COS301: Request for Project Proposal
Benchmarking Service

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1 Introduction

There are many cases in the industry, in research and in education where benchmarking of a software product is important. In industry benchmarks can be used to ensure that software performance is acceptable. In the competitive commercial world, benchmarks can serve to inform buyers of comparative performance of competing products. The benchmarking forms an integral part of research related to the development of new algorithms and techniques as well as the refinement and optimization of existing operations. Algorithm and data structure benchmarks can be applied as a very useful teaching tool for students to review the notions of space and time complexity.

2 Problem Statement

It is strange that although benchmarking seem to be a very common and useful application, very few benchmarking tools or services are available. Those that are available requires intricate configuration that may be beyond the reach of the developers, researchers, teachers and students who would like to use them. The development of a benchmarking service which can be used in a generic way would therefore be welcomed by a large potential user base.

3 System Requirements

The system should provide a web interface for users to request and specify the benchmarking services they need. The services should be provided by executing the requested benchmarks on isolated machines where the side-effects that are not a concern of the specified benchmark is minimized. The system should measure a variety of performance attributes such as CPU time, elapsed time, memory usage, power consumption, heat generation, etc. Ideally it should accept source code for a variety modern programming languages.

4 Skills requirements

It is assumed that the team members can and will learn the technical skills required to implement the project as they need it. Important personal qualities needed is creativity and dedication.

5 Development and Roll-out

5.1 Incremental development

The system design provides for incremental development. Small increments are implemented and tested on a development version of the system. When it passes the testing phase it is committed to a live system.

5.2 Intellectual ownership

The aim is to eventually release the product into the public/open-source domain.