

## Exercise 4 (Repo 1): SonarQube: Static Analysis & Quick Fixes

I filtered the errors to display HIGH severity ones :

The screenshot shows the SonarQube IDE interface with a report titled "Report - Janv. 16, 10:00". The "Severity" dropdown is set to "High". The report lists 7 issues across 3 files:

- Bank.java (1 issue)**: (144, 2) Change this "try" to a try-with-resources. [+2 locations] 4 minutes ago java:S2093
- BankAccount.java (1 issue)**: (-, -) Change this "try" to a try-with-resources. [+2 locations] 4 minutes ago java:S2093
- BankAccountApp.java (5 issues)**:
  - (-, -) Refactor this method to reduce its Cognitive Complexity from 125 to the 15 allowed. [+36 locations] 4 minutes ago java:S3776
  - (-, -) Define a constant instead of duplicating this literal "Account doesn't exist" 4 times. [+4 locations] 4 minutes ago java:S1192
  - (-, -) Define a constant instead of duplicating this literal "BALANCE" 3 times. [+3 locations] 4 minutes ago java:S1192
  - (-, -) Define a constant instead of duplicating this literal "WITHDRAW" 3 times. [+3 locations] 4 minutes ago java:S1192
  - (-, -) Define a constant instead of duplicating this literal "DEPOSIT" 3 times. [+3 locations] 4 minutes ago java:S1192

No Security Hotspots to display  
No Taint Vulnerabilities to display

I identified three important issues

### Issue 1

- Rule name:** Refactor this method to reduce its Cognitive Complexity
- File and line:** BankAccountApp.java (main method)
- Explanation:**

The method has a cognitive complexity of **125**, far above the allowed **15**.

This indicates deeply nested conditions and too many responsibilities in a single method, making the code hard to read, understand, and maintain.

### Issue 2

- Rule name:** Replace duplicated string literals with constants
  - File and line:** BankAccountApp.java (multiple lines – literals like "DEPOSIT", "WITHDRAW", "BALANCE")
  - Explanation:**
- Repeating string literals increases the risk of inconsistencies and typos.  
If a value needs to change, it must be updated in several places instead of one which is a risk of bug.

### Issue 3

- Rule name:** Change this try to a try-with-resources
  - File and line:** Bank.java:144 and BankAccount.java
  - Explanation:**
- Using a classic try block with resources can lead to mem leak if they are not properly closed.

**Do SonarLint issues appear more often in the classes with higher WMC / CBO you saw earlier, or not really?**

No, as **Person** was identified before and the number of errors and their severity seems unrelated to previous WMC / CBO analysis