



CODE REFINERY

Competence building, the CodeRefinery way

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NeIC 2024 Conference, Tallinn

coderefinery.org

We teach all the essential tools which are usually skipped in academic education so everyone can make full use of software, computing, and data with focus on reusability, reproducibility, and openness.

We don't just give courses, but we are a training network that you can join to share the effort and bring better courses to your community.



REPRODUCIBLE RESEARCH

6 helpful steps

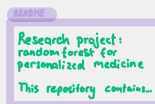
- 1 Get your files + folders in order



- 2 Use good names for files, folders, functions, ...

6-steps-reproducibility.pdf  clean.date ← function (...) [...]?

- 3 Document with care:
README, Metadata, code comments, ...



```
README
Research project:
random forest for
personalized medicine
This repository contains...
```

- 4 Version control code, text, ...



- 5 Stabilize computing environment and software



- 6 Publish your research outputs:
Code, data, documents, ...



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Similar projects: [UNIVERSE-HPC](#), [DIGITAL RESEARCH ACADEMY](#), [INTERSECT](#), and probably many more ...

How we teach: together

WORKSHOP STREAM



INDIVIDUAL LEARNER



- DOES EXERCISES ALONE
- INTERACTS VIA COLLABORATIVE DOC

LOCAL TEAM (REMOTE/IN-PERSON)



- WATCH STREAM

- DO EXERCISES TOGETHER
- INTERACT WITH TEAM LEAD/HELPER & COLLABORATIVE DOC

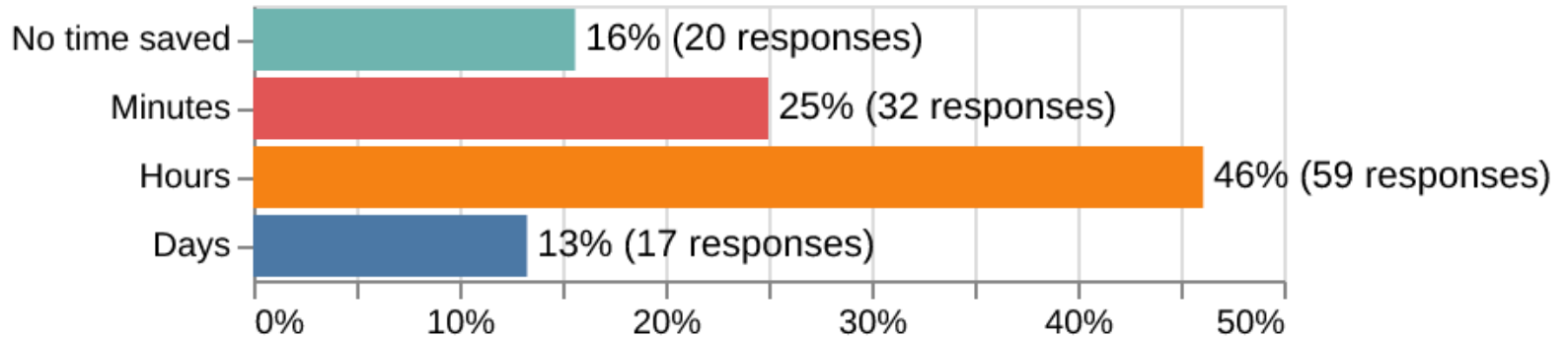
How we teach: together

- Co-teaching: Pilot and co-pilot
- Live-streamed and recorded
- Emphasis on high quality screen-share and audio
- Offer multiple paths for learners to choose
- Q&A are written, anonymous, and published
- Collect feedback during and after events
- All our material and output is open source
- Scale with "bring your own classroom"

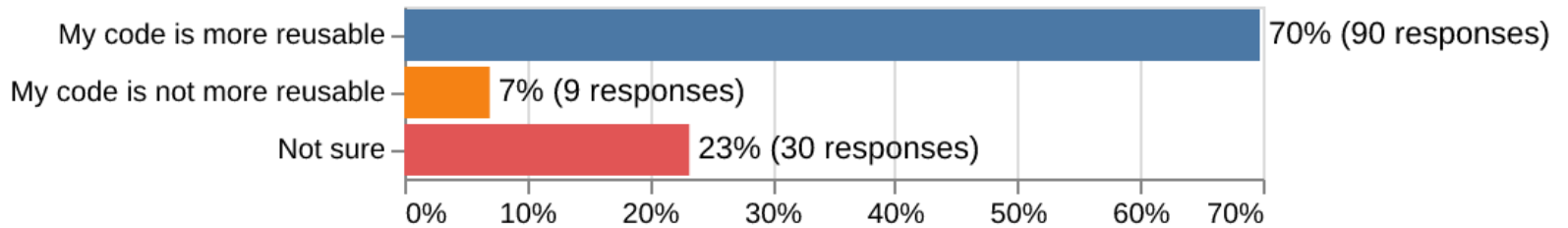


Results from [post-workshop survey 2024](#)

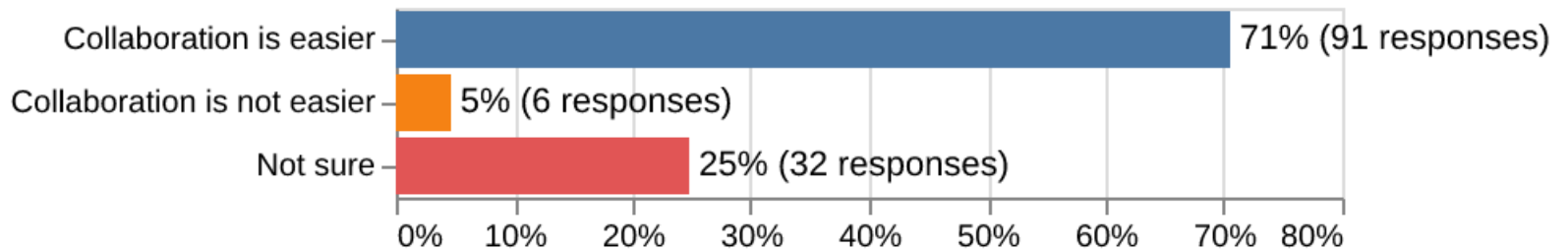
- Sent out to workshop participants from 2022 and 2023
- 129 answers



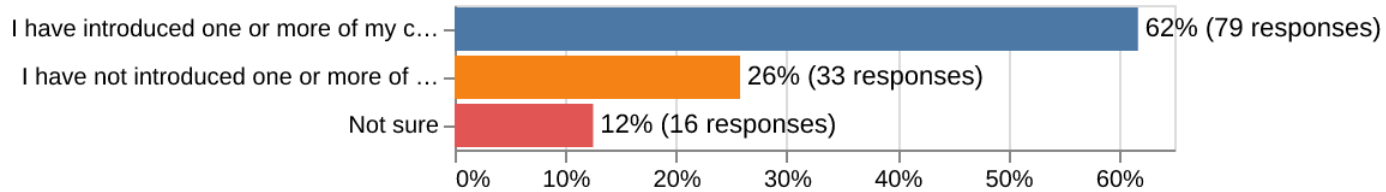
In your estimate, how much time per month have you saved as a result of attending a CodeRefinery workshop?



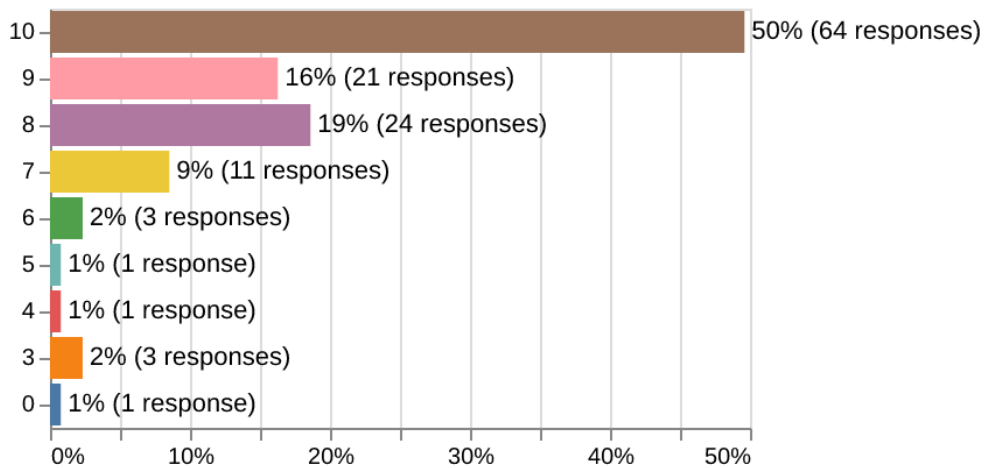
After attending the workshop, would you judge your code to be more reusable or not more reusable?



After attending the workshop, has it become easier or not for you to collaborate on software development with your colleagues and collaborators?



Have you introduced one or more of your colleagues to new tools or practices as a result of the workshop?



How likely is it that you would recommend CodeRefinery workshop to a friend or colleague?

0 means definitely not. 10 means definitely yes.

Competence building for staff (1/3)

- Teaching isn't a lecture anymore. It's more like a live TV production, which *can* be as interactive as people in a room.
- Co-teaching is a great way to onboard, get better quality, and reduce stress.
- We need to exchange best practices in installation instructions and on-boarding.
- There is a case for self-paced learning using short videos (e.g. MOOCs). We all need collaboration and training in these tools.

Competence building for staff (2/3)

- FAIR practices also for training material.
- For technical topics, the lone lecturer with their own private PowerPoint/PDF slide deck might be a thing of the past.
- Collaboration requires communication and coordination. We need to normalize communication as part of work.
- We all need training in how to train and how to mentor.

Competence building for staff (3/3)

- AI will bring new users to the door of HPC. We need to be ready to welcome and support them.
- Give staff the freedom to experiment with the tools they are expected to teach.
- Exchange programs for staff to learn from other institutions.

In some courses you rent a good environment for 2 days but we want you to own the result and be able to share it.

These slides: <https://doi.org/10.5281/zenodo.11317382>

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