Visualising and monitoring Ecosystems in a Mobile App

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Background and Goals

A high quality code is commonly known to be more feasible to read, evolve and maintain. Have then the possibility of keeping track about software quality and specific infos at the same time, at any time, is an operation which can help programmers (in turn) to ease the task of monitoring on what they really think it would be useful to.

This can become even more useful combined with a direct comparison of the softwares the user choose.
In this thesis we provide a mobile application to accomplish this functionality by querying software informations, and quality metrics (computed on tools developed in the context of Object-Oriented systems).

CK Metrics

DIT: Maximum inheritance path from the class to the root class.
DIT underline how deep a class is in the hierarchy from the root class. It's a direct indicator for the complexity of the class contents (methods, variables).

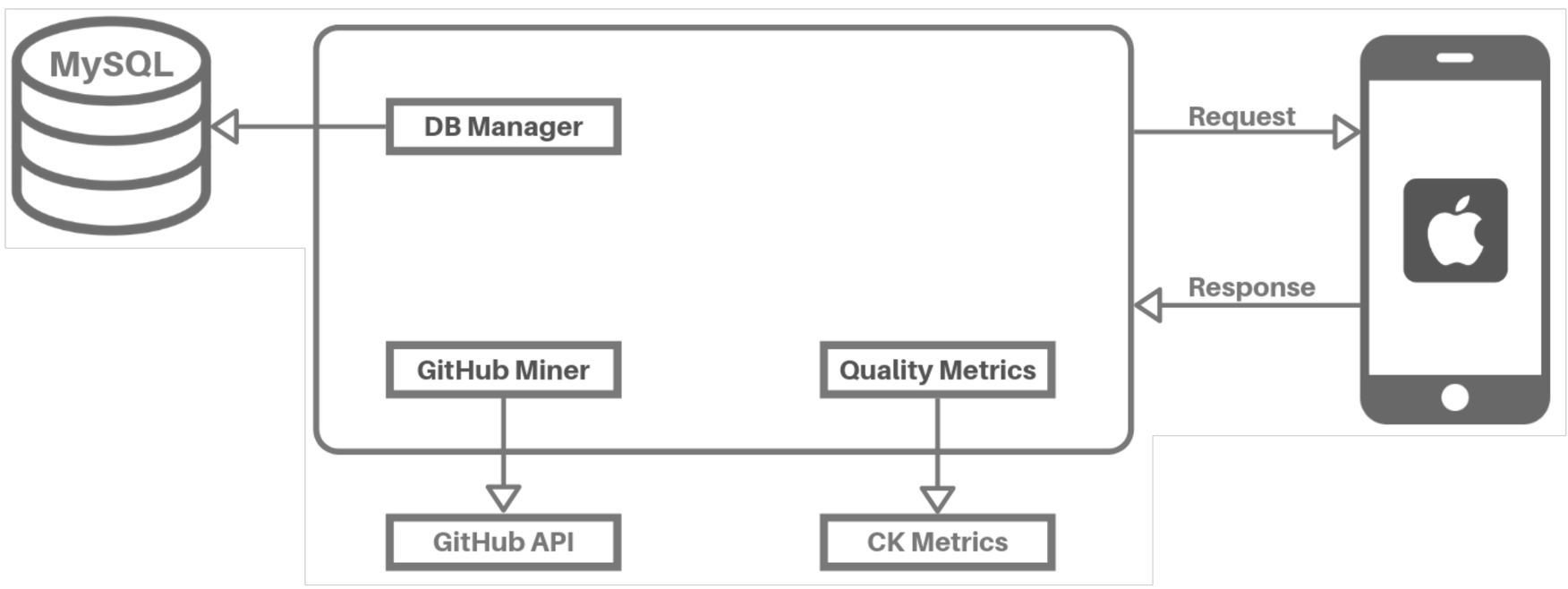
CBO: Number of classes to which a class is coupled.
Two classes are said to be coupled if methods within a class use methods belonging to another one. Having a high CBO can in fact lead to important difficulties when reusing code implemented and it's a harm to modular design.

WMC: Number of methods defined in class.

Has been found that higher is the WMC of a class, more that class will be prone to faults. WMC is none at all a good predictor for how much time and effort are related with the development and the maintenance of the class.

LCOM: Cohesion metrics measure how well the methods of a class are related to each other.
A class is said to be cohesive if performs one function. A class which performs two or more unrelated functions is said to be non-cohesive; it usually should be split in smaller classes.

Architecture



Analyzing and Visualizing Quality Metrics

Given a repository metrics are computed by the Quality Metrics tool and are stored inside the database. By the web application, the mobile app requests to the database the data for the metrics. After the response get back from the web application, the data is visualized inside the mobile app.

Technologies

Java
MySQL
Swift

Usage Scenario