Mathematics

Code Analysis

Below graphs show the results of code analysis of open source projects Mathematics:

Coupling

Coupling between two classes A and B if:

- A has an attribute that refers to (is of type) B.
- A calls on services of an object B.
- A has a method that references B (via return type or parameter).
- A has a local variable which type is class B.
- A is a subclass of (or implements) class B.

Tightly coupled systems tend to exhibit the following characteristics:

A change in a class usually forces a ripple effect of changes in other classes.
Require more effort and/or time due to the increased dependency.
Might be harder to reuse a class because dependent classes must be included.

Lack of Cohesion

Measure how well the methods of a class are related to each other. High cohesion (low lack of cohesion) tend to be preferable, because high cohesion is associated with several desirable traits of software including robustness, reliability, reusability, and understandability. In contrast, low cohesion is associated with undesirable traits such as being difficult to maintain, test, reuse, or even understand.

Complexity

Implies being difficult to understand and describes the interactions between a number of entities. Higher levels of complexity in software increase the risk of unintentionally interfering with interactions and so increases the chance of introducing defects when making changes.

Size

Size is one of the oldest and most common forms of software measurement. Measured by the number of lines or methods in the code. A very high count might indicate that a class or method is trying to do too much work and should be split up. It might also indicate that the class might be hard to maintain.

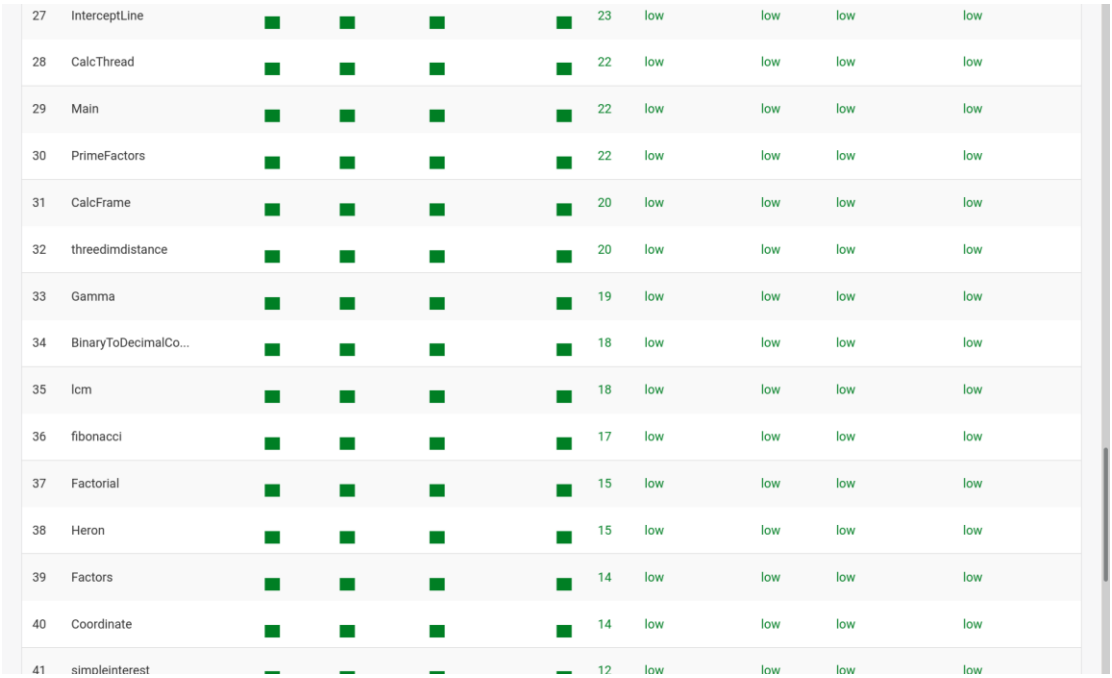
C3

Related Quality Attributes: Coupling, Cohesion, Complexity
The max value of Coupling, Cohesion, Complexity metrics

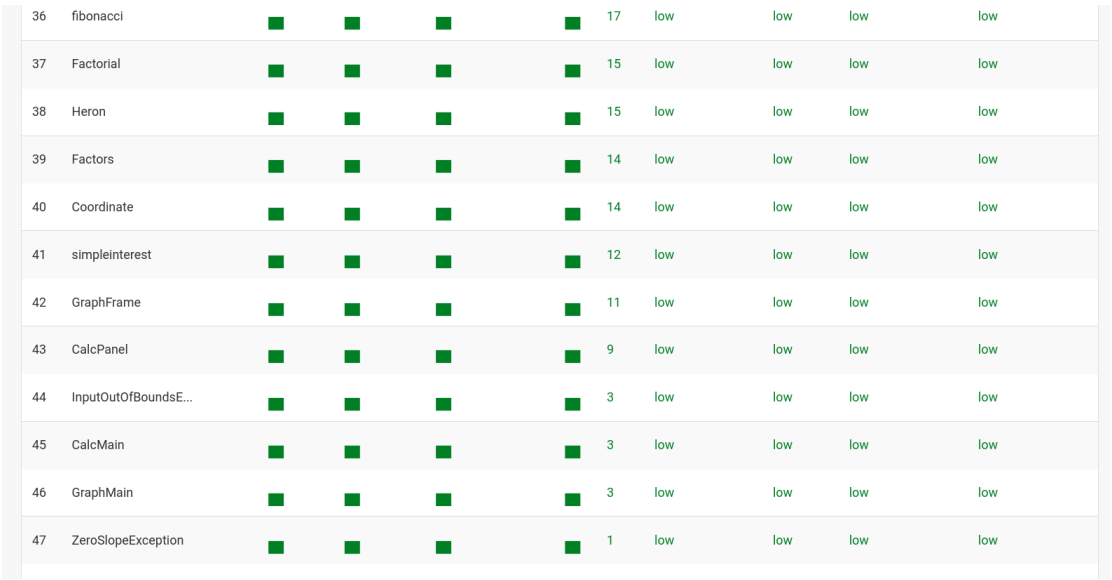
The Tables below shows the analysis for each one of 47 classes of the project.

List of all classes (#47)

ID	CLASS	COUPLING	COMPLEXITY	LACK OF COHESION	SIZE	LOC	COMPLEXITY	COUPLING	LACK OF COHESION	SIZE
1	InterceptsOfALine					119	low-medium	low	low	low-medium
2	inverse_trig_calc					108	low	low	low	low-medium
3	trig_calc					107	low	low	low	low-medium
4	GraphHandler					97	low	low	low	low-medium
5	CalculationsForGr...					78	low	low	low	low-medium
6	BinaryToHexadecim...					68	low	low	low	low-medium
7	Area					53	low	low	low	low-medium
8	LimitOfAPolynomial					52	low	low	low	low-medium
9	Volume					51	low	low	low	low-medium
10	SpecialTriangles					48	low	low	low	low
11	inverse					47	low	low	low	low
12	perimetry					44	low	low	low	low
13	CoterminalAngles					34	low	low	low	low
14	nearInt					30	low	low	low	low
15	QuadraticFormula					29	low	low	low	low
16	GraphPanel					29	low	low	low	low
17	PythagoreanCalcul...					28	low	low	low	low
18	SlopeOfALine					27	low	low	low	low
19	GCD					27	low	low	low	low
20	PowerOf2					25	low	low	low	low
21	PrimeFactors					24	low	low	low	low
22	Distance					24	low	low	low	low
23	GraphThread					23	low	low	low	low
24	logarithms					23	low	low	low	low
25	DecimalToBinaryCo...					23	low	low	low	low
26	CalcHandler					23	low	low	low	low
27	InterceptLine					23	low	low	low	low



27	InterceptLine					23	low	low	low	low
28	CalcThread					22	low	low	low	low
29	Main					22	low	low	low	low
30	PrimeFactors					22	low	low	low	low
31	CalcFrame					20	low	low	low	low
32	threedimdistance					20	low	low	low	low
33	Gamma					19	low	low	low	low
34	BinaryToDecimalCo...					18	low	low	low	low
35	lcm					18	low	low	low	low
36	fibonacci					17	low	low	low	low
37	Factorial					15	low	low	low	low
38	Heron					15	low	low	low	low
39	Factors					14	low	low	low	low
40	Coordinate					14	low	low	low	low
41	simpleinterest					12	low	low	low	low



36	fibonacci					17	low	low	low	low
37	Factorial					15	low	low	low	low
38	Heron					15	low	low	low	low
39	Factors					14	low	low	low	low
40	Coordinate					14	low	low	low	low
41	simpleinterest					12	low	low	low	low
42	GraphFrame					11	low	low	low	low
43	CalcPanel					9	low	low	low	low
44	InputOutOfBoundsE...					3	low	low	low	low
45	CalcMain					3	low	low	low	low
46	GraphMain					3	low	low	low	low
47	ZeroSlopeException					1	low	low	low	low

The results of the code analysis are extracted with the CodeMr plug in, in InteliJ.