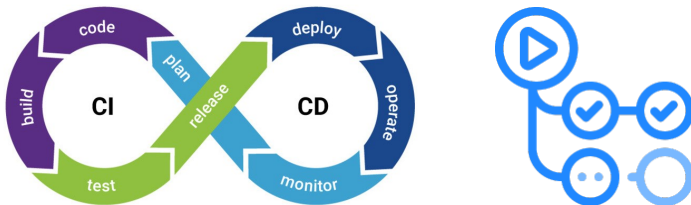
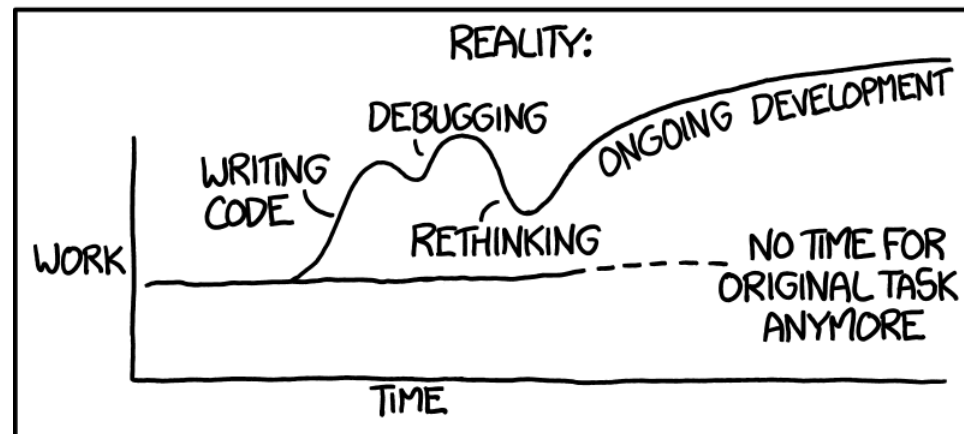
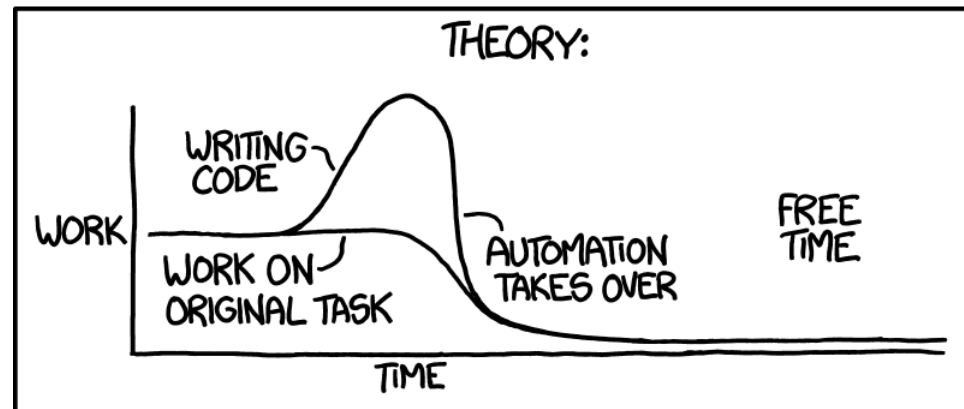


# Introduction to CI/CD with GitHub Actions

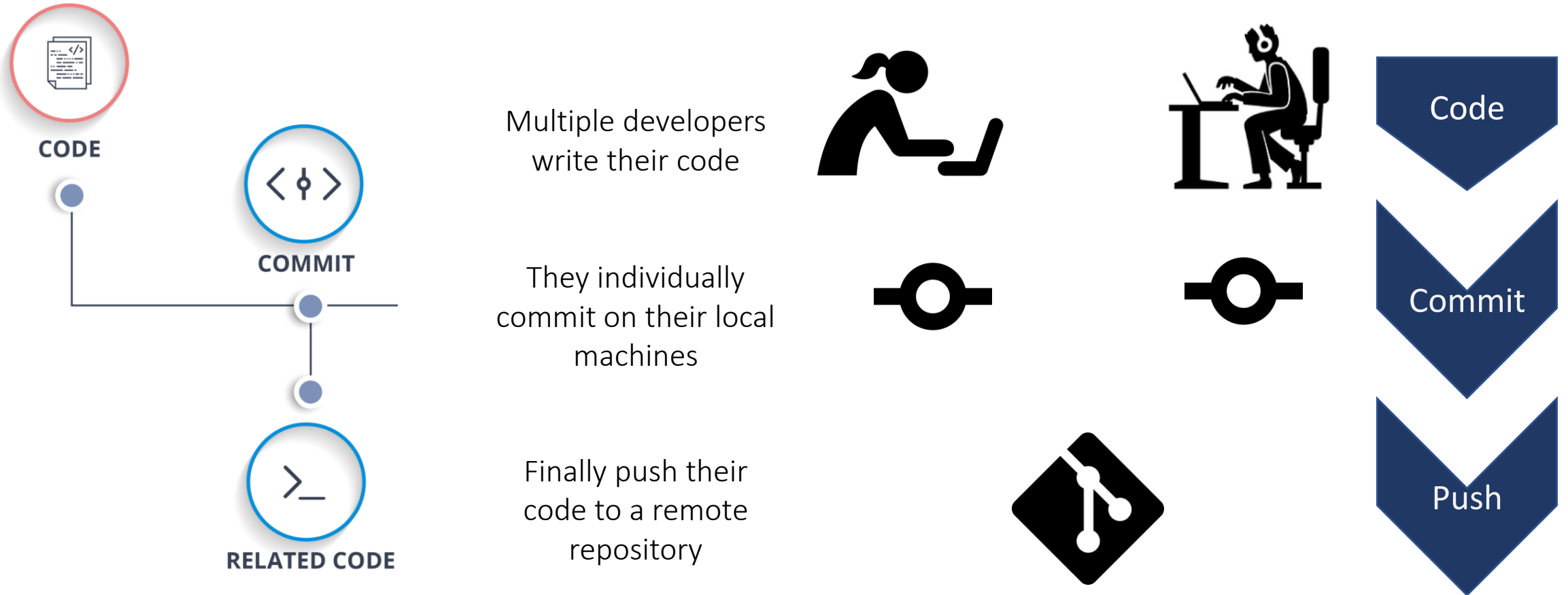


# Why CI/CD?

"I SPEND A LOT OF TIME ON THIS TASK.  
I SHOULD WRITE A PROGRAM AUTOMATING IT!"



# The Local Development Environment



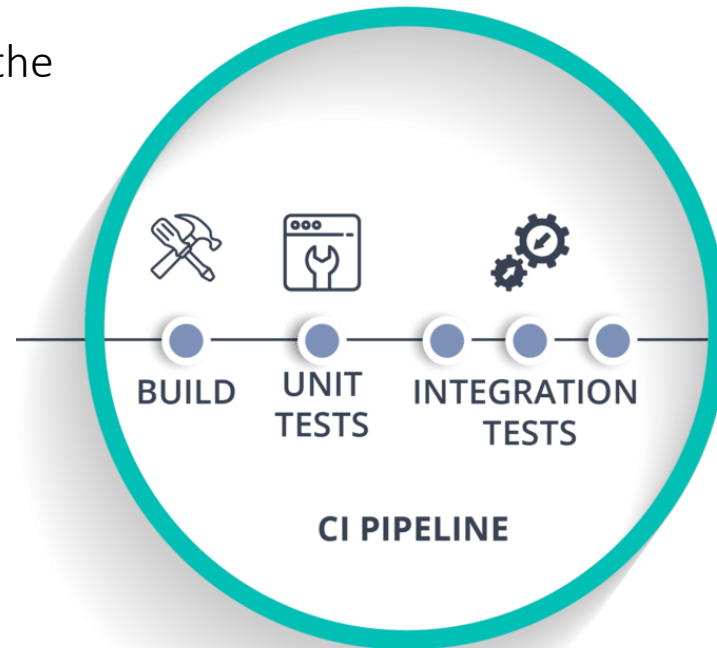
# The Continuous Integration Pipeline



The remote repository hosts and provides version control for the source code

CI Service

The CI service takes the source code from remote repo and performs number of tasks on it.



These tasks include:

- ✓ Building the source code
- ✓ Performing Unit Tests
- ✓ Performing Integration tests
- ✓ Other analysis such as code coverage, dependencies

These tasks produce build artifacts and logs. These artifacts will be further used by the CD pipeline.

Artifacts





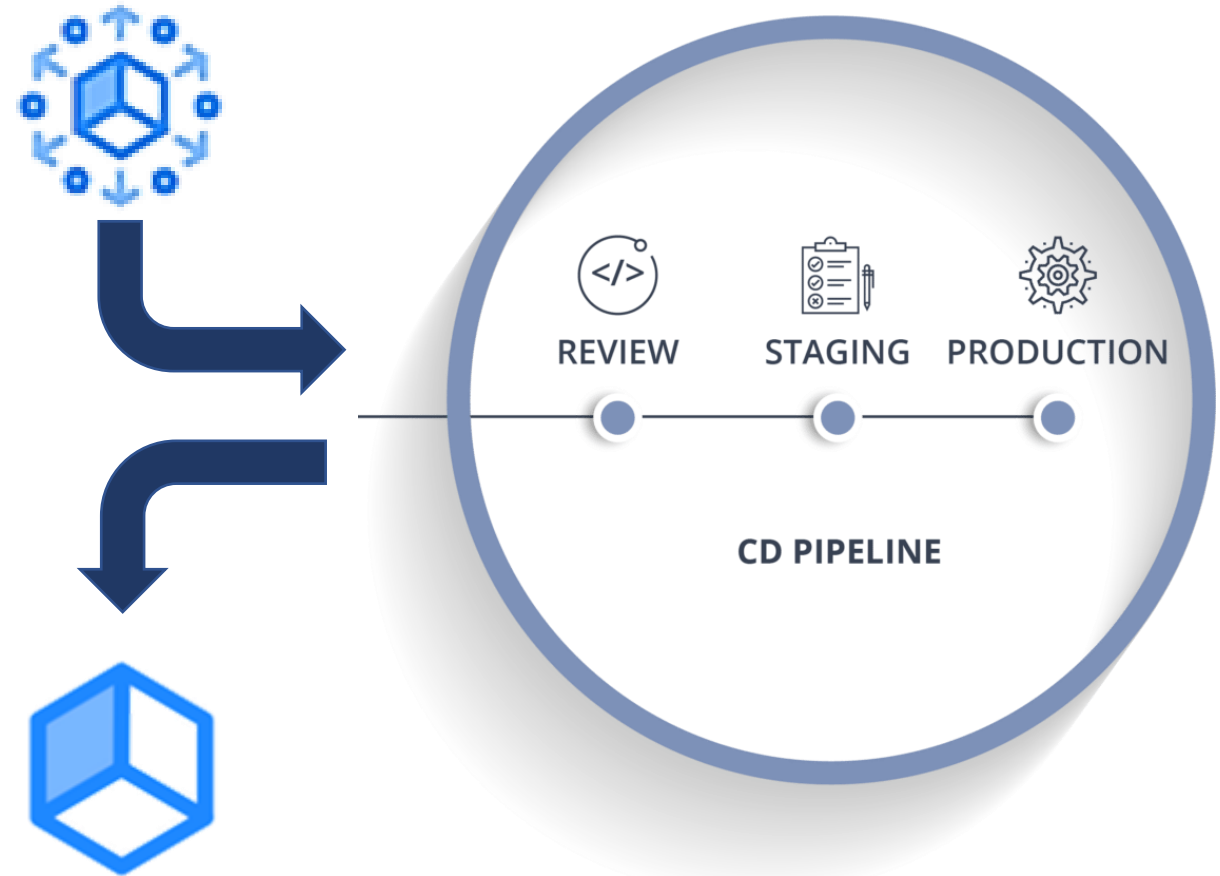
# The Continuous Deployment Pipeline



The artifacts and logs produced by the CI will be now further checked and reviewed one more time

The CD pipeline will do tasks such as reviewing, versioning, attaching metadata, licenses and finally produce an executable or package or deploy the artifact to production.

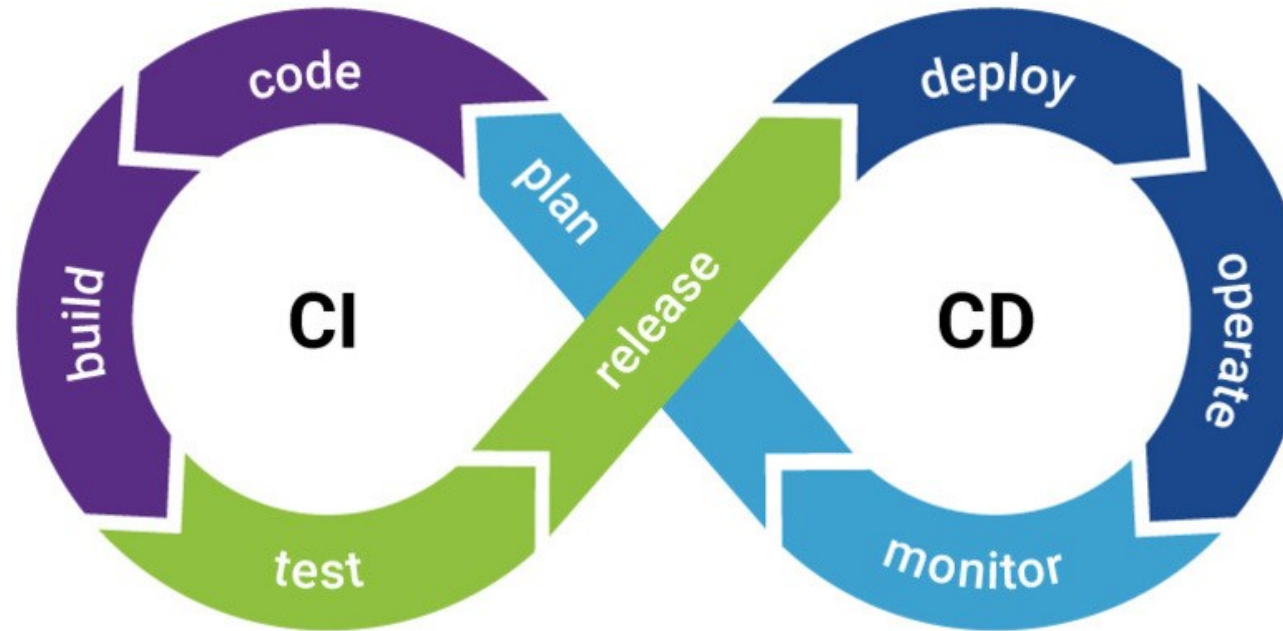
The packaged binary will be used for installing or distribution via package managers or online repositories.



# The Complete CI/CD Pipeline

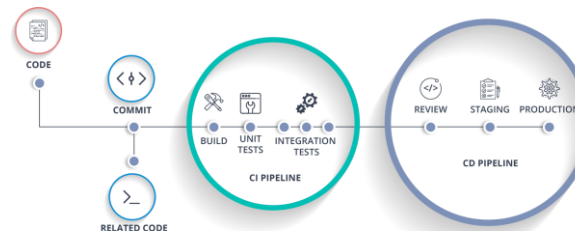
## Continuous Integration

- ✓ Plan
- ✓ Code
- ✓ Build
- ✓ Test



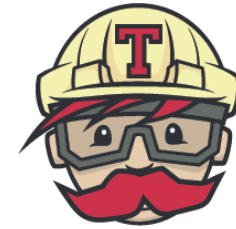
## Continuous Deployment

- ✓ Release
- ✓ Deploy
- ✓ Operate
- ✓ Monitor



# What CI/CD services are available?

There are lots of CI/CD services available. Both free and paid. Some of the most notable ones are given below:



**Travis CI**



**GitLab**



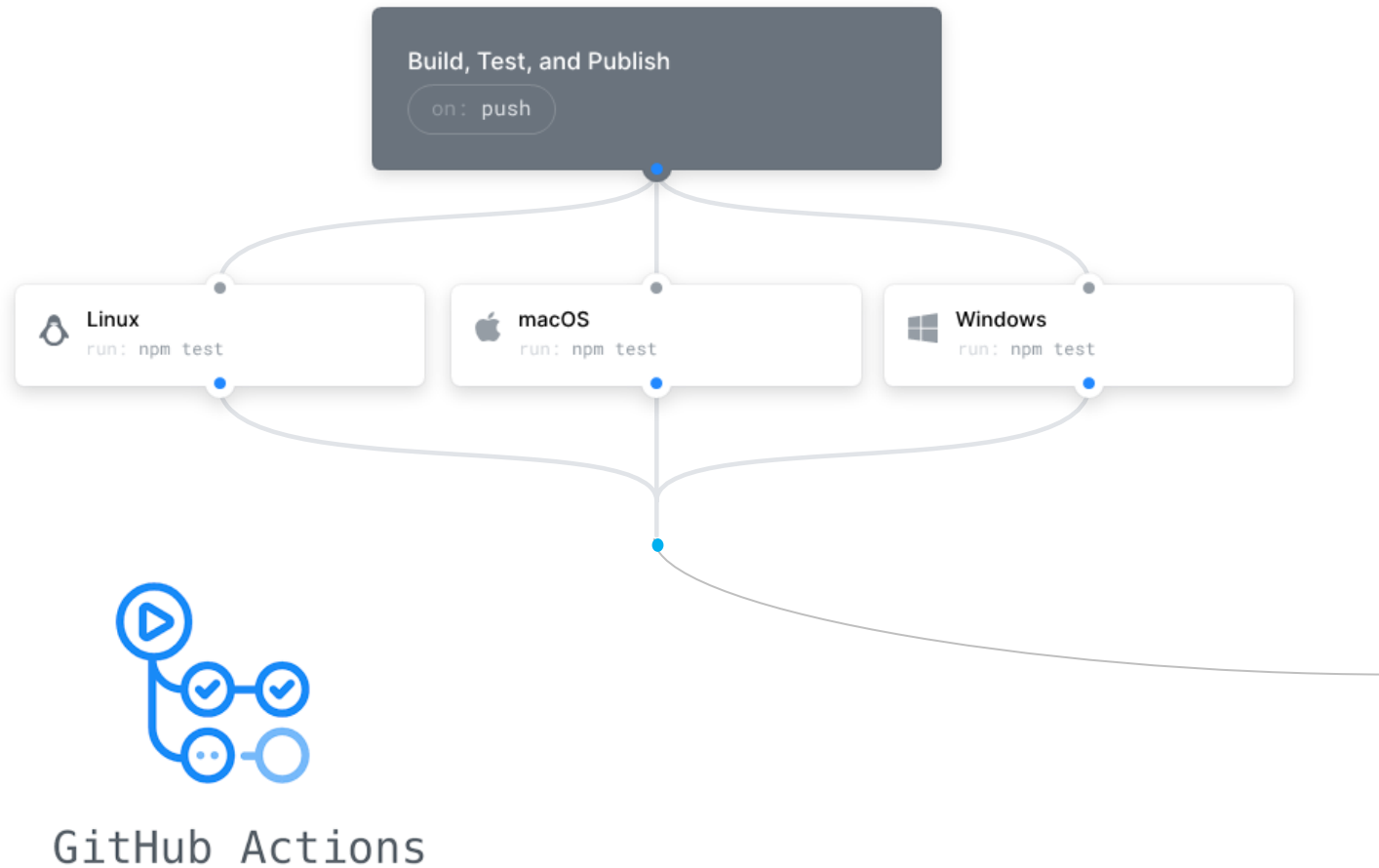
GitHub Actions



**Azure Pipelines**



# Introduction to GitHub Actions



GitHub Actions is a GitHub specific CI/CD solution available on all the plans. It provides better integration with other GitHub Services. It is highly modular and extensible.

The screenshot shows the GitHub Actions status bar. At the top, a green checkmark icon is followed by the text "All checks have passed" and "4 successful checks". To the right of this text is a link "Hide all checks". Below this, there are three rows of status information, each with a green checkmark icon, a GitHub Actions logo, a job name, and a status message. The first row is "build Successfully in 59s — build". The second row is "test Successfully in 59s — build". The third row is "publish Successfully in 59s — build". Below these rows, there is a green checkmark icon followed by the text "This branch has no conflicts with the base branch" and "Merging can be performed automatically.". At the bottom, there is a green button labeled "Merge pull request" with a dropdown arrow, and a link "You can also open this in GitHub Desktop or view command line instructions."



# There is an Action for that !

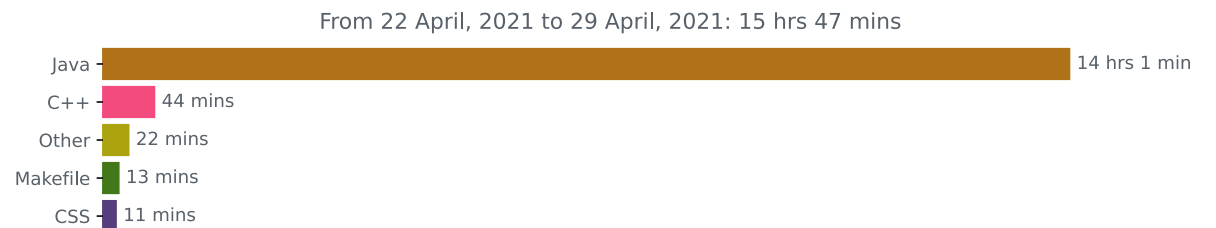
## What can you do with GitHub Actions?

The usual stuffs:

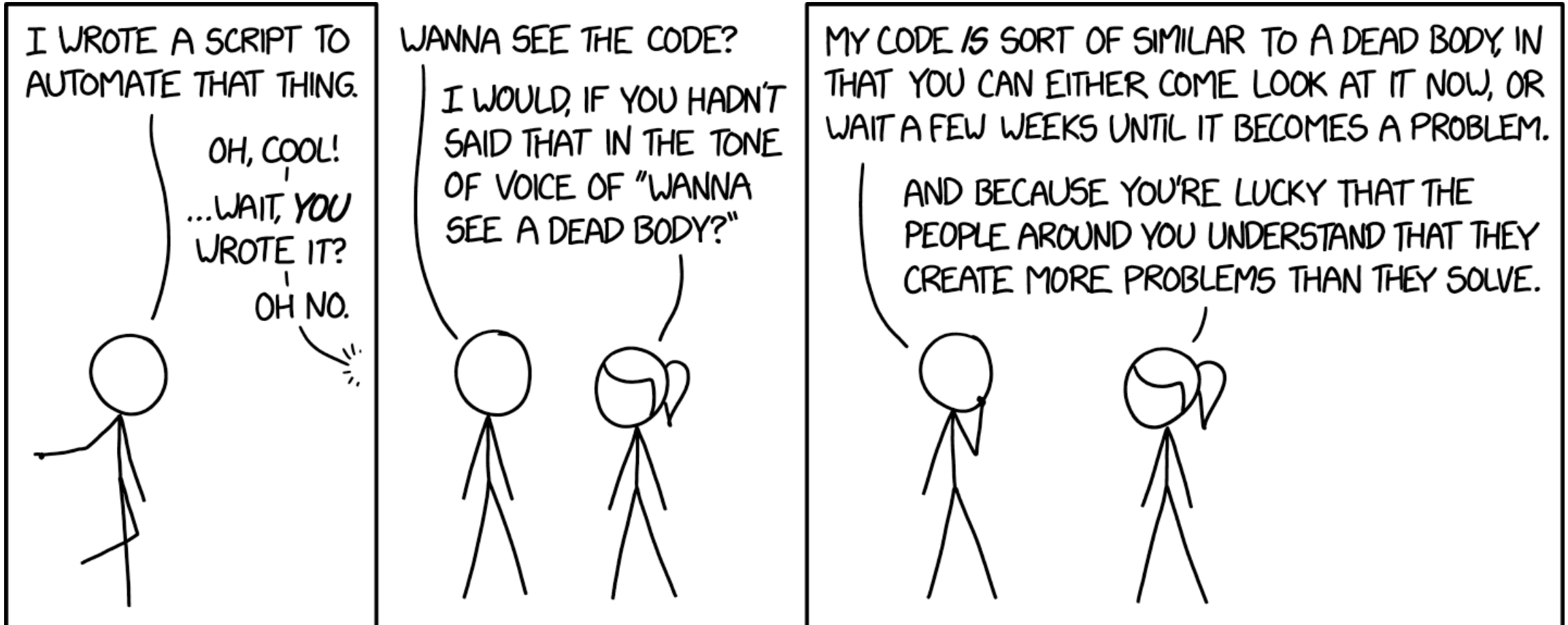
- Building
- Testing
- Deployment
- Dependency Checks
- Pull Request and Issue Triggers
- Page Deployment
- Automatic Release
- Docker builds

Only limited by imagination:

- Interactive READMEs
- Automatic fork updates
- Chat service Integration
- Cloud Simulation Environment
- Integrate with anything that has an API

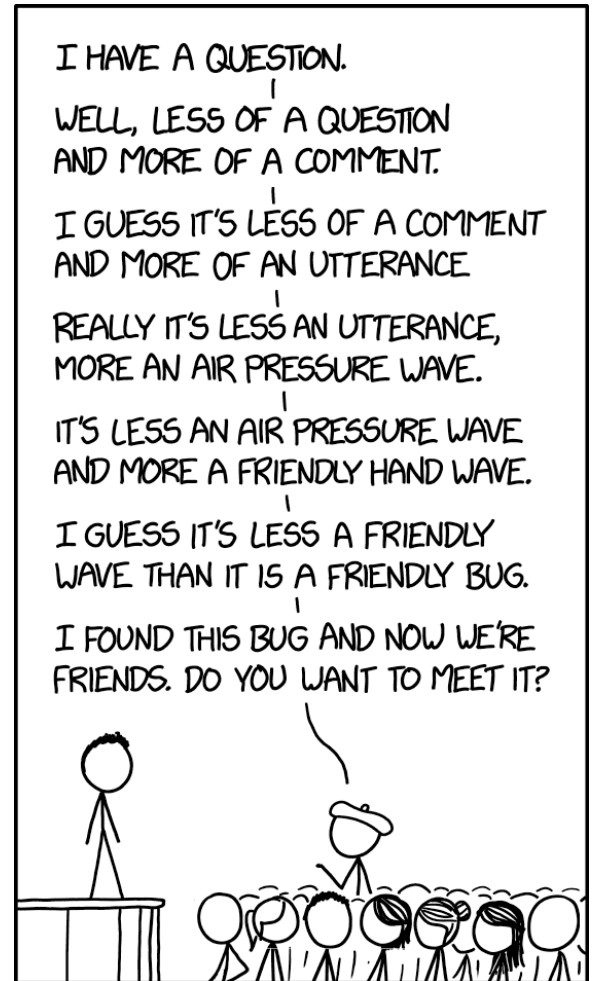


# Get started with GitHub Actions



# Have a question?

## Don't be this guy



# Thank You



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References and Credits:

- Comics - <https://xkcd.com/>
- All the logos and icons are property of their respective owners, used for non-commercial purpose under Creative Commons License.
- <https://medium.com/edureka/ci-cd-pipeline-5508227b19ca>
- <https://github.com/actions>
- <https://github.com/avinal>

