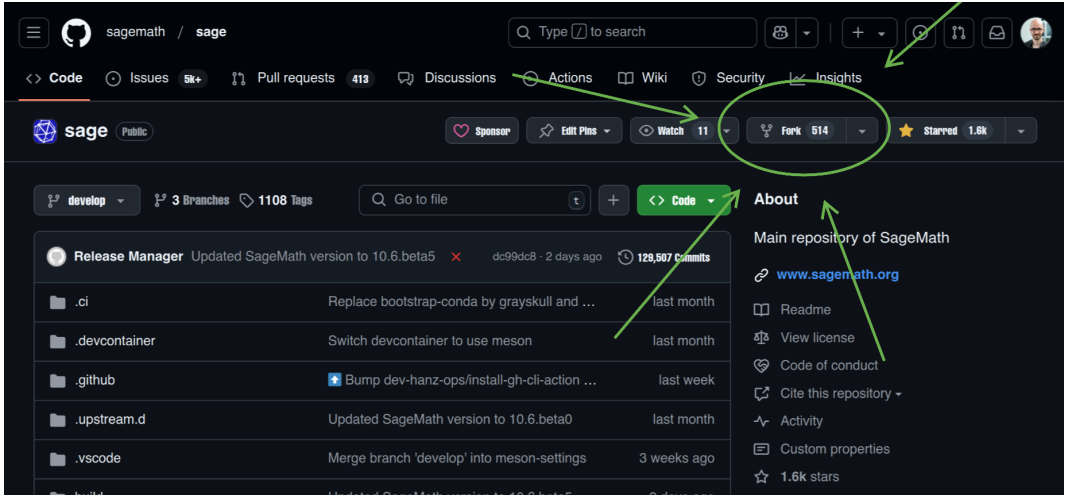
You need:

- Git
- A Github account
- Python

General principle

Integrate in the community!

1. Fork


sagemath / sage
Type / to search
Code
Issues 5k+
Pull requests 413
Discussions
Actions
Wiki
Security
Insights
sage Public
Sponsor
Edit Pins
Watch 11
Fork 514
Starred 1.6k
develop
3 Branches
1108 Tags
Go to file
t
Code
Release Manager Updated SageMath version to 10.6.beta5
dc99dc8 · 2 days ago
129,507 Commits
.ci
Replace bootstrap-conda by grayskull and ...
last month
.devcontainer
Switch devcontainer to use meson
last month
.github
Bump dev-hanz-ops/install-gh-cli-action ...
last week
.upstream.d
Updated SageMath version to 10.6.beta0
last month
.vscode
Merge branch 'develop' into meson-settings
3 weeks ago
About
Main repository of SageMath
www.sagemath.org
Readme
View license
Code of conduct
Cite this repository
Activity
Custom properties
1.6k stars

2. Compile

Optional but highly recommended:

```
tmux new -s sage
```

Then:

```
git clone -c core.symlinks=true --filter blob:none \
          --origin origin --branch develop --tags   \
          https://github.com/your/fork sage
cd sage
make configure
./configure
make build -j1729  # Build (and parallelize on 1729 cores)
```

(Type `ctrl+b` then `d` to "detach" the tmux session, and run `tmux attach -t sage` to enter it again.)

3. Code

Some locations:

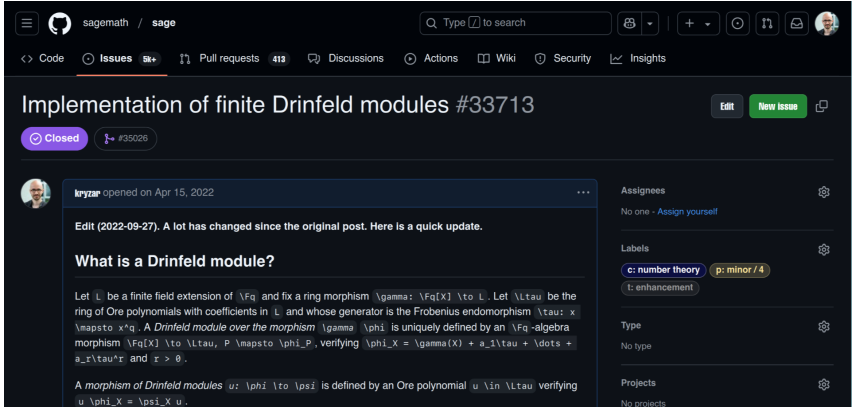
- Code: `src/sage/`
- Doc: `src/doc/`

After modifications, rebuild with:

```
./sage -b
```

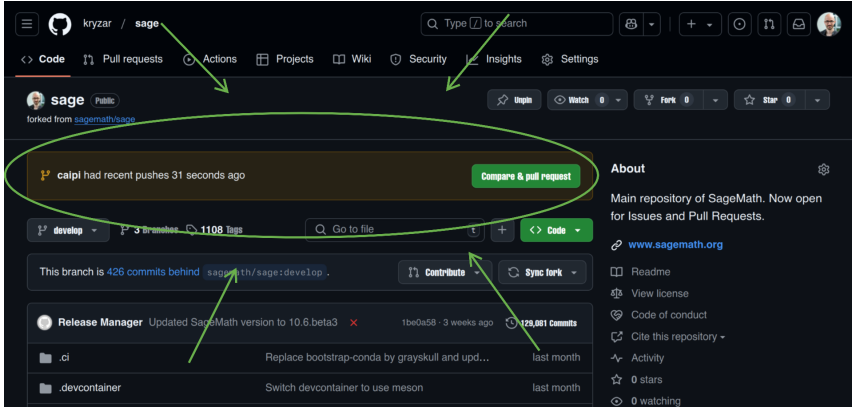
4. Connect with the community

- Open an *Issue* to discuss...
- If minor modifications, directly open a *Pull Request*...



5. Open your *Pull Request*

1. ✅ You have written and pushed a bunch of commits on your fork!
2. ✅ You have successfully written tests and documentation!



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Basic checklist

Among other things:

- ✅ Does my code respect the standards of the community?
- ✅ Did I write a docstring?
- ✅ Did I write tests?
- ✅ Did I cover all cornercases?
- ✅ Did I correctly update the documentation?

Useful links

Tools:

Pro Git:	https://git-scm.com/book/en/v2
Pep8:	https://pep8.org/

Community:

Mailing list	https://groups.google.com/g/Sage-Devel?pli=1
Forum	https://ask.sagemath.org/questions/
Sage Days	https://wiki.sagemath.org/Workshops

SageMath stuff:

Developer guide	https://doc.sagemath.org/html/en/developer/
Documentation	https://doc.sagemath.org/html/en/index.html
Main repo	https://github.com/sagemath/sage/
Conventions	https://doc.sagemath.org/html/en/developer/coding_basics.html