Lab10 report

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Folder hierarchy

```
.
├── 201805221711
│   ├── index.html
│   ├── style.css
│   └── triangle
│       ├── index.html
│       └── Triangle.java.html
├── hamcrest-core-1.3.jar
├── junit-4.12.jar
├── pitest-1.4.0.jar
├── pitest-command-line-1.4.0.jar
├── pitest-entry-1.4.0.jar
└── triangle
    ├── TestSuite.class
    ├── TestSuite.java
    ├── Triangle.class
    ├── Triangle.java
    └── Triangle$Type.class
```

Shell commands

```
# Delete or comment test case 10, 11, 14, 20 in TestSuite.java

# Compile
javac -cp ".:../junit-4.12.jar:./hamcrest-core-1.3.jar:$CLASSPATH"
triangle/Triangle.java triangle/TestSuite.java

# Generate PIT report
java -cp .:$CLASSPATH:junit-4.12.jar:pitest-command-line-1.4.0.jar:pitest-
entry-1.4.0.jar:pitest-1.4.0.jar \
    org.pitest.mutationtest.commandline.MutationCoverageReport \
    --reportDir . \
    --targetClasses triangle.Triangle \
    --targetTests triangle.TestSuite \
    --sourceDirs triangle
```

Screenshot

```
●●● arthur@ubuntu: ~/work/se-lab/Lab10/src
>> Generated 5 Killed 0 (0%)
> KILLED 0 SURVIVED 0 TIMED_OUT 0 NON_VIABLE 0
> MEMORY_ERROR 0 NOT_STARTED 0 STARTED 0 RUN_ERROR 0
> NO_COVERAGE 5
-------------------------------------------------------------------
> org.pitest.mutationtest.engine.gregor.mutators.ReturnValsMutator
>> Generated 8 Killed 6 (75%)
> KILLED 6 SURVIVED 0 TIMED_OUT 0 NON_VIABLE 0
> MEMORY_ERROR 0 NOT_STARTED 0 STARTED 0 RUN_ERROR 0
> NO_COVERAGE 2
-------------------------------------------------------------------
> org.pitest.mutationtest.engine.gregor.mutators.MathMutator
>> Generated 9 Killed 6 (67%)
> KILLED 6 SURVIVED 3 TIMED_OUT 0 NON_VIABLE 0
> MEMORY_ERROR 0 NOT_STARTED 0 STARTED 0 RUN_ERROR 0
> NO_COVERAGE 0
-------------------------------------------------------------------
> org.pitest.mutationtest.engine.gregor.mutators.NegateConditionalsMutator
>> Generated 17 Killed 15 (88%)
> KILLED 15 SURVIVED 2 TIMED_OUT 0 NON_VIABLE 0
> MEMORY_ERROR 0 NOT_STARTED 0 STARTED 0 RUN_ERROR 0
> NO_COVERAGE 0
-------------------------------------------------------------------
arthur@ubuntu:~/work/se-lab/Lab10/src$
```

Pit Test Coverage Report

Package Summary

triangle

Number of Classes	Line Coverage		Mutation Coverage	
1	69%	20/29	67%	33/49

Breakdown by Class

Name	Line Coverage		Mutation Coverage	
Triangle.java	69%	20/29	67%	33/49

Result analysis

The test suite cover 20 lines in 29 lines. Generated 49 mutations Killed 33.

1. ConditionalsBoundaryMutator

Generated 10 Killed 6 (60%)

2. VoidMethodCallMutator

Generated 5 Killed 0 (0%)

3. ReturnValsMutator

Generated 8 Killed 6 (75%)

4. MathMutator

Generated 9 Killed 6 (67%)   3 / 3

5. NegateConditionalsMutator

Generated 17 Killed 15 (88%)