# Codebase Metrics

## Metrics Set

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## Explanation

Cyclomatic complexity of a code section is the quantitative measure of the number of linearly independent paths (the number of situations that lead to different paths in the code, p.e. one if has two independent paths) in it.

Average operation complexity (OCavg) is the Average Cyclomatic Complexity of all non-abstract methods in each class.

Maximum operation complexity (OCmax) is the Maximum Cyclomatic Complexity of the non-abstract methods in each class. Inherited methods are not counted.

Weighted method complexity (WMC) is the total cyclomatic complexity of the methods in each class.

**Average values of metrics for the *ganttproject*:**

* OCavg ≈ 1,55
* OCmax ≈ 2,96
* WMC ≈ 13,21

## Potential Trouble Spots

The maximum value of OCavg and OCmax is, 31 and 86 respectively, which corresponds to the GanttXMLOptionsParser class and could decrease if, for example, the startElement method handles fewer subproblems. A possible solution would be to divide this method into smaller methods, each dealing with a specific subproblem.

The highest value of WMC is 173, which corresponds to the TaskManagerImpl class. This high value is due to the fact that this class is relatively large and contains some extensive methods, such as newTaskBuilder, createLength, compareDocumentOrder, ...   
A solution would be to divide this class into several classes, for example, in order to simplify the createLength method, a class could be created that would be responsible for processing the string and calculating its numeric value, which would make the method more readable, and less complex

## Relatability to identified Code Smells

Usually, high complexity is directly related to the long method and large class code smells, because as seen previously, when one of these code smells is present in the class, we always have a higher complexity.