Mutation-Viz

Why?

- Mutation testing command line tools generate rich output but lack visualization
- Reduce barrier for mutation testing of Java projects

Design

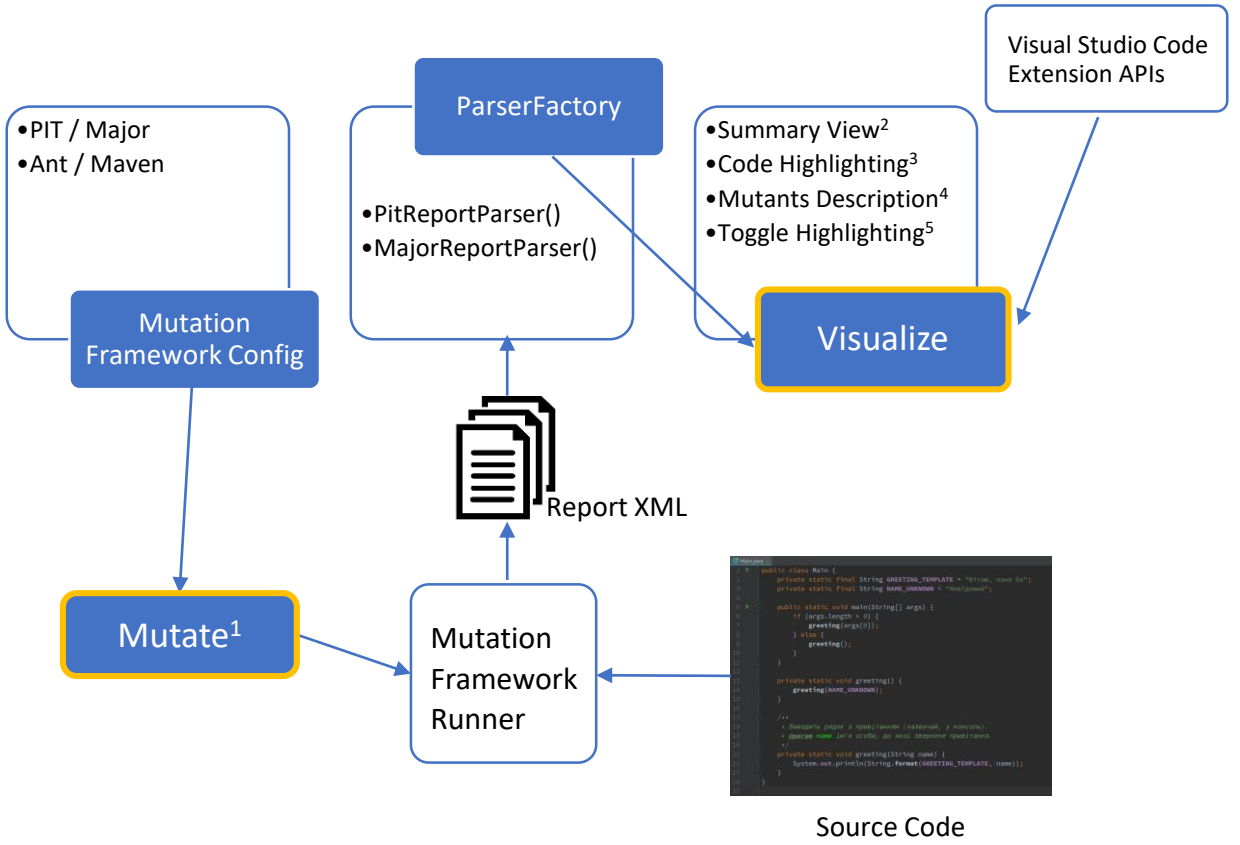
- Using well-known and extensible IDE: Visual Studio Code
- Modularized architecture for faster and cleaner development
- Factory pattern for multiple mutation framework support
- TSDoc and TSLint for standardized typescript code documentation and styling guideline

Testing and Debugging

- Standard unit testing of individual functions
- Integration testing using VSCode sandbox IDE environment
- Introduced harness code bases with different java projects and configurations
- Code coverage enforced: 50% branches, functions, lines and statement coverage
- Challenge: Testing requires strong VS Code dependency

Evaluation

- Using Ease of setup, User interface, Feature set, Flexibility and Extensibility metrics
- Compared with Pitclipse and Stryker visualizers

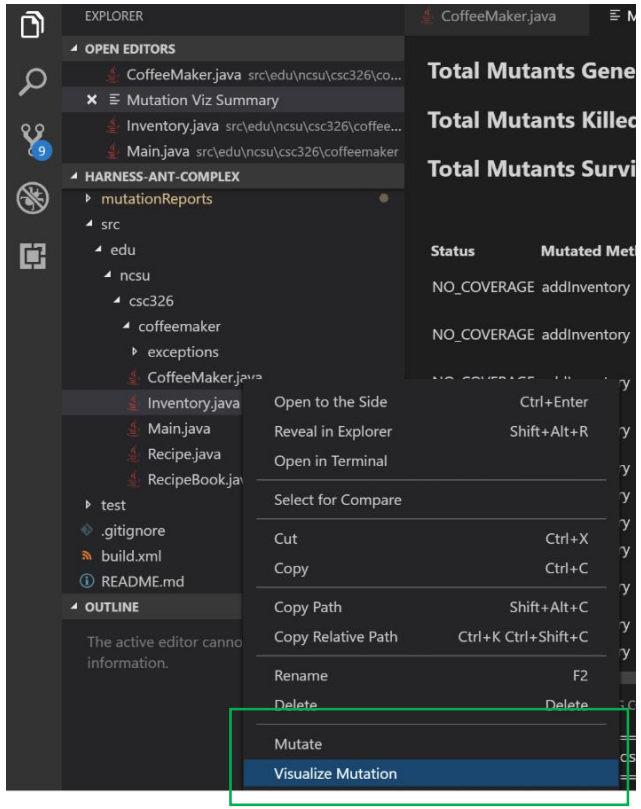


Key:

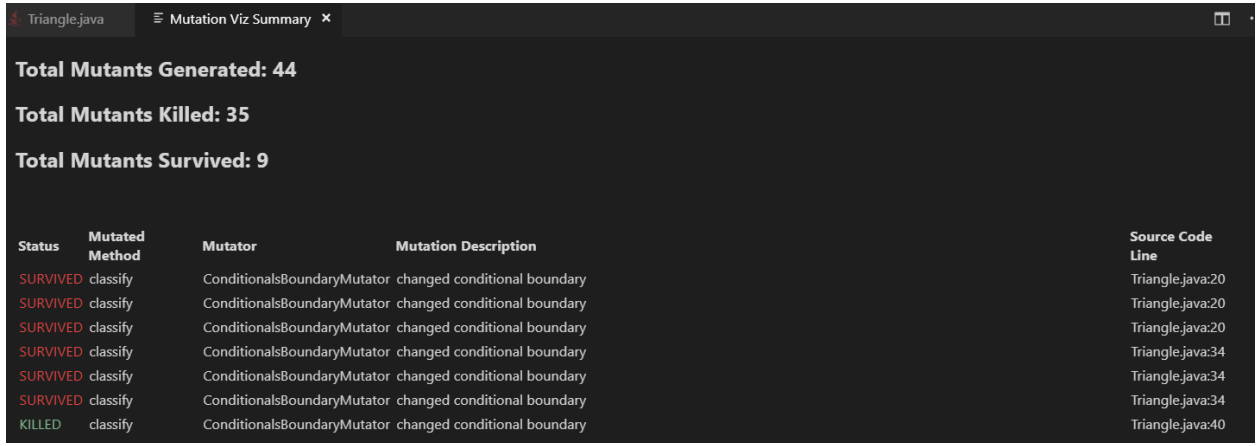
**Mutate and Visualize UI on back

Mutation-Viz Features

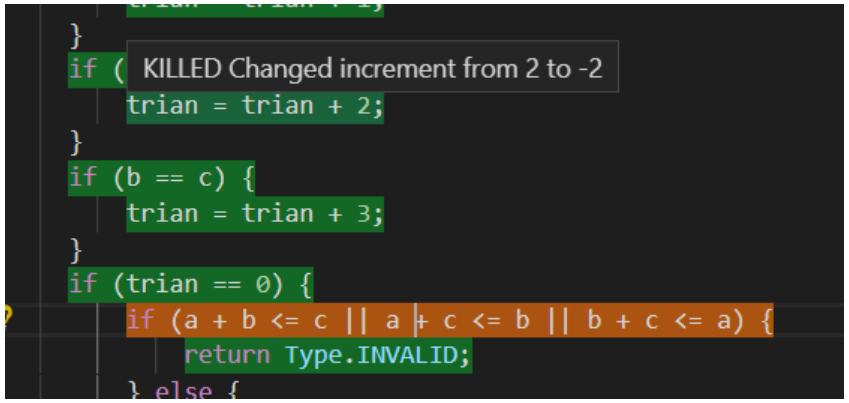
1: Mutate and Visualize Mutation Commands



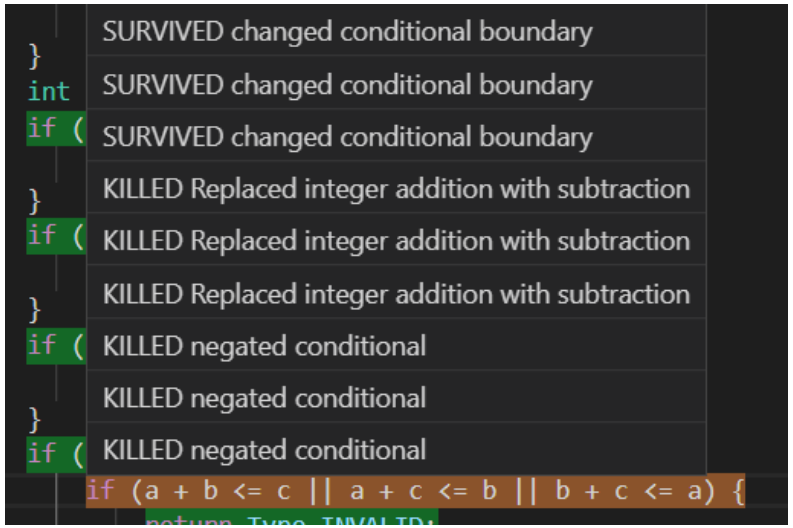
2: Summary View



3: Code Highlighting



4: Mutant Descriptions



5: Toggle Highlighting with Status Bar