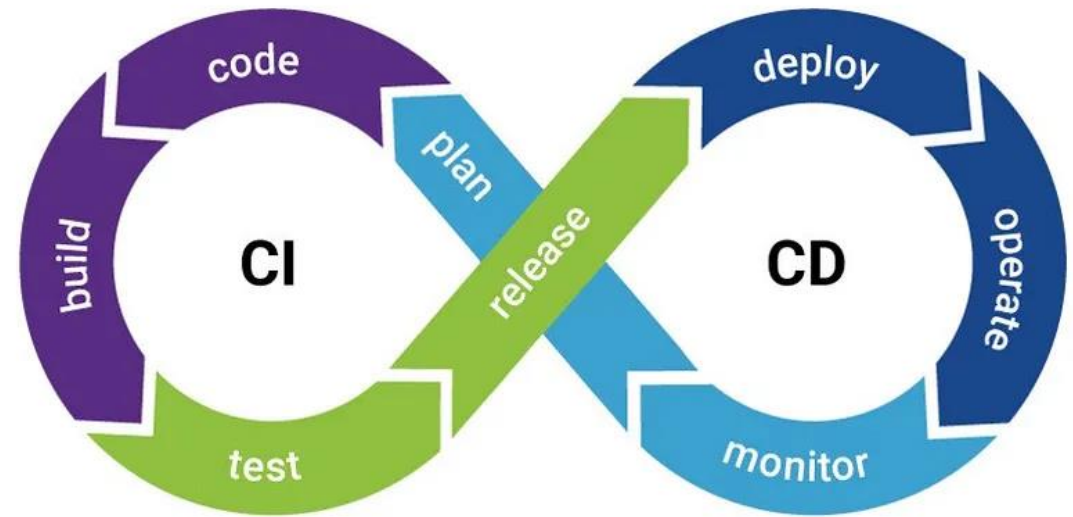




Basics of CI/CD with GitHub Actions

What is CI & CD?

- **Continuous Integration** is a DevOps software development practice where developers regularly merge their code changes into a central repository, after which automated builds and tests are run.
- **Continuous Delivery** is a software development practice where code changes are automatically prepared for a release to production.



Long story short:

A CI/CD pipeline automates your software delivery process. The pipeline builds code, runs tests (CI), and safely deploys a new version of the application (CD)

```
name:
  First Cron Job

# Controls when the workflow will run
on:
  # Triggers the workflow every 5 minutes
  schedule:
    - cron: "*/5 * * * *"

# A workflow run is made up of one or more jobs that can run sequentially or in parallel
jobs:
  # This workflow contains a single job called "cron"
  cron:
    # The type of runner that the job will run on
    runs-on: ubuntu-latest

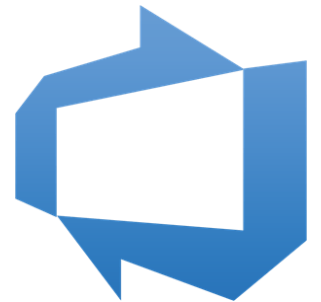
    # Steps represent a sequence of tasks that will be executed as part of the job
    steps:
      # Runs a single command using the runners shell
      - name: Run a one-line script
        run: echo Hello, world!
```

CI /CD Platforms

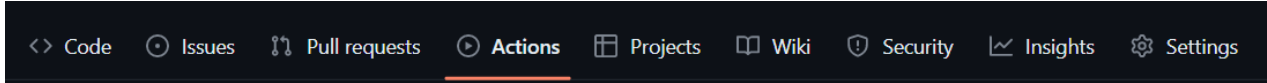
- CI / CD Platforms allow you to automate your build, test, and deployment pipeline. You can create workflows that build and test your repository.



Jenkins



Why prefer GitHub actions?



- **Integration with GitHub:** GitHub Actions is tightly integrated with GitHub. This integration allows you to define and automate workflows directly within your repository, making it convenient and easily accessible. You can define workflows that trigger on specific events, such as code pushes or pull requests, and seamlessly integrate with various deployment targets, including cloud platforms and other hosting services.
- **Flexibility and Customizability:** You can define your own workflows using YAML syntax, enabling you to tailor the automation process to suit your project's specific requirements. Additionally, GitHub Actions supports a wide range of programming languages and provides a marketplace of pre-built actions and workflows that you can leverage.
- **Integration with Third-Party Services:** GitHub Actions seamlessly integrates with various third-party services and tools, such as cloud providers (e.g., AWS, Azure, Google Cloud), container orchestration platforms (e.g., Docker, Kubernetes), and notification systems. This integration enables you to incorporate these services into your workflows, further enhancing your automation capabilities.
- **Cost-Effective:** GitHub Actions offers a generous free tier for public repositories and provides a certain amount of free minutes for running workflows on private repositories. This can be advantageous for individuals and small teams with limited budgets. If you require additional resources, GitHub Actions also provides flexible pricing options to scale according to your needs.