

Lab 8

- [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 is outside the optimal range due to the TwitterClient Method.

- [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.

Reducing the number of parameters and generate setters to add those parameters back in.

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

Yes, the max value of cyclomatic complexity within the code 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.)

There are 3 independent paths that needed to be tested in the method backOff. The conditions that would cause this are: backOffMillis = 0, backOffMillis * 2 > capMillis, backOffMillis * 2 <= 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 coupling - How many classes are dependent on a singular class.

Efferent coupling –The number of classes on which any singular class depend.

They can be used to safeguard against overuse of objects and likewise ensure that objects are not underused.

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

$$(806 / (154 + 928)) = 74.5\% \text{ effectiveness}$$

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

$$(761 / ((154 + 928 + 948) - (806))) = 62.2\% \text{ effectiveness}$$

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

$$1 - (126 / 3526) = 96.4\% \text{ effectiveness}$$