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CM #1065

[Question 1 (5 pts)] Please identify the metrics whose values are outside the optimal range. Also identify the methods that are responsible for this.

Number of Parameters (avg/max per method) exceeds its optimal range due to the *TwitterClient* method which takes-in 7 parameters

[Question 2 (5 pts)] Please provide a strategy or solution (without writing code) that will bring the value of the given metrics into an optimal range.

Without writing code, one could just increase the optimal range within the metrics pane

[Question 3 (5 pts)] A good heuristic for cyclomatic complexity is to keep it below 15. Does this code meet that heuristic?

Yes, its maximum McCabe Cyclomatic Complexity is 10.

[Question 4 (5 pts)] Cyclomatic complexity can be used to identify the number of independent paths that need to be tested in a method. Please identify the number of independent paths in the method backOff in the inner class BackOff in TwitterClient.java. Identify conditions that would lead to each of these paths. (These conditions establish test cases for the method.)

According to Wikipedia, "It [cyclomatic complexity] directly measures the number of linearly independent paths through a program's source code." From this statement, I assume the value of cyclomatic complexity is equal to the number of Independent paths; therefore based upon this assumption, the backOff method contains 3 independent paths.

The conditions leading down these paths are:

backOffMillis	==	0
backOffMillis	!=	0
backOffMillis	>	capMillis

[Question 5 (5 pts)] Explain, in your own words, the afferent coupling and efferent coupling methods. Describe how they can be used in project analysis.

Afferent counts components dependent a particular component
Efferent counts the components a particular component is dependent on

If a set of slow components are slow and all depend upon one common component, then it can be assumed—with decent probability—the common component is at fault.

[Question 6 (5 pts)] Compute the effectiveness of Top Level Design inspection activities.

E(I0) = [806 / (154 + 928)] * $100_{\%}$ = 74.49%

[Question 7 (5 pts)] Compute the effectiveness of Low Level Design inspection activities.

E(I1) = [761 / (154 + 928 – 806 + 948)] * $100_{\%}$ = [761 / 1224] * $100_{\%}$ = 62.17%

[Question 8 (5 pts)] Compute the overall defect removal effectiveness of the development process.

DRE = (1 – 126 / 3526) * $100_{\%}$ = 96.43%