OSLOMET

Pre-project

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Applied Computer Technology at OsloMet

Group 42

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Presentation

Group composition

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Supervisor and employer

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Summary

The rapid development and the increasing demand for digitalization in today's world, has led to a gap between the supply and demand of skilled persons in the field of operations of complex computer services.

We are going to improve a system(Uptime challenge) for learning development and operations of dynamic web applications used by Kyrre Begnum in his subject IMT3003 - Service Architecture Operations at NTNU Gjøvik. Our goal is to turn Uptime Challenge to a platform for self learning that any person can use on their own personal computer, to combat the gap between the supply and demand of experts in the this field.

Today's situation

Uptime Challenge (UC) is a system where student take the role as a system administrator for a firm, with the task of running a web application name BookFace written in PHP that the students can't change. BookFaces code have some poorly written code that forces the

student to implement various services and strategies to combat the increasing traffic hitting the site throughout the semester.

UC generates and monitors traffic and awards or deducts the students points for the uptime of BookFace, it also contains function to disrupt servers that the students runs.

Uptime Challenge is today a complex system and Kyrre says himself that he uses more time than desirable, to maintain the system to have it in a working order, and therefore does not have enough time to further develop it in the desirable pace.

Because the system uses cronjobs and the commandline you also need to be familiar with those to be able to use the system properly. The user also need in depth knowledge of the system and available commands, to be able to utilize the system properly.

The system is an example of gamification of education which motivates the students through engagement by having a point system that gives regular feedback on students submissions(hosting BookFace on cloud infrastructure).

Goals and conditions

Goals

The goal of the project is to have a working prototype of the refreshed Uptime challenge, that is more user friendly and usable for non experts.
Due to the time constraints of the project the focus will be on the exploratory study of self learning and how our solution compares to other available solutions through anecdotal evidence.
The system will be used tested on current students taking IMT3003 and the first MVP(minimal viable product) is planned to in place on March 1st with biweekly updates based on user feedback and system requirements.

Conditions

The group are given freedom to use appropriate technologies within the members skill set and abilities. Permissions for using specific technologies are given after consulting with the employer on chosen technology of the group.

Current technologies used by Uptime Challenge and BookFace

The current version of UC uses various software to function i.e:

Programming languages

Perl
Bash
PHP

Databases

MongoDB
CouchDB
MySql/MariaDB
Memcache

Software / services

OpenStack
RabbitMQ
Httperf
Docker
Apache

Solutions

Skill tree
- ● Skill tree is a way to give the user a roadmap to achieve different goals, and give them a visual representation of those goals. This is often used in games to give the player a direction of where they should go.

Dashboard
- ● A dashboard is a way to give the user a easy way to access the information, statistics and settings of the system. This is instead of having to go to different places to access what you need, for example having to go to config files to change settings.

More flexible
- ● Making the code more flexible, and not hardcoded to BookFace as it is currently. This is to make it easier to change variables later, and make it possible to use the system for other web applications.

Documentation
- To give users a way to easily access information on how to use and control the system, it would be the best to make documentation of how the system works, and how to set it up. It would also be helpful to make user guides, for specific areas.

Method

The group is going develop the product using a agile method heavy influence by Kanban but also other method such as Scrum and Lean startup.

The development of the system is going to be a iterative process, where we start with a planning phase where we will identify the requirements for the system and grade them by priority on a Kanban board. When the requirements are in place we will start an iterative development process. A MVP is planned to be done by 03/01/19 with biweekly pre-releases that will be user tested, with the feedback influencing the next iteration period.

The final report is going to include an exploratory study in the field of self learning and how our system compare to the existing solutions such as Khan academy, Cisco network academy and Linux academy. The exploratory study and the final report will be written in parallel with the the development of UC.

We are going to meet in person mondays, tuesdays and fridays but also collaborate remote using text and voice chat, collaboration tool such as google drive, git and trello. On tuesdays we are going to have workshop with the project owner.

Below is a tentative time schedule(subject to change)