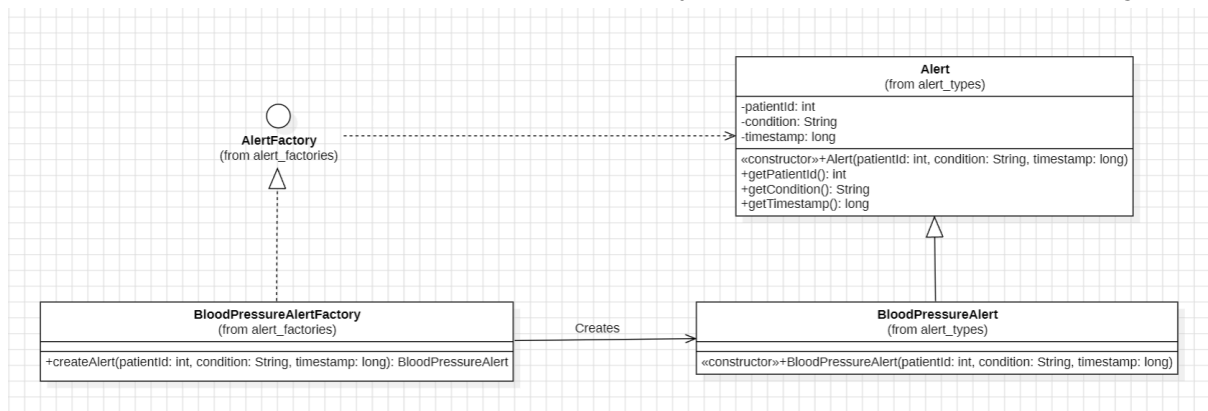


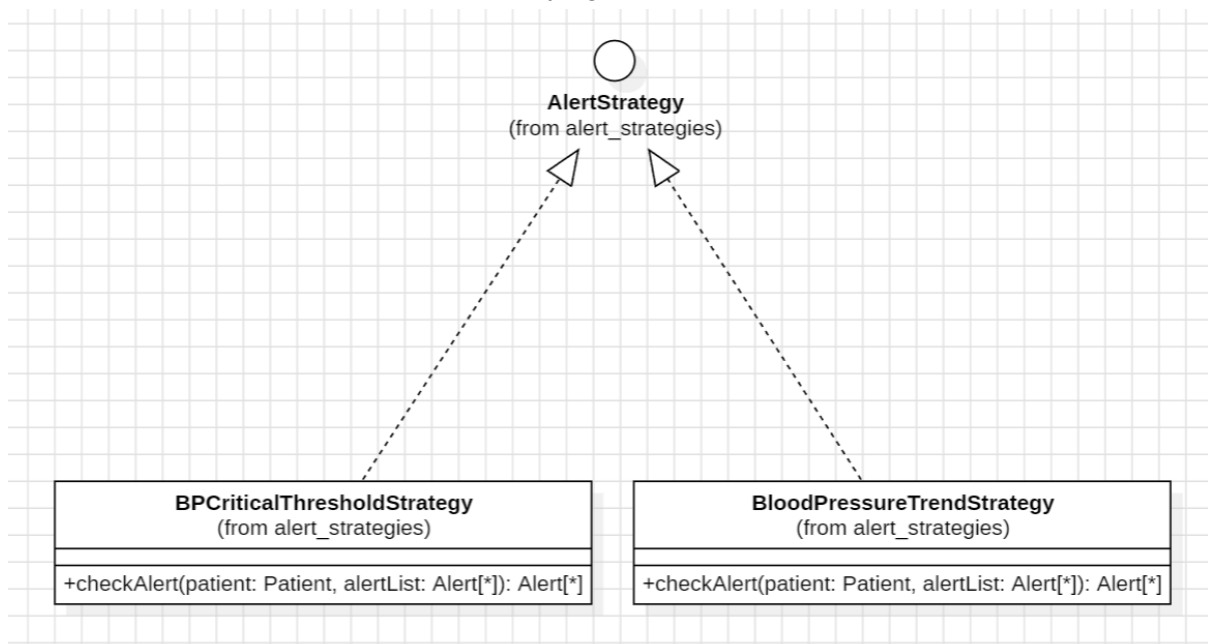
Week 7 tasks

- [X] Implement Factory design pattern
- [X] Implement Strategy pattern
- [] Implement Decorator pattern
- [X] Implement Singleton pattern
 - [X] Implement for DataStorage
 - [X] Implement for HealthDataSimulator

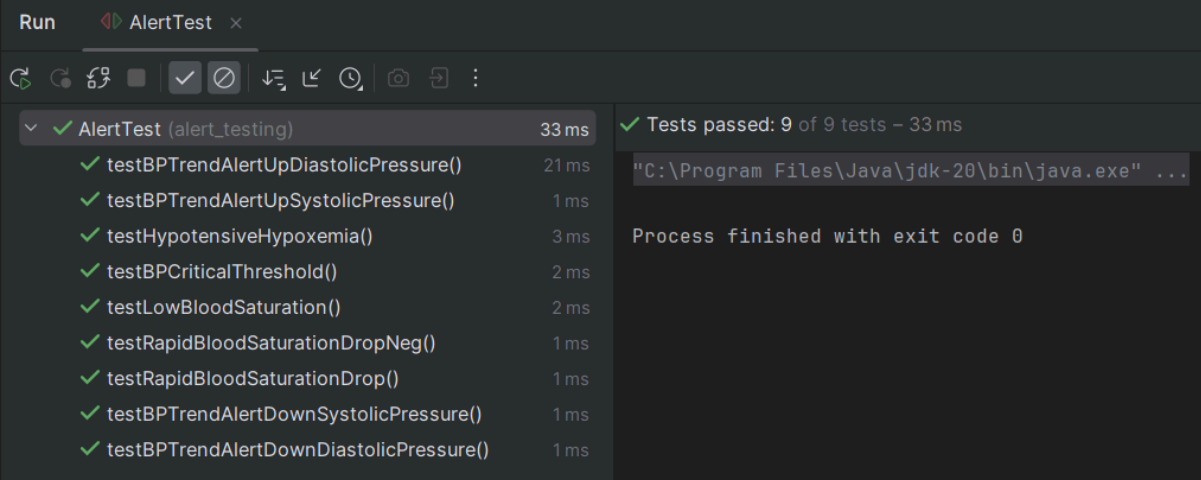
Example application of the factory method design pattern. For blood pressure alerts, you have a specific '**BloodPressureAlert**' class made by the '**BloodPressureAlertFactory**'



Use of the strategy design pattern. The classes below encapsulate the logic for creating their specific alerts. The **checkAlert** method receives an existing list of alerts and, depending on the inner logic, appends a newly created alert of the appropriate type. In that way, you can create more alert conditions without modifying the **AlertGenerator** class



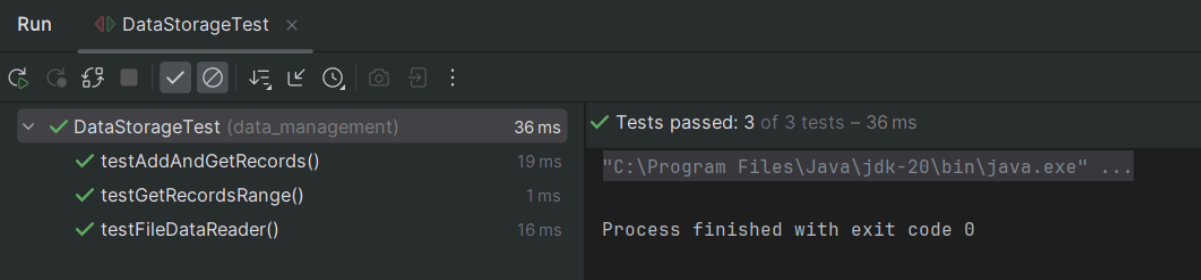
After modifications, tests still pass:



The screenshot shows the 'Run' window of an IDE with the title 'AlertTest'. The window is divided into two main sections. The left section displays a list of tests under the heading 'AlertTest (alert_testing)' with a total duration of 33 ms. All tests are marked with a green checkmark, indicating they passed. The right section shows the summary 'Tests passed: 9 of 9 tests - 33 ms' and the command used to run the tests: `"C:\Program Files\Java\jdk-20\bin\java.exe" ...`. Below the command, it states 'Process finished with exit code 0'.

| Test Name | Duration |
|---|----------|
| testBPTrendAlertUpDiastolicPressure() | 21 ms |
| testBPTrendAlertUpSystolicPressure() | 1 ms |
| testHypotensiveHypoxemia() | 3 ms |
| testBPCriticalThreshold() | 2 ms |
| testLowBloodSaturation() | 2 ms |
| testRapidBloodSaturationDropNeg() | 1 ms |
| testRapidBloodSaturationDrop() | 1 ms |
| testBPTrendAlertDownSystolicPressure() | 1 ms |
| testBPTrendAlertDownDiastolicPressure() | 1 ms |

DataStorage test:



The screenshot shows the 'Run' window of an IDE with the title 'DataStorageTest'. The window is divided into two main sections. The left section displays a list of tests under the heading 'DataStorageTest (data_management)' with a total duration of 36 ms. All tests are marked with a green checkmark, indicating they passed. The right section shows the summary 'Tests passed: 3 of 3 tests - 36 ms' and the command used to run the tests: `"C:\Program Files\Java\jdk-20\bin\java.exe" ...`. Below the command, it states 'Process finished with exit code 0'.

| Test Name | Duration |
|------------------------|----------|
| testAddAndGetRecords() | 19 ms |
| testGetRecordsRange() | 1 ms |
| testFileDataReader() | 16 ms |