Project: Unit-Assess

Client: Mr Schalk Lotz, Magna BC

Team: Quadcore Productions

Author(s):	*Student number(s):*
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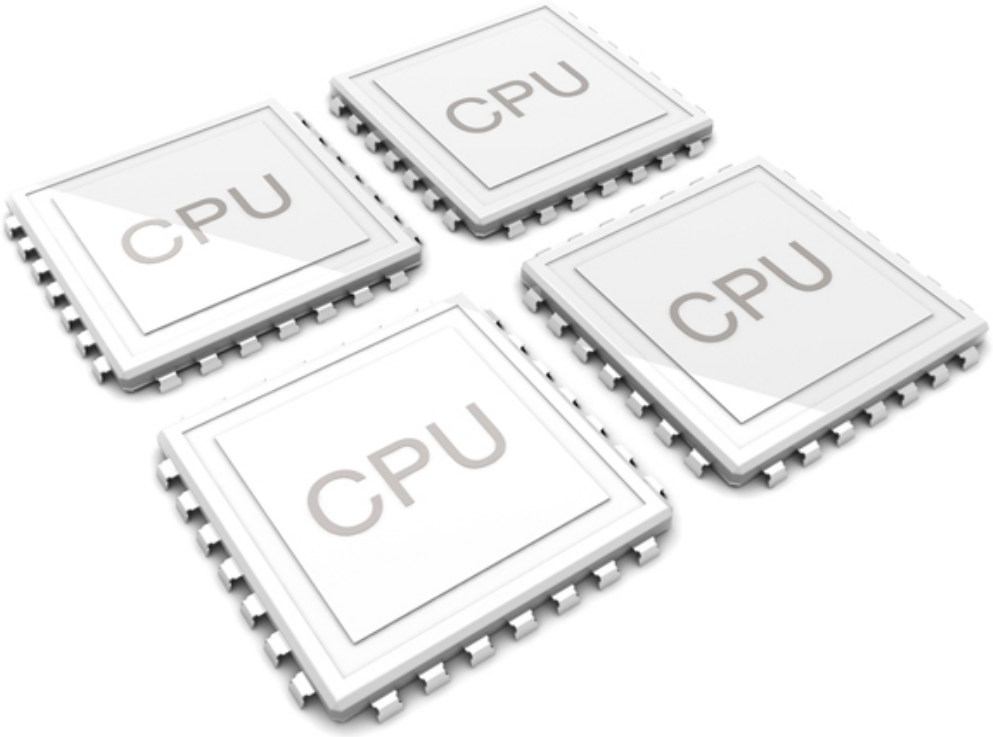

University of Pretoria, Department of Computer Science

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Contents

1 The Team

1.1 Mpho Baloyi

1.1.1 Interests

- Keeping abreast with new technologies
- Learning and using new technologies to solve problems
- Reading up and doing research on new and old concepts in computer science
- Solving riddles and puzzles
- Helping people through ICT

1.1.2 Technical Skills

- Solid programming skills in java,c++ and python
- Fair amount of knowlegde in assembly programming
- Web development with HTML,JAVASCRIPT,JQUERY,CSS,PHP,AJAX,ANGULARJS
- Interaction Design
- Database design with MySQL
- Understanding of process development
- Unit testing,mocking and dependency Injection

1.1.3 Non-Technical Strengths

- Excellent Communication skills
- Patient
- Creative approach to problem solving
- Pay attention to detail

- Excellent planning skills
- Ability to grasp concepts quickly
- Willness to learn new things
- Ability to interpret and follow technical plans
- Ability to collaborate and work efficiently with other people
- Ability to work under pressure

1.1.4 Relevant Past Experiences

Work in the mini-project of the university of Pretoria taught me impoortant skills in software engineering such as unit testing,dependency injection,mocking and working with different technologies. I believe that these skills will be valuable to the development of this project as they apply in every area of software development.

1.1.5 Reasons for wanting to do the project

I want to do this project because it provides me with the opportunity to work with different kinds of technologies and devices and to learn new ways of collecting data.

1.2 Hlengekile Jita

1.2.1 Interests

1.2.2 Technical Skills

- Microsoft Office - Word, Excel, Access, PowerPoint
- Programming - Java, C++, Python, Android
- Database Design - MySQL
- Web Development - XHTML, HTML5, CSS, JavaScript, PHP

1.2.3 Non-Technical Strengths

- Good leader
- Excellent communication skills both verbal and written
- Works well under pressure
- Great at teamwork
- Sociable character that gets along with people
- Organized individual with meticulous planning skills
- Determined

1.2.4 Relevant Past Experiences

1.2.5 Reasons for wanting to do the project

1.3 Moses Mayimela

1.3.1 Interests

1.3.2 Technical Skills

1.3.3 Non-Technical Strengths

1.3.4 Relevant Past Experiences

1.3.5 Reasons for wanting to do the project

1.4 Themba Mbhele

1.4.1 Interests

1.4.2 Technical Skills

1.4.3 Non-Technical Strengths

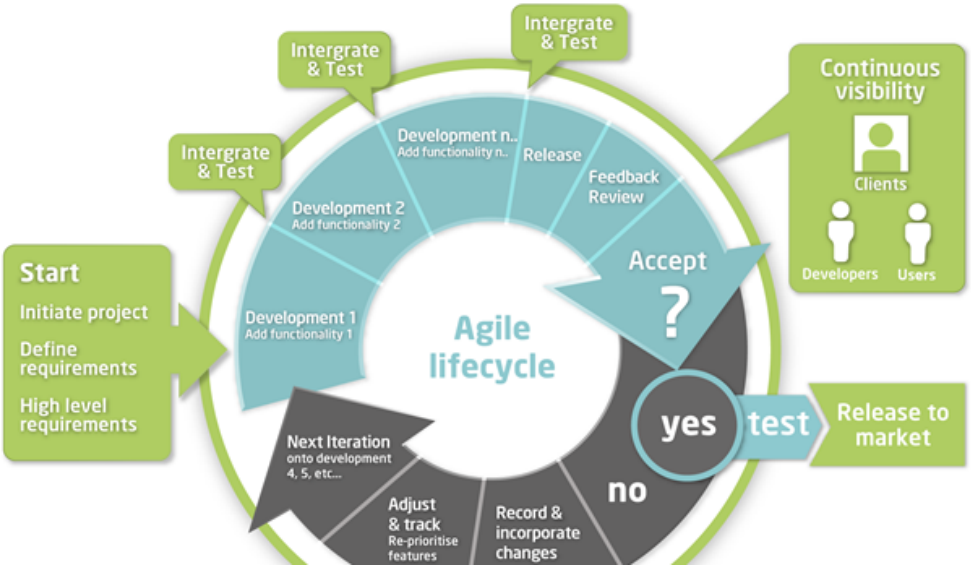
1.4.4 Relevant Past Experiences

1.4.5 Reasons for wanting to do the project

2 Project Execution

2.1 Development Methodology

The project is composed of three core components, the first one being the collection of data from various software systems which is sent to a server, then the programming of the server that will process the information by performing the necessary calculations, and then the design of user interfaces (mobile and web) where the processed data will be displayed to the client.
Because our clients happiness is of utmost importance, we have decided to make use of Agile processes. With this approach, we will have deliverables that we will produce on a regular basis and from an early stage. This will facilitate communication between us as the developers and project owner, Mr Schalk Lotz of Magna BC, so that we may work together to develop a high quality system.



2.2 Communication With Client

To keep the clients informed we are going to use the following means of communication

2.2.1 email

- To inform the client of our progress
- To address any issues or concerns that they client may have
- To acquire information from the client
- To require any resources that the client has to offer for their project,..

2.2.2 Regular Meetings

These will take place depending on the clients availability and willingness. We may discuss the progress of the project,to address any concerns,etc.

2.2.3 GIT

Access to our git repository will be provided to the client,so the client can be able to monitor our progress and have access to the project material. We are also open to any means of communication that the client may prefer or suggest.

2.3 Technical Challenges

2.3.1 Dealing with a wide range of information sources

As described in the project proposal, the automated performance management system is required to assess the performance of staff based on information sourced across different software systems. The measuring of performance should be done across a configurable range of performance areas.

This presents the technical challenge of dealing with a wide range of information sources. This is a challenge because information from various sources will come in various formats and our system would need to be able to process this information. Especially if the range is configurable, the system needs to be able to deal with new sources of information that may not have been considered during initial development.

The solution for this would be to have the system deal with all sources of information in the same way. This can be done through making use of the software design pattern, dependency injection. This will help us apply inversion of control for resolving the dependency of the system on an information source. By passing the system the information source in a standard format through interface based injection, instead of having the system have to understand a wide range of information sources so that it can work with each one, we are able to focus on the information processing rather than each possible information source.

2.3.2 Determining Performance Criteria

Performance will be measured and then aggregated through this system. Aggregation can either be by weighted average or best-n based. Considering that information will come from a wide range of sources, the question arises of how the criteria will be specified.
There are two possibilities:

- The client can specify a standard that will be applied across the board, i.e. information from certain kind's of sources will always carry more weight than others. The system will always calculate performance the same way despite the specific context of use.
- Or the client or any user of the system will be able to specify which sources they want to track performance from and specify the criteria to be applied and the system is able to adapt accordingly and perform assessments appropriately.

The latter option, is the preferred solution because it will be then possible to apply the system across a wide range of contexts. The system could be applied in an endless range of environments.

3 Technologies

3.1 Server: GlassFish

The choice of technologies is mostly guided by the client.These are:
GlassFish, this is an open source java framework for java servlets.

3.2 Database:MySql

MySql, open source database server.It is robust and has a large community of developers for support. Database transactions will be handled using JPA for persisting data.

3.3 Data transactions:JPA

For data exchange, JPA will be used to allow access to the database in an object oriented way.

3.4 Android development

The Android SDK will be used for the Android application. The SDK is open-source and well supported by a large community od developers.

3.5 Front end interface: Ember.js

As already specified in the project proposal, Ember.js will be used for the front-end development.