

Task 1

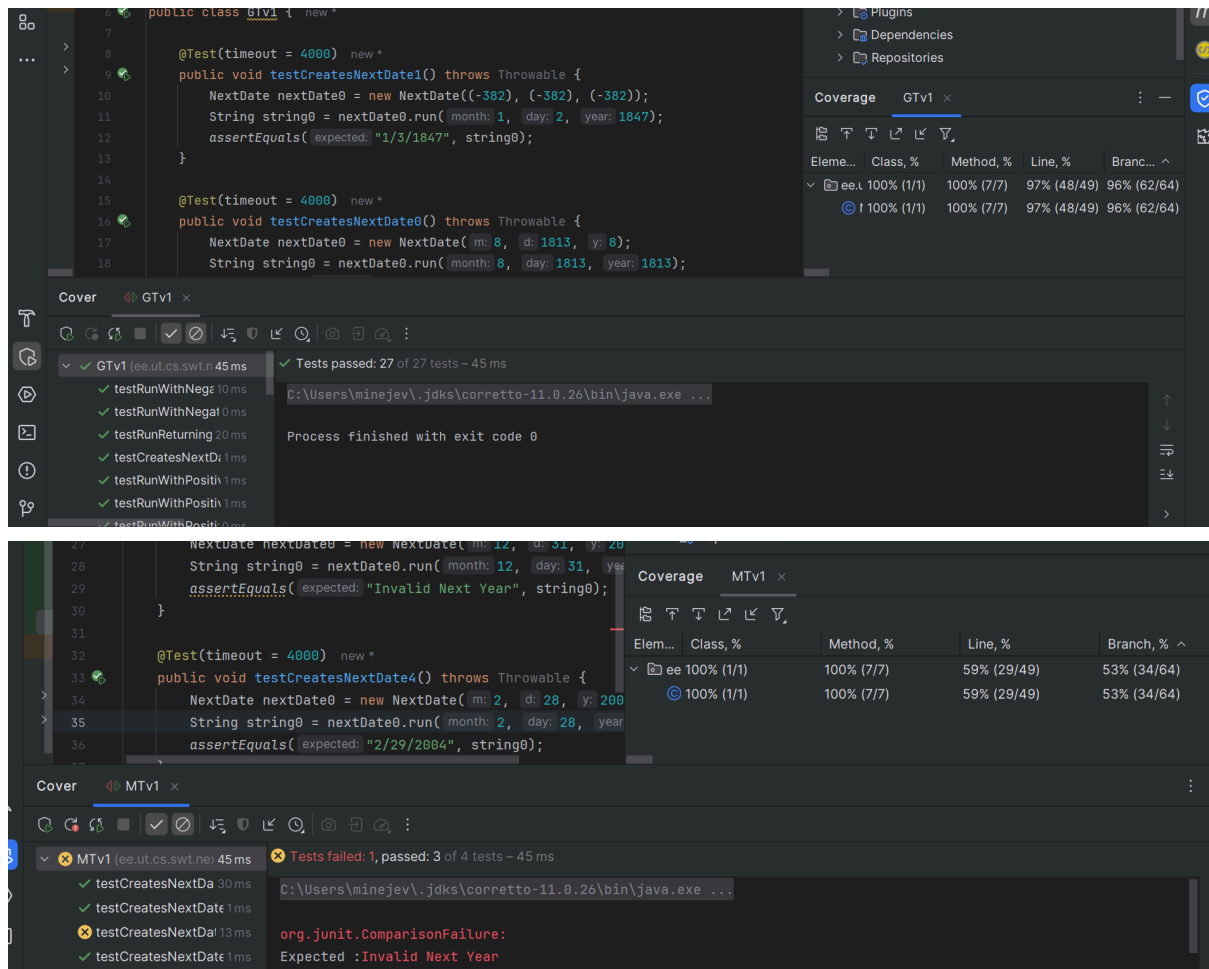


Table 1

Variable / Output	EC	Description	Covered by MTv1	Covered by GTv1
Month	M1	Valid month (1–12)	Yes	Yes
	M2	Invalid month (<1 or >12)	No	Yes
Day	D1	Valid day for given month and year	Yes	Yes
	D2	Invalid day (e.g., 2/30, negative)	No	Yes

Year	Y1	Valid year (e.g., 1801–2021)	Yes	Yes
	Y2	Invalid year (<1801 or >2021)	No	Yes
Output	O1	Valid next day in same month	Yes	Yes
	O2	Month change (e.g., 1/31 → 2/1)	Yes	Yes
	O3	Year change (e.g., 12/31 → 1/1)	Yes	Yes
	O4	"Invalid Input Date"	No	Yes
	O5	"Invalid Next Year"	No (test failed)	Yes
	O6	Invalid output (e.g., 12/32/1915)	No	Yes

Table 2

Aspect	MTv1	GTv1
Number of tests	4	27
Tests passed	3	27
Tests failed	1 (leap year test)	0
Input EC coverage	Only valid inputs	Valid and invalid inputs
Output EC coverage	O1, O2, O3	O1, O2, O3, O4, O5, O6
Detected failures	No actual detection (test failed due to wrong expectation)	Detected edge case outputs

Code coverage – Lines	59%	97%
Code coverage – Branches	53%	96%
Code coverage – Methods	100%	100%
EC coverage completeness	Partial	Comprehensive
Defect detection effectiveness	Low (missed logic)	High (validated corner cases)

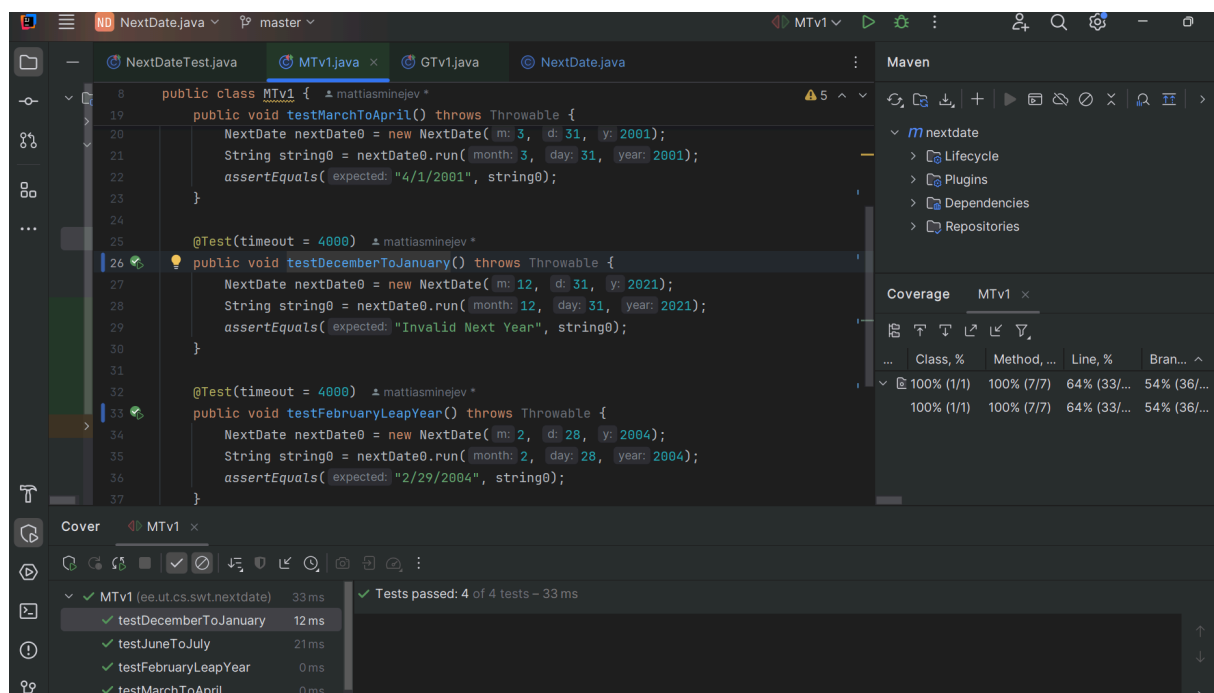
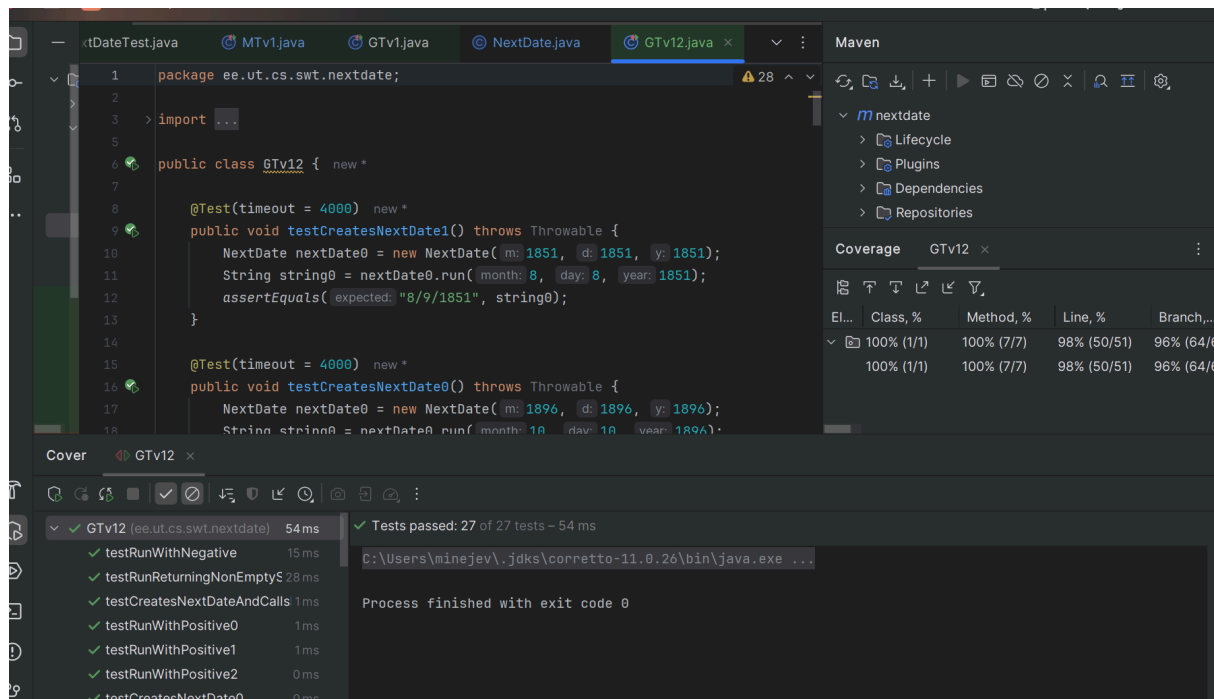
Task 2

The screenshot displays the IntelliJ IDEA IDE with the following components:

- Code Editor:** Shows the `GTV1` class with methods `testCreatesNextDate8`, `testCreatesNextDate10`, and `testCreatesNextDate12`. The code includes assertions and date calculations.
- Maven Tab:** Shows the project structure with coverage for `nextdate`, `Lifecycle`, `Plugins`, and `Dependencies`.
- Coverage Tab:** Displays a table with coverage metrics for the `GTV1` class.

El...	Class	%	Method	%	Line	%	Branch	%
100%	100%	100%	100%	100%	96%	95%	96%	95%
- Cover Tab:** Shows a list of tests and their results.

Test Name	Result	Duration
testRunWithNegative	Passed	13 ms
testRunWithNegativeAndNegr	Passed	0 ms
testRunReturningNonEmptyS	Failed	48 ms
testCreatesNextDateAndCalls	Failed	4 ms
testRunWithPositive0	Passed	0 ms
testRunWithPositive1	Passed	0 ms
testRunWithPositive2	Passed	0 ms
testCreatesNextDate0	Passed	0 ms
testCreatesNextDate1	Passed	0 ms
testCreatesNextDate2	Passed	1 ms
- Test Results:** Shows 4 failed tests and 23 passed tests. The error message for the failed tests is: `org.junit.ComparisonFailure: Expected :Invalid Next Year Actual :Invalid Input Date`.



GTv1 made tests with wrong `NextDate` code therefore also the test inputs and expected outputs were wrong. Obviously GTv12 is better because it makes tests with corrected code.