

COS 731 Assignment 1 Phase 1 Complexity Analysis

Overview of Metrics Measured

- Coupling Between Object Classes (CBO)
 - Coupling between objects (CBO) is a count of the number of classes that are coupled to a particular class i.e. where the methods of one class call the methods or access the variables of the other.
- Lack of Cohesion of Methods (LCOM)
 - LCOM is viewed as a measure of how well the methods of the class co-operate to achieve the aims of the class. A low LCOM value suggests the class is more cohesive and is viewed as better.
- Cyclomatic Complexity

Process Followed to calculate Metrics

The IntelliJ Plugin for Java MetricReloaded was utilized in order to generate the software metrics reported in this document. <https://plugins.jetbrains.com/plugin/93-metricsreloaded>

The raw CSV files can be found at : <https://github.com/WMostert1/COS731-Assignment1-Phase2>

The Chidamber-Kemerer metrics, specifically CBO and LCOM, serve to indicate the level of cohesion in the system as well as the coupling within the system. The cyclomatic dependency is also calculated with this tool.

The structural complexity and data complexity is calculated manually since no viable plugins or tool seem to be a good fit for such calculations. The system complexity is defined as the number of subordinate modules. Since only one module is used in the system it is therefore 1. The data complexity is measured as the number of input parameters for all ingress and egress endpoints of the system.

Metric	Phase1
Structural Complexity	1
Data Complexity	3.6
System Complexity	4.6
Coupling	3.07
Cohesion	2.14
Cyclomatic Complexity	1.1

Additional Metrics Measured

Metric	
Depth of Inheritance Tree	1.00
Number of Children	0.00
Response for Class	8.39
Weighted Methods for Class	5.57