# Codebase Metrics

## Metrics Set

MHF (Method Hiding Factor): 45,24%

AHF (Attribute Hiding Factor): 88,19%

MIF (Method Inheritance Factor): 51,58%

AIF (Attribute Inheritance Factor): 75,96%

PF (Polymorphism Factor): 29,70%

CF (Coupling Factor): 2,08%

## Explanation

MHF (Method Hiding Factor): Percentage of methods that are hidden from the remaining classes. A high value indicates that there might not a lot of functionality, while a low value indicates that the implementation might not have enough abstraction.

AHF (Attribute Hiding Factor): Percentage of attributes that are hidden from the remaining classes. Ideally all attributes would be hidden (AHF = 100%).

MIF (Method Inheritance Factor): Percentage of methods that are inherited from other classes.

AIF (Attribute Inheritance Factor): Percentage of attributes that are inherited from other classes. High values (of MIF and AIF) indicates that there might be too much inheritance or that the inherited elements have a big scope, while low values might indicate that there isn’t enough inheritance or too much use of override.

PF (Polymorphism Factor): Percentage of overridden inherited methods, according to Fernando Brito and Abreu, values above 10% are too high and reduce benefits.

CF (Coupling Factor): Percentage of classes that are coupled with another class, high values are a sign of high complexity and therefore higher difficulty of understanding the code.

## Potential Trouble Spots

AIF has a high value, which means, too many classes with access to variables from classes higher in the hierarchy, which increases the complexity of the project.

PF also has a high value (according to Fernando Brito and Abreu), the benefits of inheriting methods (reuse and simplicity) are negated by the use of override.

## Relatability to identified Code Smells

Haven’t found any relation between the metrics and the code smells identified in phase 1.