



Leveraging GitHub Actions

Automate your Salesforce build, test & deploy pipeline

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Continuous Integration, Continuous Delivery & Continuous Deployment



What is CI/CD?



Continuous Integration

- automatically build, test and integrate changes within a shared repository

Continuous Delivery

- automatically deliver changes to production-ready environments for approval

Continuous Deployment

- automatically deploy changes directly to users

“

At GitHub, we use the GitHub Actions CI/CD platform to automate our Salesforce build, test and deploy pipeline.





GitHub Workflows



GitHub Workflows



- Configurable automated processes that can conditionally run one or more jobs sequentially or in parallel
- Jobs are executed on a runner machine and can run one or more steps
- Steps can run scripts, shell commands or GitHub Actions
- Events that trigger Workflows:
 - Repository-level events
 - External events that trigger a *repository_dispatch* event
 - Scheduled
 - Manual



GitHub Actions



GitHub Actions

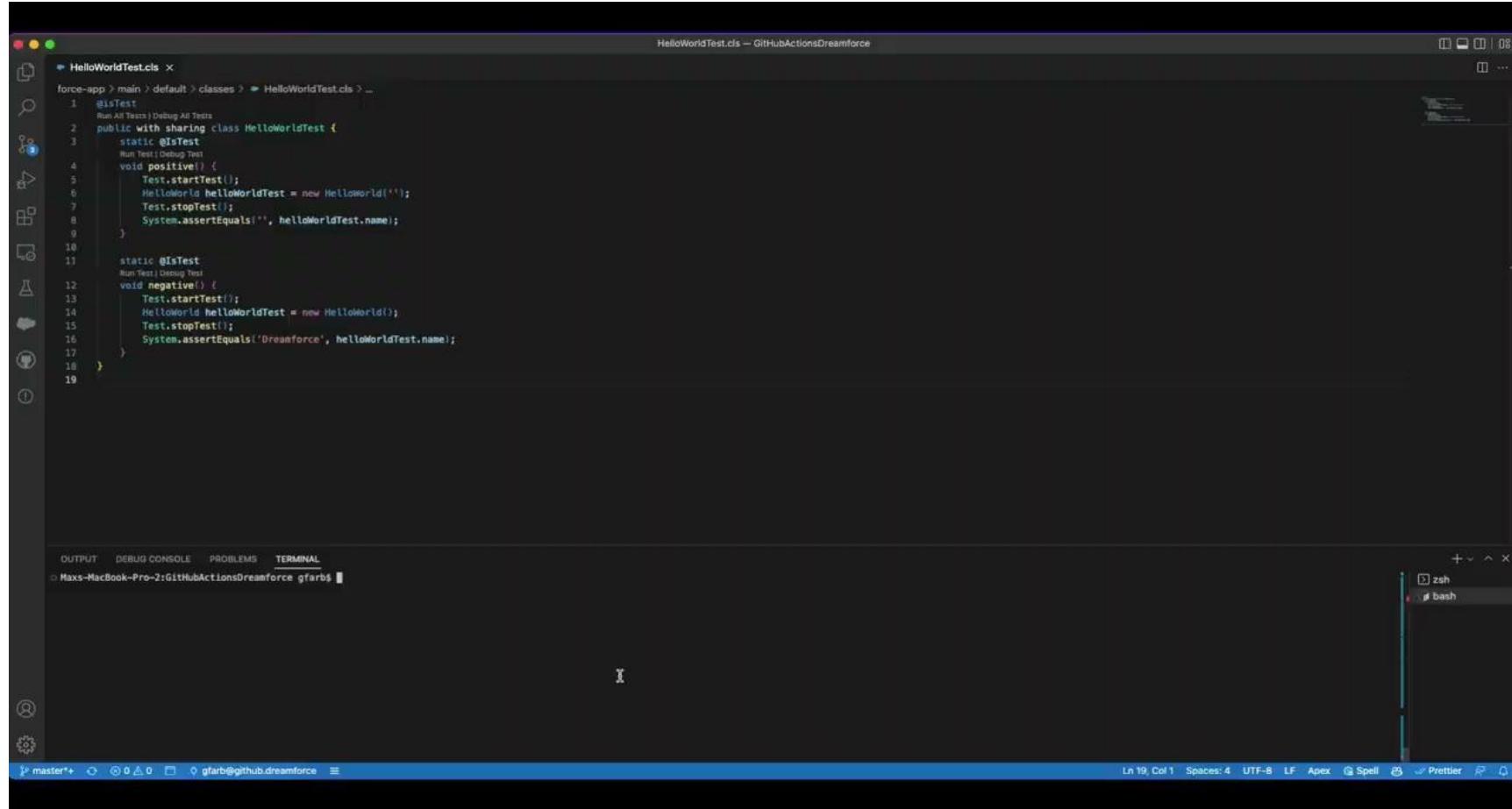


- Building blocks that make up GitHub Workflows
- Custom apps that execute complex & repetitive tasks
- Write custom code that interacts with your repository in any way
- Develop your own or find public actions in the GitHub Marketplace
<https://github.com/marketplace?type=actions>
- Types of GitHub Actions:
 - JavaScript
 - Docker Container
 - Composite

Let's see it in action...



Invoking our build, test & deploy workflow



A screenshot of a code editor window titled "HelloWorldTest.cls — GitHubActionsDreamforce". The code editor displays the following Apex test class:

```
1  @isTest
2  Run All Tests | Debug All Tests
3  public with sharing class HelloWorldTest {
4      static @isTest
5          Run Test | Debug Test
6      void positive() {
7          Test.startTest();
8          HelloWorld helloWorldTest = new HelloWorld('');
9          Test.stopTest();
10         System.assertEquals('', helloWorldTest.name);
11     }
12
13     static @isTest
14         Run Test | Debug Test
15     void negative() {
16         Test.startTest();
17         HelloWorld helloWorldTest = new HelloWorld();
18         Test.stopTest();
19         System.assertEquals('Dreamforce', helloWorldTest.name);
20     }
21 }
```

The editor interface includes a sidebar with file navigation, a top bar with icons, and a bottom bar with tabs for "OUTPUT", "DEBUG CONSOLE", "PROBLEMS", and "TERMINAL". The terminal tab shows a session for "Max's-MacBook-Pro-2:GitHubActionsDreamforce gfarbs". The status bar at the bottom indicates the file is in "master" branch, has 0 changes, and is owned by "gfarbs@github.dreamforce". It also shows file statistics: Ln 19, Col 1, Spaces: 4, UTF-8, LF, Apex, Spell, Prettier.



There's a bug in our pipeline

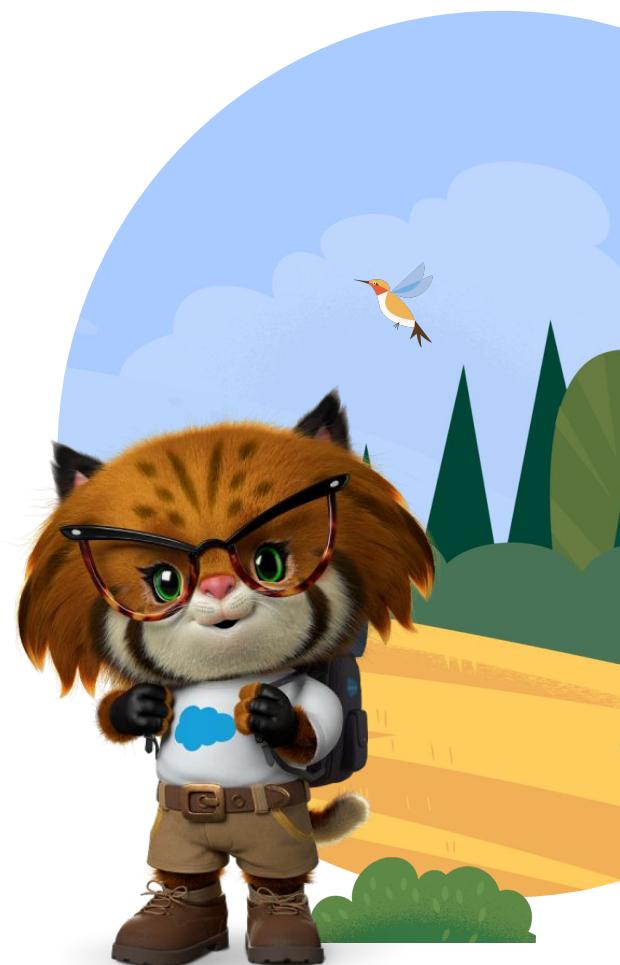


A screenshot of a developer's workspace. The top half shows a code editor with Java code for a test class named `HelloWorldTest.cls`. The bottom half shows a terminal window displaying the output of a `git push` command, showing the upload of files and the resolution of deltas during the push process.

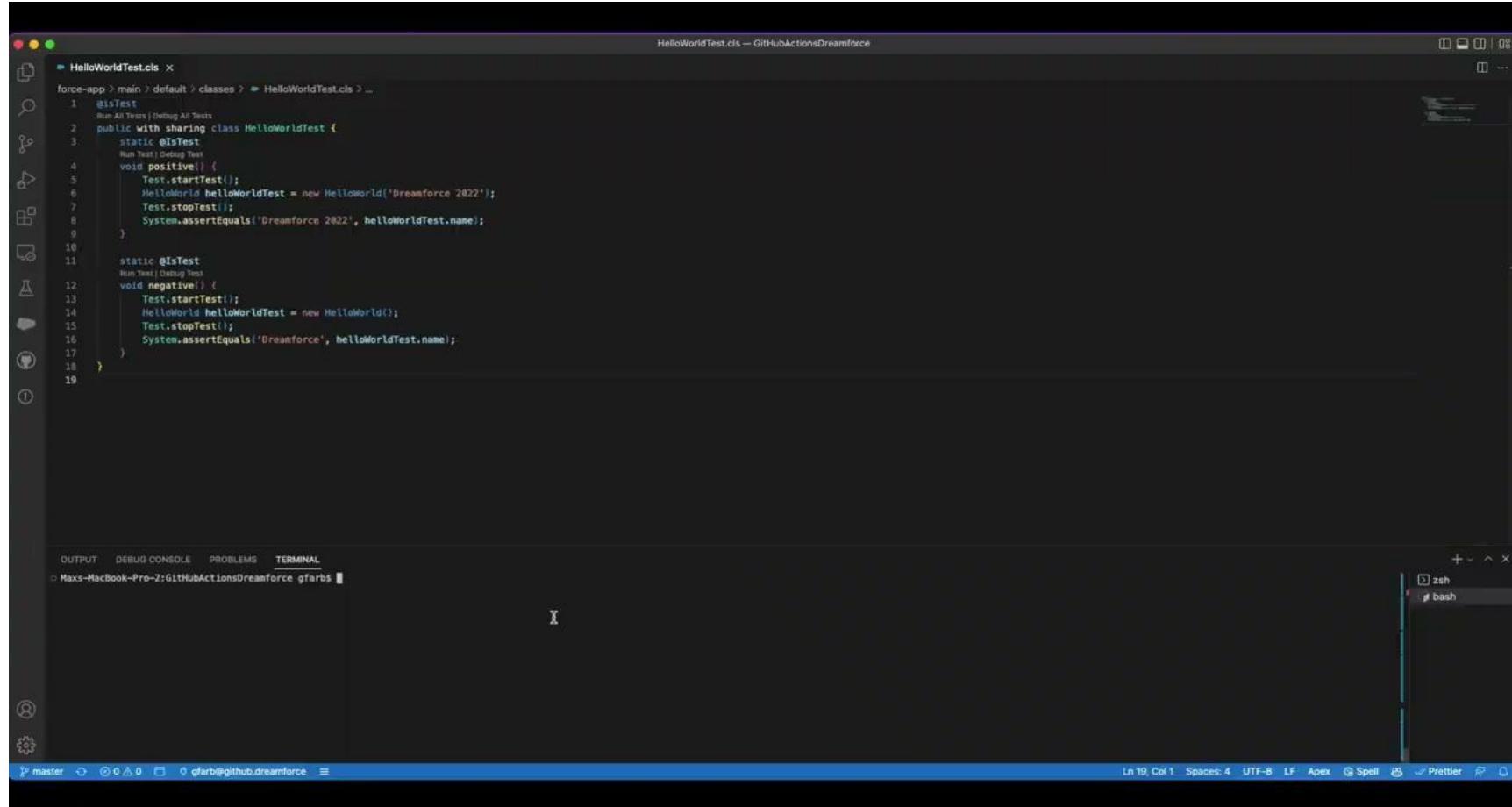
```
force-app > main > default > classes > ▾ HelloWorldTest.cls > ...
HelloWorldTest.cls — GitHubActionsDreamforce

1  @isTest
  Run All Tests | Debug All Tests
2  public with sharing class HelloWorldTest {
3    static @isTest
      Run Test | Debug Test
4    void positive() {
5      Test.startTest();
6      HelloWorld helloWorldTest = new HelloWorld('Dreamforce');
7      Test.stopTest();
8      System.assertEquals('Dreamforce', helloWorldTest.name);
9    }
10
11   static @isTest
      Run Test | Debug Test
12   void negative() {
13     Test.startTest();
14     HelloWorld helloWorldTest = new HelloWorld();
15     Test.stopTest();
16     System.assertEquals('Dreamforce', helloWorldTest.name);
17   }
18 }
19

OUTPUT DEBUG CONSOLE PROBLEMS TERMINAL
✓ Applying modifications from tasks...
✓ Cleaning up temporary files...
[master 1630488] Minor test class change & deprecate ToDelete1
  4 files changed, 18 insertions(+), 9 deletions(-)
  create mode 100644 destructive-changes/destructiveChangesPost.xml
  delete mode 100644 force-app/main/default/classes/ToDelete1.cls
  delete mode 100644 force-app/main/default/classes/ToDelete1.cls-meta.xml
Maxi-MacBook-Pro-2:GitHubActionsDreamforce gfarb$ git push
Enumerating objects: 15, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 8 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (7/7), 1.49 MiB/s, done.
Total 9 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/gfarb/github-actions-dreamforce.git
  985d677...1630488  master -> master
Maxi-MacBook-Pro-2:GitHubActionsDreamforce gfarb$
```



Let's refactor our workflow



A screenshot of a code editor window titled "HelloWorldTest.cls — GitHubActionsDreamforce". The code editor displays the following Apex test class:

```
force-app > main > default > classes > ▾ HelloWorldTest.cls > ...
1 @isTest
Run All Tests | Debug All Tests
2 public with sharing class HelloWorldTest {
3     static @isTest
Run Test | Debug Test
4         void positive() {
5             Test.startTest();
6             HelloWorld helloWorldTest = new HelloWorld('Dreamforce 2022');
7             Test.stopTest();
8             System.assertEquals('Dreamforce 2022', helloWorldTest.name);
9         }
10
11     static @isTest
Run Test | Debug Test
12         void negative() {
13             Test.startTest();
14             HelloWorld helloWorldTest = new HelloWorld();
15             Test.stopTest();
16             System.assertEquals('Dreamforce', helloWorldTest.name);
17     }
18 }
19
```

The editor interface includes a sidebar with file navigation, a top bar with icons, and a bottom bar showing the file path and status. A terminal tab is also visible at the bottom.



Resources

- [Continuous Integration, Continuous Delivery & Continuous Deployment](#)
- [GitHub Actions](#)
- [GitHub Workflows](#)
- [Demo repository](#)
- [Salesforce Deploy Action](#)
- [GitHub Actions Marketplace](#)



Shoutouts!



@rdietrick



@woodmanzee



@pil, @patil-pramod, @cpq007,
@cloudyjohnny, @katie-wood,
@parkerbrown11,
@ryan-brocklesby, @thientr





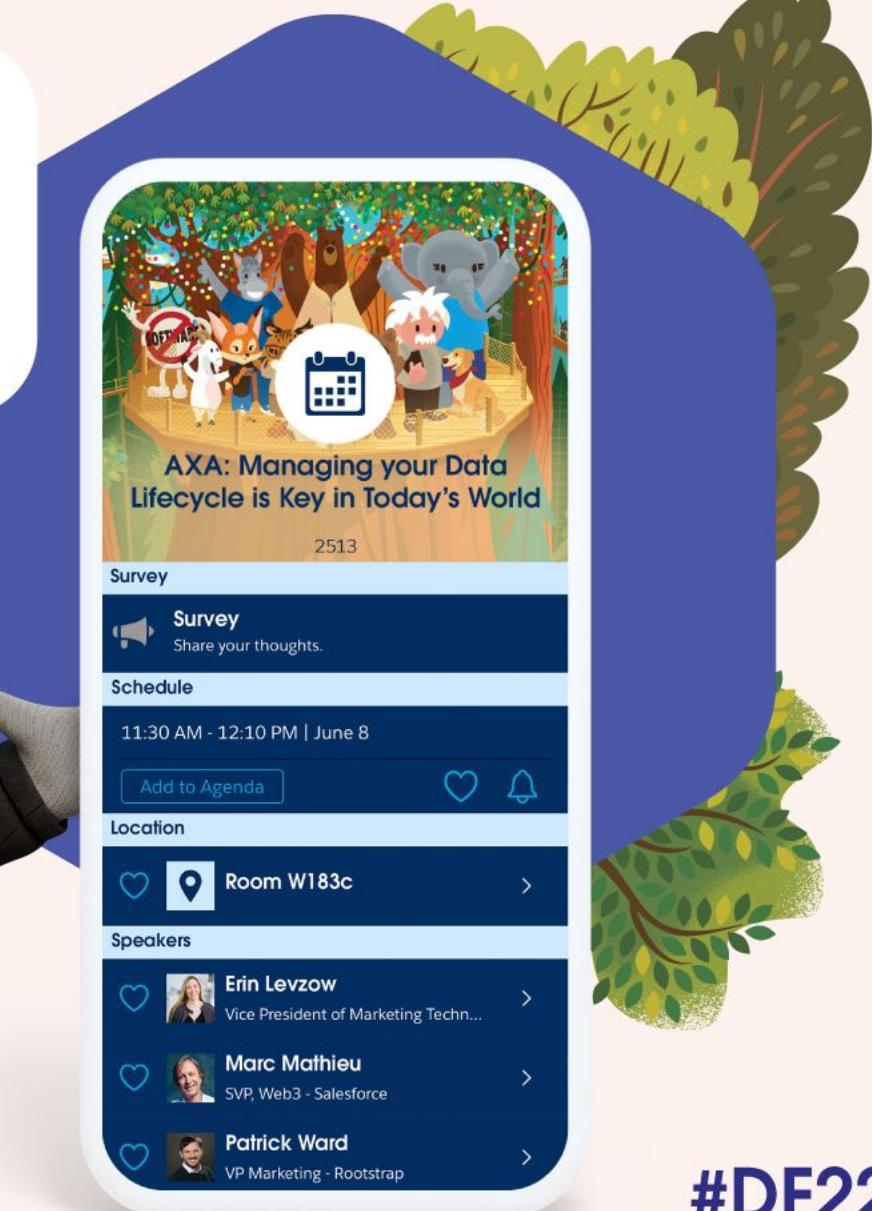
Thank you





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#DF22