# Homework: Code Optimization

This document defines the homework assignments from the ["High Quality Code" Course @ Software University](http://softuni.bg/courses/high-quality-code/). Please submit as homework a single zip / rar / 7z archive holding the solutions (source code) of all below described problems.

## Clean the Smelly Code

You are given a C# application ([Code-Tuning-and-Optimization-Homework.zip](10.%20Code-Tuning-and-Optimization-Homework.zip)) which displays an animated 3D model of the Solar system.

1. Use a profiler to find the places in its source code which cause significant performance degradation (bottlenecks).

* Provide a screenshot of the profiler’s result and indicate the place in the source code where the bottleneck resides (name of the file, line of code).

1. Make a quick fix in the source code in order to significantly improve the performance. Test the code after the fix for correctness + performance.

## Operations Performance Tests

* Write a program to compare the performance of **add, subtract, increment, multiply, divide** for **int, long, float, double and decimal** values.
* Write a program to compare the performance of **square root, natural logarithm, sinus** for **float**, **double** and **decimal** values.
* Write a program to compare the performance of **insertion sort**, **selection sort**, q**uicksort** for **int**, **double** and **string** values. Check also the following cases: **random values, sorted values, values sorted in reversed order**.