

5. Continuous integration

Summary

We chose to employ continuous integration to enable us to automate necessary steps such as running tests after changes to the main branch and building our project into an executable JAR. Employing CI allowed us to repeat these steps in a consistent fashion and reduce the need for personal involvement of team members.

Furthermore, the development of our code involved multiple group members merging code from their individual branches into the main branch. Automated test execution assured us that any issues resulting from erroneous merged code would be swiftly spotted and could be dealt with without creeping in silently into the codebase.

Both Windows and MacOS were used as development machines by various members. Encapsulating the build and test processes in a separate CI environment meant that inconsistencies related to a developer's environment would be guarded against.

Integration Infrastructure

We chose to use GitHub Actions for our CI infrastructure due to its ease of use, thanks to a marketplace of prewritten actions, and tight integration with GitHub, which we were already using to develop our code.

Two separate CI scripts were created:

- [build.yml](#) builds the JAR executable and makes it available for download under the Releases section of the repository
- [test.yml](#) validates the gradle wrapper and runs tests on the code

Separate scripts were created to visually notify us of the results of each process via the badges on the README displayed in the root of the repository. If any issues were spotted, they could be followed up on in detail by looking at the record of actions, which also held the record of the relevant commit responsible for the success or failure of the code at that stage.

Screenshots

Workflows

New workflow

All workflows

Build

Tests

pages-build-deployment

Build

build.yml

Q Filter workflow runs

...

21 workflow runs

Event

Status

Branch

Actor

✓ Merge remote-tracking branch 'origin/main'

Build #21: Commit b173a3e pushed by Kroojel

main

12 minutes ago

56s

...

✓ doent use debug tools

Build #20: Commit cb24fef pushed by AlexGUni

main

13 minutes ago

1m 4s

...

✓ updated download link

Build #19: Commit 284bf1d pushed by AlexGUni

main

1 hour ago

1m 2s

...

✓ Fixed boss

Build #18: Commit 1b03192 pushed by Kroojel

main

1 hour ago

51s

...

✓ Lowered bullet damping

Build #17: Commit 378d178 pushed by Kroojel

main

2 hours ago

1m 19s

...

✓ New Initialization functions

Build #16: Commit 8f595e7 pushed by Kroojel

main

3 hours ago

51s

...

✓ Unfinished test commented out

Build #15: Commit fd8d916 pushed by Kroojel

main

17 hours ago

42s

...

✓ Fixes bixes2

Build #14: Commit 34e79c8 pushed by Kroojel

main

17 hours ago

41s

...

✓ Merge branch 'unit_tests'

Build #13: Commit 942d9b5 pushed by Kroojel

main

18 hours ago

48s

...

Fig 5.1: Build section

Workflows

New workflow

All workflows

Build

Tests

pages-build-deployment

Tests

test.yml

Q Filter workflow runs

...

21 workflow runs

Event

Status

Branch

Actor

✓ Merge remote-tracking branch 'origin/main'

Tests #21: Commit b173a3e pushed by Kroojel

main

12 minutes ago

43s

...

✓ doent use debug tools

Tests #20: Commit cb24fef pushed by AlexGUni

main

13 minutes ago

1m 1s

...

✓ updated download link

Tests #19: Commit 284bf1d pushed by AlexGUni

main

1 hour ago

42s

...

✓ Fixed boss

Tests #18: Commit 1b03192 pushed by Kroojel

main

1 hour ago

52s

...

✓ Lowered bullet damping

Tests #17: Commit 378d178 pushed by Kroojel

main

2 hours ago

53s

...

✓ New Initialization functions

Tests #16: Commit 8f595e7 pushed by Kroojel

main

3 hours ago

57s

...

✓ Unfinished test commented out

Tests #15: Commit fd8d916 pushed by Kroojel

main

17 hours ago

43s

...

✗ Fixes bixes2

Tests #14: Commit 34e79c8 pushed by Kroojel

main

17 hours ago

53s

...

✗ Merge branch 'unit_tests'

Tests #13: Commit 942d9b5 pushed by Kroojel

main

18 hours ago

1m 10s

...

Fig 5.2: Test section