Google Summer of Code

Proposal for Homebrew

Auto-bumping resources in Formulae (2022)

Contact Detail

Name: Mohammad Zain Abbas
Email: mohammadzainabbas@gmail.com
GitHub: https://github.com/mohammadzainabbas
LinkedIn: https://www.linkedin.com/in/mohammadzainabbas/
Location: Barcelona, Spain

Project Description

This project aims at improving Homebrew's livecheck feature for automatically upgrading resources. Although Homebrew has tools which automatically upgrade packages, that feature doesn't work for resources.

In order to achieve this, Nanda (mentor) has lay down some objectives in this issue:

1. Extend the livecheck DSL to work for resources.
2. Add default strategies meant for resources from specific sources (such as RubyGems, CPAN, etc.).
3. Add livecheck blocks for resources in homebrew/core.
4. Implement a brew update-resources command and augment brew livecheck with an option to retrieve resource versions.
5. Add strategies that work for formulae from other sources that would probably require having a formula-level strategy for the resources (like PyPI etc).

Timeline

I have tried to give a fair portion of time to feedback, manual testing, and documentation in my proposed timeline as I believe these are very important for a successful project. I will also be commenting and documenting the code as and when context/explanation is required.

Date	Plan
May 20 - Jun 12 (Community Bonding Period)	- Check the existing workflow for upgrading packages (to get an idea about how things are working) - Get familiar with brew livecheck (old[1] and merged[2] versions) - Creating a post on the GitHub (preferably under the same issue[3]) that describes the overall approach to the project in order to get valuable input/feedback from the Homebrew community - Discussion with my mentor (Nanda) about all the details needed to implement this project
Jun 13 - Jun 19	- Setup development environment - Finalize (initial) implementation plan

Jun 20 - Jul 10	- Extend the livecheck DSL to work for resources as well.
	  - Intuitively, I believe this Livecheck class[4] and this Livecheck module[5] needs to be updated to support resources (need discussion with mentor)
	- Add default strategies meant for resources from specific sources (such as *npm, cpan, pypi*, etc.).
	  - Current livecheck strategies modules are located here[6]
	- Extensive testing of the implementation with different workflows (for different os like macos and linux)
	- Discuss detail with mentor; and get input/feedback about what and how to implement

Jul 11 - Jul 24	- Add livecheck blocks for resources in homebrew/core. - All the changes will be done by following these guidelines[7] (esp. all the PRs will be done as suggested[8]) - Implement a *brew update-resources* command and augment *brew livecheck* with an option to retrieve resource versions - Get some input/feedback from Nanda and other mentors about the implementation details - Refractor the current implementation to incorporate the changes suggested (if needed)

[1] https://github.com/Homebrew/homebrew-livecheck/tree/61b48856d419606ae6b81da92331b98c042d5017
[2] https://github.com/Homebrew/homebrew-core/pull/60324
[3] https://github.com/Homebrew/gsoc/issues/49
[4] https://github.com/Homebrew/brew/blob/master/Library/Homebrew/livecheck.rb
[5] https://github.com/Homebrew/brew/blob/master/Library/Homebrew/livecheck/livecheck.rb
[6] https://github.com/Homebrew/brew/tree/master/Library/Homebrew/livecheck/strategy
[7] https://github.blog/2017-02-06-how-to-run-a-google-summer-of-code-project-on-github/
[8] https://github.com/Homebrew/homebrew-cask/pull/22574

Jul 25 - Jul 31	- Review, test fix bug - Phase 1 evaluation (expect some discussion and paperwork) - Look into resource updates which involve addition or deletion of some resources and devise a generic (preferably) strategy to work for formulae - Finalize plan for next phase (discuss with mentor(s) about the plausible solution)
Aug 01- Aug 21	- Implement strategies that work for formulae from other sources that would probably require having a formula-level strategy for the resources - needed to be discuss with Nanda (mentor) and others - Implement tests for those strategies (if needed) - Discuss with mentors about the implementation details and how to improve
Aug 22 - Aug 28	- Extensive testing for all the implementation - Review, test and bug fixing
Aug 29 - Sep 04	- Write documentation and any other paperwork - Get feedback on things to improve and do refactoring (if needed)
Sep 05 - Sep 12	- Reserved for delay and extra work that I didn't realize yet

Post GSoC

After GSoC, I'd like to keep in touch, and continue to contribute to the community. And pass the experience of GSoC and the idea of contributing to open source projects to others. Also, I would be available for bug fixing or any other improvement in the project.

Why me ?

Being a mac user, I use brew almost every day. I like to code and learn new things. I believe this GSoC project will provide me the perfect opportunity to contribute (via code) to what I use daily, and help me learn the internals of homebrew in the process.

Link to previous PR:

https://github.com/Homebrew/homebrew-cask/pull/112984

Availability

I have semester exams from 22nd June, 2022 to 30th June, 2022. And then I'll be attending Tenth European Big Data Management & Analytics Summer School (eBISS 2022)[9] from 3rd July 2022 to 8th July, 2022 as part of my Erasmus program. This period overlaps with the extending livecheck's DSL part, so I will start it a bit earlier for this part, and finish up the remaining work as soon as possible to keep on schedule.

Communication

As mentioned here[10]I will use Slack and GitHub PRs for communication. In case of an emergency or urgent fix/work, you can reach me via phone as well (I will share my contact information when needed).

Furthermore, I will update my mentor about my daily progress in a scrum style; and would like to keep them updated/informed about any issues that we may face (which might affect the project).

[9] https://cs.ulb.ac.be/conferences/ebiss2022/
[10] https://github.com/Homebrew/gsoc#mentors