Be ambitious.

CodeQL – Azure User Group

March 2023 - How Open Source can protect you from yourself?

Static testing

Examine the source code and the flow for information, compiled artifacts, etc. a.k.a. White/Gray box testing.

CodeQL
SonarQube
Snyk Code
Qodana

Dynamic testing

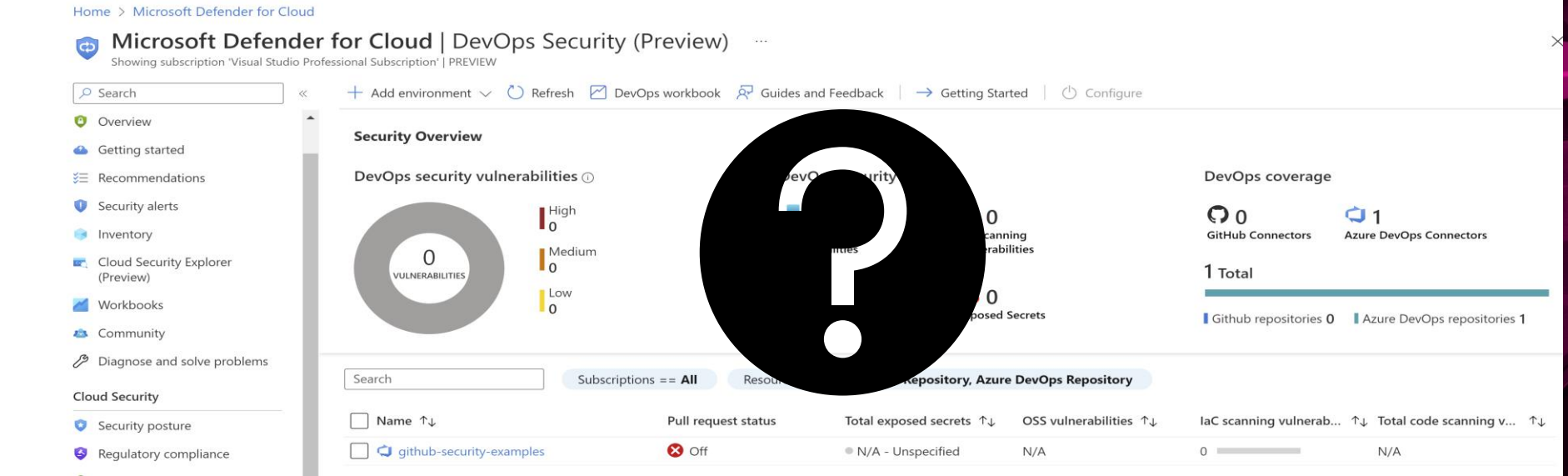
Carried out on software during code execution a.k.a. Black box testing.

Burp suite
Crowdstrike
OWASP ZAP
Intruder

Keep in mind when reviewing tools.
Common Weakness Enumeration (**CWE**) is the cause
Common Vulnerability Enumeration (**CVE**) is the effect

Where can you get CodeQL and how does it help?

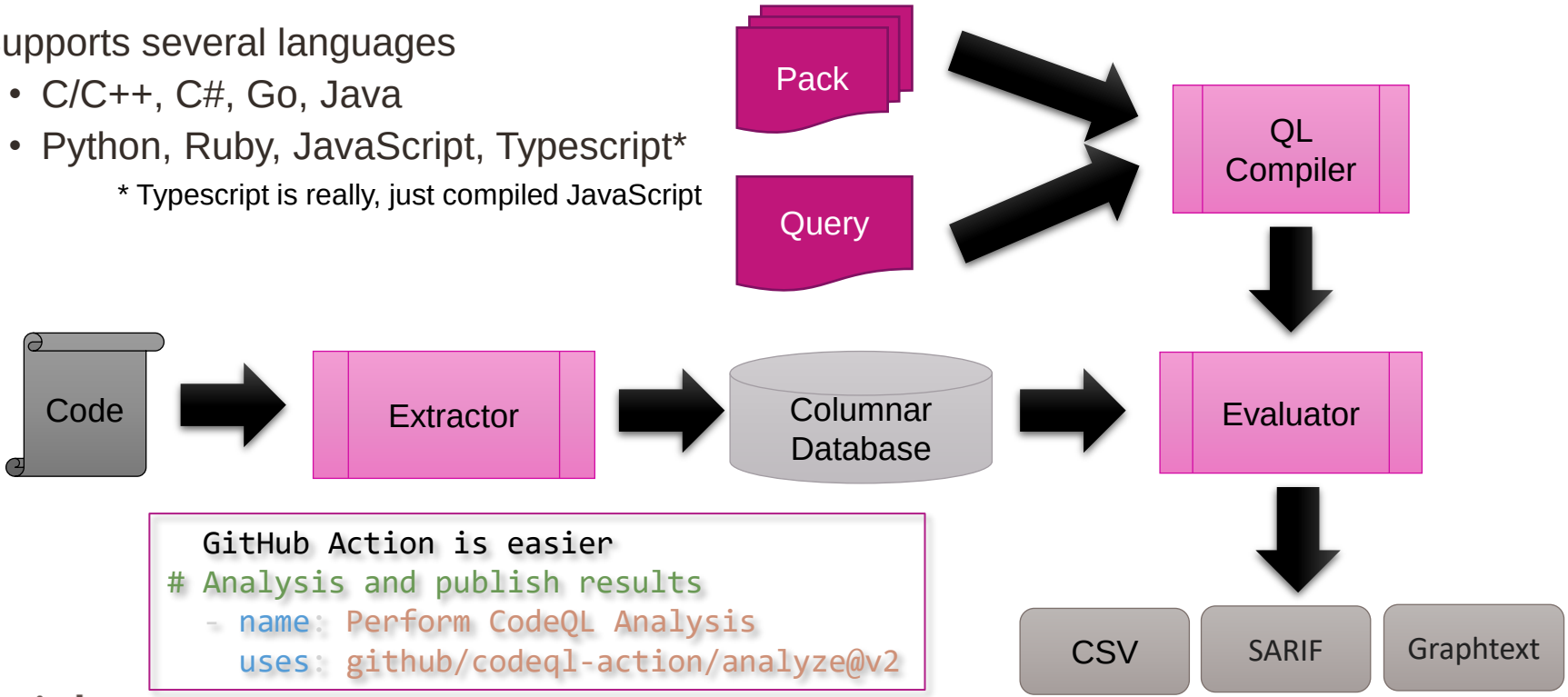
- Open-Source(‘ish) tool for code analysis
- Available in GitHub Public Repos, also under license as “Advanced Security” for private/internal repositories
- Can be used for academic research and demos



CodeQL Analysis Process

- Supports several languages
  - C/C++, C#, Go, Java
  - Python, Ruby, JavaScript, Typescript*

    * Typescript is really, just compiled JavaScript




```
  GitHub Action is easier
# Analysis and publish results
  - name: Perform CodeQL Analysis
    uses: github/codeql-action/analyze@v2
```

But it does so much more..

- Demo
  - Setup
  - Local execution
  - Accessing existing packs
  - VS Code integration and custom queries

- Bounty program for new submissions

- Open-Source Community of developers
  - @GHSecurityLab on Twitter or Slack
  - A few capture the flag tests
  - Events schedule

Final words on providing submissions

- Submit your pull requests in the experimental folder, following the published guidelines.
- Create an issues noting what vulnerability groups you are targeting (CWE)
- Evaluation with take time based on
  - Performance
  - Impact
  - Number of false positives, over several large codebases
- Eventually your submission will be migrated into the full pack (maybe)

Questions?

All code available on GitHub :
https://github.com/RGreene-Insight-Organisation/github-security-examples

“Coding makes finding bugs again !?”