Snakepack

Snakepack is a code bundler and minifier for Python, similar to Webpack for JavaScript.

With Snakepack, Python libraries and applications can have their source code compacted to a minimum. This improves performance for example in serverless Functions-as-a-Service environments.

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Created on: January 26, 2022 7:43 PM
Changed on: January 26, 2022 8:16 PM

Context of use: Work
Level of education: Bachelor

Impact on society

What impact is expected from your technology?

What is exactly the problem? Is it really a problem? Are you sure?

Code minification has its proven use cases for JavaScript in browser environments, but recently also has proven itself useful in FaaS platforms. JavaScript developers creating backends in Node.JS can use Webpack, but for Python such a tool didn't yet really exist. With Snakepack, Python backends can be developed in the same way, and minified at compile time before deployment. This removes the need to create separate projects for separate FaaS functions and reduces management overhead during development.

Are you sure that this technology is solving the RIGHT problem?

Snakepack solves part the larger problem of code size and startup time of FaaS functions, specifically for Python. Other techniques already exist to solve the FaaS startup time problem in other areas. Snakepack fills in a certain need that was previously unsolved.

How is this technology going to solve the problem?

By minifying code.

What negative effects do you expect from this technology?

Using a code minifier introduces extra complexity, for example during debugging as stacktraces are no longer containing accurate line numbers. Implementing source maps in Snakepack can mitigitate this issue in the future.

In what way is this technology contributing to a world you want to live in?

Snakepack is open source, and contributes to the software development community with a functional tool that can be used, modified and extended by everyone how they wish.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

Implementing sourcemaps, extra transformations, improved static analysis making use of type inference to further optimise the code minification process.

Hateful and criminal actors

What can bad actors do with your technology?

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

It cannot.

Can fakers, thieves or scammers abuse the technology?

No.

Can the technology be used against certain (ethnic) groups or (social) classes?

No.

In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.

None.

How could bad actors use this technology to subvert or attack the truth?

None.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.

None that I know of.

Privacy

Are you considering the privacy & personal data of the users of your technology?

Does the technology register personal data? If yes, what personal data?

No.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

No.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

Yes, no data is registered whatsoever, it's a tool used completely locally and conciously

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

No.

In which way can you imagine a future impact of the collection of personal data?

None.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

None that I know of.

Human values

How does the technology affect your human values?

How is the identity of the (intended) users affected by the technology?

No idea.

How does the technology influence the users' autonomy?

Users of Snakepack have entire freedom in configuring what code transformations are applied to their code, no opinionated conventions are forced by Snakepack.

What is the effect of the technology on the health and/or well-being of users?

Not applicable

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.

None that I can think of.

Stakeholders

Have you considered all stakeholders?

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.

Name of the stakeholder
Python programmers

How is this stakeholder affected?
They can minify their Python code

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?

Name of the stakeholder
Other programming language users

How is this stakeholder affected?
They might be inspired to create a solution similar to Snakepack for their programming language

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
No

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.

None that I can think of.

Data
Is data in your technology properly used?

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?
Yes

How does the technology organize continuous improvement when it comes to the use of data?
It doesn't make use of data

How will the technology keep the insights that it identifies with data sustainable over time?
It doesn't make use of data

In what way do you consider the fact that data is collected from the users?
It doesn't make use of data

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.
None that I can think of

Inclusivity

Is your technology fair for everyone?

Will everyone have access to the technology?

Yes

Does this technology have a built-in bias?

It is biased towards people who use Python

Does this technology make automatic decisions and how do you account for them?

Yes, but only those that are mandotory in Python code, and thus they are expected by Snakepack's users

Is everyone benefitting from the technology or only a a small group? Do you see this as a problem? Why/why not?

A small group, Python developers. This is not a problem, because other people have other solutions for their problems.

Does the team that creates the technology represent the diversity of our society?

No, I'm alone, but I'm special.

Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

None that I can think of

Transparency

Are you transparent about how your technology works?

Is it explained to the users/stakeholders how the technology works and how the business model works?

Yes, there is documentation and it's open source.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

Not all code is explained, but it's open source and there are comments in the code that explain some of its logic.

Is it possible to file a complaint or ask questions/get answers about this technology?

Yes, you can open an issue ticket on GitHub

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

No

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

None that I can think of

Sustainability

Is your technology environmentally sustainable?

In what way is the direct and indirect energy use of this technology taken into account?

Snakepack uses more energy during compilation and deployment, but should save energy at runtime.

Do you think alternative materials could have been considered in the technology?

No

Do you think the lifespan of the technology is realistic?

Yes, software lasts forever

What is the hidden impact of the technology in the whole chain?

None

Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.

None that I can think of, apart from optimising performance and saving a few CPU cycles perhaps.

Future
Did you consider future impact?

What could possibly happen with this technology in the future?
It could be developed further and extended

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.
I can't think of any

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.
I can't think of any

Would you like to live in one of this scenario's? Why? Why not?
No

What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?
It will still be open source, and the ethically correct community can still use it and develop it further

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.
None that I can think of