

Method Execution Report

Date:

Type: FN / NF

System:

Session overall:

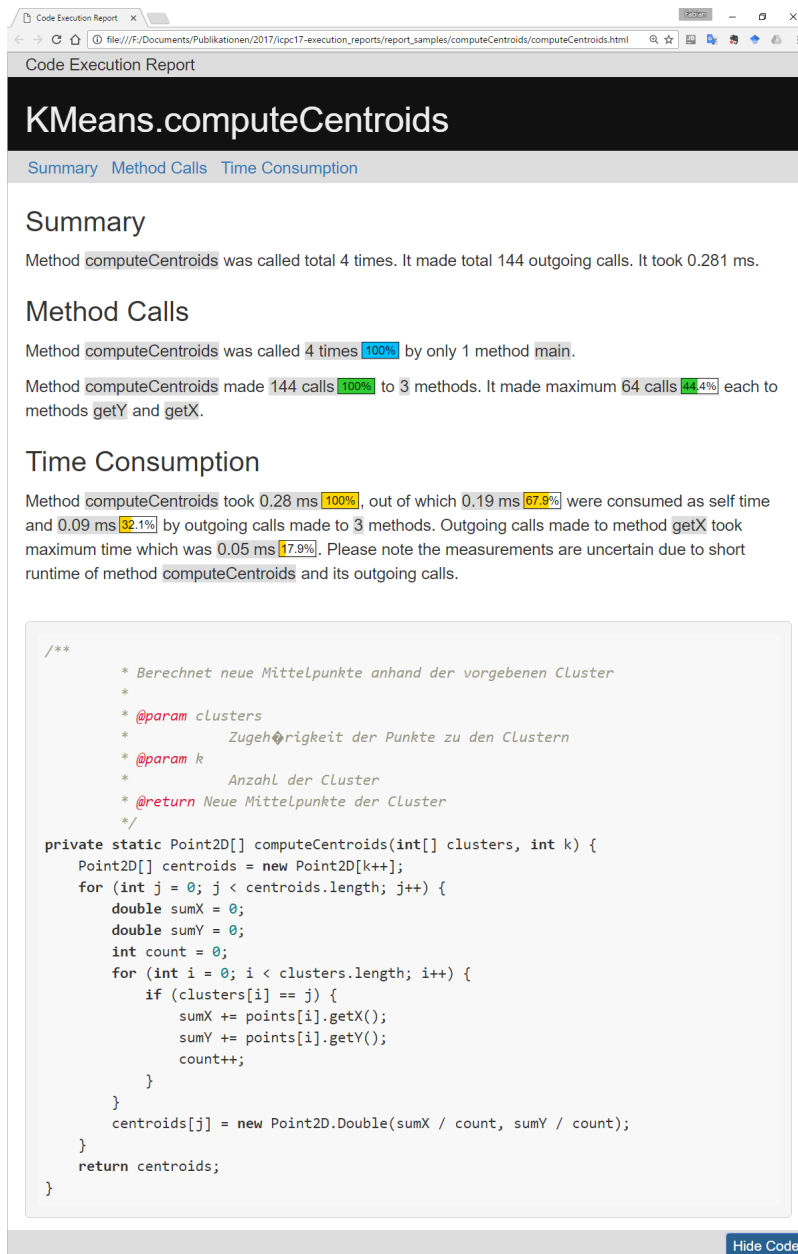
This session aims at gathering impression of the *Method Execution Report* from practitioners. The session is relatively short, only a few minutes long. The session is divided into three phases. The first phase is about yourself. The second phase present Method Execution Report, and the third phase is about the evaluation of the report. Note that all your answers are treated anonymously.

Phase 1: About yourself

- Are you Female or Male ?
- How many years of experience do you have in programming?
- How long have you been programming in Java for?
- Which Java programming environments (IDE) are you familiar with?
- Which other programming languages and programming environments do you use?
- While programming, if your application does not behave as you expect, what do you usually do?
How do you usually debug an application?
- How do you usually do to improve the performance of a particular method?

Phase 2: Description of Method Execution Report

Method Execution Report is a textual and interactive report that summarizes the execution of a particular method for a given software execution. The report provides an overview of the dynamic calls and time consumption.



Code Execution Report

KMeans.computeCentroids

Summary Method Calls Time Consumption

Summary

Method `computeCentroids` was called total 4 times. It made total 144 outgoing calls. It took 0.281 ms.

Method Calls

Method `computeCentroids` was called 4 times (100%) by only 1 method `main`.

Method `computeCentroids` made 144 calls (100%) to 3 methods. It made maximum 64 calls (44.4%) each to methods `getY` and `getX`.

Time Consumption

Method `computeCentroids` took 0.28 ms (100%), out of which 0.19 ms (67.9%) were consumed as self time and 0.09 ms (32.1%) by outgoing calls made to 3 methods. Outgoing calls made to method `getX` took maximum time which was 0.05 ms (17.9%). Please note the measurements are uncertain due to short runtime of method `computeCentroids` and its outgoing calls.

```
/**
 * Berechnet neue Mittelpunkte anhand der vorgebenen Cluster
 *
 * @param clusters
 *         Zugehörigkeit der Punkte zu den Clustern
 * @param k
 *         Anzahl der Cluster
 * @return Neue Mittelpunkte der Cluster
 */
private static Point2D[] computeCentroids(int[] clusters, int k) {
    Point2D[] centroids = new Point2D[k++];
    for (int j = 0; j < centroids.length; j++) {
        double sumX = 0;
        double sumY = 0;
        int count = 0;
        for (int i = 0; i < clusters.length; i++) {
            if (clusters[i] == j) {
                sumX += points[i].getX();
                sumY += points[i].getY();
                count++;
            }
        }
        centroids[j] = new Point2D.Double(sumX / count, sumY / count);
    }
    return centroids;
}
```

Hide Code

Figure on the left gives an example of the report. The report is structured into three sections, and lists the code of the method.

The summary gives first essential data, including the number of incoming and outgoing calls, and how long the summed executions of the method took.

The second section details the description of the method calls, including the most important caller and callees.

The third part provides further information about the timing.

Phase 3:

TIME BEGIN:

QUESTION 1:

What do you think about the content of the textual description?

- I find it easy to understand? (*strongly agree, agree, neutral, disagree, strongly disagree*)
Please, justify

- I find it useful? (*strongly agree, agree, neutral, disagree, strongly disagree*)
Please, justify

QUESTION 2:

What do you think about the interaction and the visual elements offered by the report?

- I find them easy to understand? (*strongly agree, agree, neutral, disagree, strongly disagree*)
Please, justify

- I find them useful? (*strongly agree, agree, neutral, disagree, strongly disagree*)
Please, justify

QUESTION 3:

Overall, do you feel that such a report is useful?

- (*strongly agree, agree, neutral, disagree, strongly disagree*)
Please, justify

QUESTION 4:

In what scenarios and for solving which maintenance tasks would developers use Method Execution Reports?

Please, justify

QUESTION 5:

What tools would you use instead of Method Execution Reports to retrieve the same information?

Please, justify

QUESTION 6:

Do you have any suggestion on how to improve the report? Any critic?

Please, justify

TIME END: