

Action Plan

Master's Thesis:
Performance testing for GX WebManager

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Introduction

GX develops advanced Content Management Systems (CMS) for all kinds of websites.

Because these websites can be very large it is hard to measure the performance of these websites. A lot of performance factors (e.g. click behaviour, amount of dynamic content, server rush hours etc.) should be examined and made measurable.

These factors can be used in performance test tools to test the products of GX and find bottlenecks in the software before the customer does.

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1. The project

1.1 Problem statement

The product

There should be a list of measurable factors which can be used in performance tests tools and a modified (prototype) test tool to test (a selection of) these factors. These factors should be relevant for web-based content management systems.

The factor selection for the prototype later on should be relevant for a CMS called GX WebManager (WM).

The aim

The aim of this project is to have clear performance factors for performance testing, specific for web-based CMS's. GX can easily use these factors to test their products on performance and possible bottlenecks.

Target group

The target group is in the first place all software engineers which are involved with software testing. But also everyone who's interested in research behind performance testing of websites.

Task formulation

The eventual task is to examine all sorts of performance factors. This will be done by a literature study and an internal case study (how does GX do performance testing now). These factors should be filtered for suitability with GX.

The filtered factors should be made measurable.

Different programs for performance testing should be examined and one will be picked out to test the performance of the GX WebManager by (a selection of) the different performance factors. The test will take place on a reference architecture provided by GX.

1.2 Demarcation of the project

It is impossible to examine all performance factors and to test all these factors on whole the GX WebManager system in 16 weeks.

Therefore the following agreement is made.

I will list a lot of performance factors. Together with GX, I will pick out some factors which are relevant for their product (GX WebManager) and is feasible for the time I have to examine these factors.

I will examine the selected criteria's and make them measurable.

Having these measurable factors I will examine some performance test tools and pick one out to test (some of) the performance factors on a selection of the GX WebManager modules. This, of course, in dialog with GX and the Radboud University (RU). The performance test will take place on the front-end of the selected modules.

1.3 Persons involved

During my Master thesis I can contact the following involved people for the following questions:

Name:	Function:	Questions:
Jan Tretmans	RU tutor	Organisational questions for Master Thesis Quality related questions
Bram de Kruifff	GX tutor	Organisational questions for GX (daily) Technical questions for GX WebManager (daily)
Martijn van Berkum		Organisational questions for GX Technical questions for GX WebManager

These three persons should be informed regular about the progress of the project.

2. Solution

During the project I will use the waterfall method. There will always be a stage I have to pass before I can pass the next stage (see chapter 3. planning).

Consequences

One consequence is that there must be a good planning. I have to take care I won't delay the project and stick to the planning.

3. Planning

This is the global planning for the entire project. The corresponding GANTT chart can be found in appendix 1.

Week	Activities	
1 (10-10)	Instructions GX company and GX WebManager	
2 (17-10)	Instructions GX WebManager, making action plan	
3 (24-10)	Making action plan	
4 (31-10)	Examine different performance factors	
5 (7-11)	Examine different performance factors	
6 (14-11)	Examine different performance factors	
7 (21-11)	Criticize factors on suitability for GX WebManager	
8 (28-11)	Criticize factors on usability for GX WebManager	Progress presentation for GX
9 (5-12)	Criticize factors on usability for GX WebManager	
10 (12-12)	Examine different performance test tools	
11 (19-12)	Examine different performance test tools	
12 (26-12)	Design prototype performance test tool	
13 (2-1)	Design prototype performance test tool	
14 (9-1)	Fine-tuning report	
15 (16-1)	Fine-tuning report	
16 (23-1)	Final presentation	

Weekly or 2 weekly there will be an evaluation to RU.

The research has a few stages. I will make them clear in the following paragraphs.

3.1 ‘Warming up’ stage

This so called ‘warming up’ stage lasts for 3 weeks. The first 1 or 2 weeks I’ll join a course to know the company and its product better. I will get some short information about the company it self. After that I will go deep in to the company’s product, the GX WebManager. Using different documentation and some assignments I will make websites with GX WebManager to know how it globally works and how it’s built.

After this course I will set up an Action Plan which has to be accepted by GX and the RU.

3.2 Performance factors examination stage

In this stage (week 4 up till 9) I will examine different performance factors using documentation from the web and documentation from the RU library. Together with GX these factors will be selected on suitability and usability for GX WebManager. These factors will be made measurable so they can be used in performance testing.

During this stage (somewhere in week 8) I will give a presentation to GX about my thesis and its progress.

3.3 Proof stage

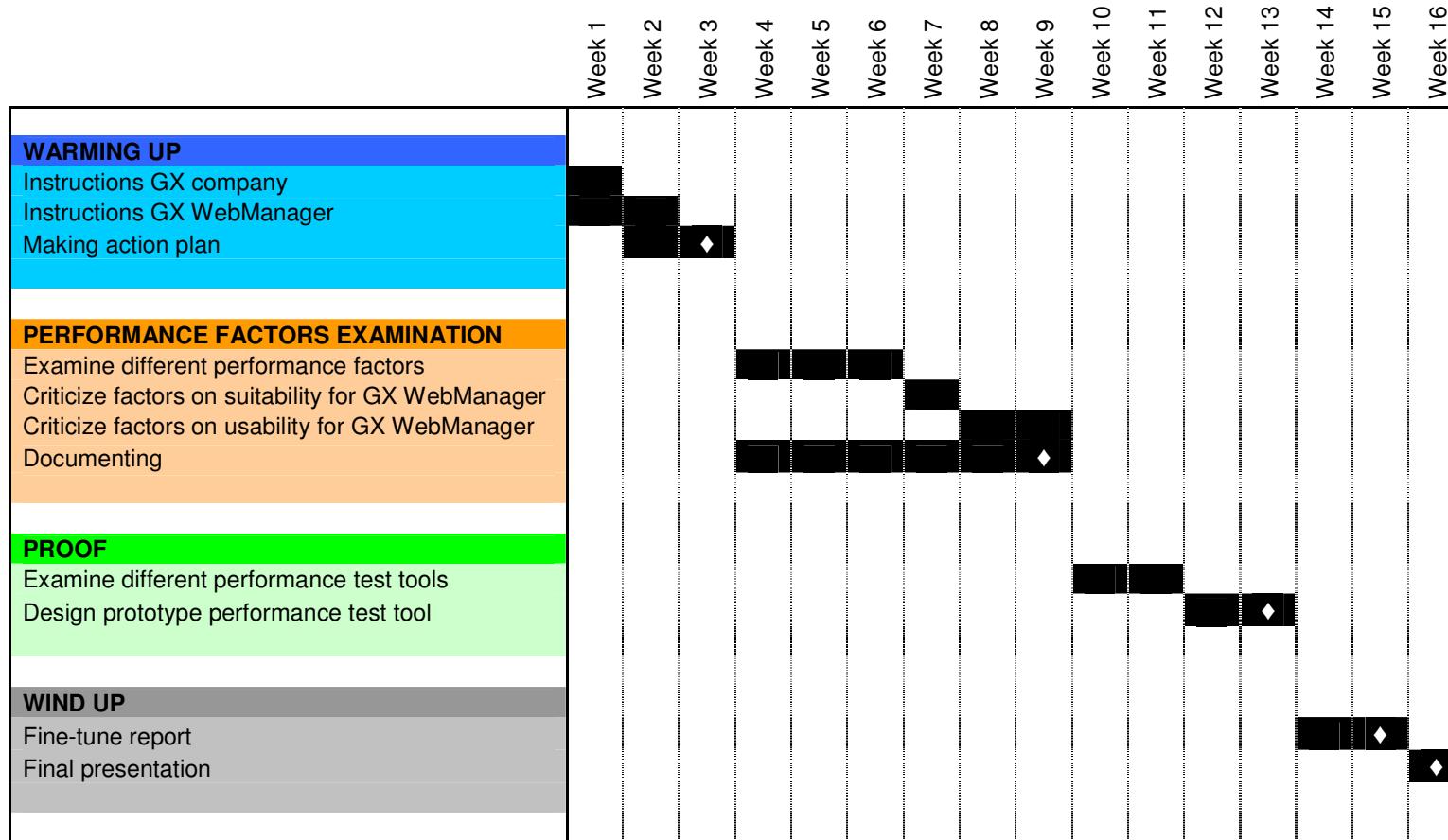
Of course I have to proof the result of the examination of the previous stage. Therefore I will examine different (existing) performance test tools, including the used tool by GX.

I will pick one (best fit) test tool out and modify it so it can be used with the selected performance factors on GX WebManager.

3.3 Wind up stage

The last wind up stage is to fine-tune the report and prepare the final presentation (at RU and GX).

Appendix 1: GANTT chart



◆ milestone