Patch Experiments

# Experiment 1: Applying random Edits to Patch with Random Search

Date:

## Purpose

To see the effects of adding between 1 to 4 random edits to a patch and whether this new program can compile, take less time to run, passed all unit tests and whether the energy consumption is lower.

## Hypothesis

* If the program removes the ‘delay()’ line then the time taken is expected to be less
* Removing unused lines should reduce the energy consumption
* Should regularly fail but at least 1 out of 10 should compile.
* Should not always pass the test runner.

## Materials

What Edits?

* Remove Line Edit
* Insert Line Edit
* Swap Line Edit
* Move Line Edit

Number of Patch(es): 1

Test file: Triangle.java

Number of Repetitions: 10

## Procedure

1. Run triangle class through AnnaGin.
2. Gather 4 random edits and add to a patch
3. Apply patch to the triangle code.
4. Compile new code
5. See if test runner worked.

## Data

## Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Repetition** | **Did it compile?** | **Test Runner work?** | **Time taken (miliseconds)** | **Energy Consumption (J)** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

## ScreenShots

## Conclusions

# Experiment 2: Patch with all edits