Research Higher Degree Database

Requirements Specification

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Version 0.1-DRAFT

9/6/2014

Created as part of the requirements for Advanced Database GE 2014

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# Introduction

### Purpose

The purpose of this document is to introduce and specify the requirements of a new software database (“the database product”).

The database product will constitute only part of a larger human-computer software system responsible for developing Research Higher Degree (RHD) applications. The database is to assist staff of the School of Computer Science, Engineering and Mathematics (CSEM) of Flinders University in pursuing this task.

### Document Conventions

Throughout this document the terms ‘product’ and ‘database’ are used interchangeably as the product consists solely of a single database.

Requirements can be inherited and composed or be aggregates of other requirements.

Abbreviations will be used with definitions available in an appended glossary at the end of the document.

### Intended Audience and Reading Suggestions

This document is intended to be read by Developers, RHD office staff members and CSEM faculty staff. Developers and RHD Staff Members are suggested to read this document in its entirety in the form presented herein. CSEM staff should read the mission statement, product features, product perspective and the specific system requirements to gain a simpler overview of the proposed product.

# Fact Finding

## Fact-finding techniques

The requirements will be gathered through documented information received from the Research Higher Degree Admissions officer as well attained through follow up meetings and via FLO discussion boards to clarify any issues or attain more detailed information on some areas.

This is anticipated that there will be an opportunity for the users/customers to refine their understanding of the requirements as more implementation ideas and details are presented to them by our group and others. The users/customers in this case are Associate Professor Paul Calder as the Director of Higher Research Degree Studies in CSEM and Dr Denise de Vries as a member of staff who responds to many unsolicited enquiries about HRD.

The Flinders University Office of Graduate Research accepts form-based applications ([Flinders University Office of Graduate Research 2014](#_ENREF_3)) that all successful HRD applicants have to go through. The requirements of this existing system can be used to help define the checklist of documents and other outputs of our new system.

This system will have to store information about areas of research. There is an existing scheme in use in academia in Australia called the Field of Research codes ([Australian Bureau of Statistics 2014](#_ENREF_1)). Flinders University staff web pages contain examples of how academics describe their research interests. The Flinder’s University “Find a Supervisor” website ([Flinders University Office of Graduate Research 2014](#_ENREF_2)) demonstrates how areas of research can be mapped to potential academic supervisors.

The CSEM school website shows the list of RHD awards they run.

An applicant’s Grade Point Average (GPA) is crucial for making decisions about the viability of their application. A complexity here is that GPA is calculated in different ways between national tertiary education systems and even between different compatriot institutions. We need to support automatic standardisation of applicant’s GPA scores in our system to simplify the process of taken decisions about the viability of applications. Thus we need to build in a level of awareness of the scoring systems. Wikipedia has a detailed page about GPA scoring in Australia ([Wikipedia 2014](#_ENREF_4)) and an overview of systems in many other nations ([Wikipedia 2014](#_ENREF_5)). All particular information contained on these pages will need to be confirmed directly with different institutions, but these pages give a good overview of the diversity of scoring systems, which we can use to inform the scope of this aspect of our database.

## Purpose

### Product Perspective

This database system is a novel product. Email is currently the only tool that is used to help perform RHD management; however it does not provide any help specific to this purpose. The new product will be specifically designed to the task of managing RHD applications and will provide assistance where possible to aid in this task.

However, the new product won’t replace or constrain email communications. Rather, the system will support CSEM staff in managing RHD applications, and make the mail communications quicker to write and easier to keep track of.

There is a form-based application process run by Flinders University Office of Graduate Research. This constitutes a second phase of the application process, which each successful applicant must go through. A goal of our system is then to help CSEM staff make applicants aware of and be well prepared for the requirements of this subsequent, form-based, formal application process. We use the term ‘elevate’ to describe transitioning a promising application from being managed within our database to using the form-based, formal application process.

### Product Features

To create a Database university staff use to track RHD applications at an early stage, i.e. before the applications are managed by the more formalised form-based system run by the Office of Graduate Research. The project is limited to the creation of a usable full functional database that can be accessed through the command line. No Graphical User interface GUI, will be required for this stage of development. However initial requirements are hinting towards an integrated add-on to existing email clients (e.g. Microsoft Outlook).

## Mission statement

*To support CSEM staff working together to quickly select and guide high-quality Research Higher Degree applications from initial, direct, informal contact to the formal university RHD application process.*

## Scope and boundaries

Figure 1 on page 4 shows the current and future human/computer system for managing RHD applications in the school.

The project is limited to the creation of a usable full functional database that can be accessed through the command line. No Graphical User interface GUI, will be required for this stage of development. The main benefit of the product is to provide a place to store the core details of an application in an easily viewable and editable form that will enable application and applicant data tracking over the evaluation of one or more applications. This database will give staff a greater understanding of prospective students allowing the strengths of the university and future student to be combined whilst continuing the expansion of the CSEM faculty as outlined by the CSEM mission statement. In the short term the system will improve the quality of application screening and positioning.

### Operating Environment

The database itself will run on a server within the CSEMs IT department. Since the Server is not expected to be used heavily (on the order of a 200 or so transactions and simple queries per day) it is not expected that any new hardware will be required. The product will be built as a MySQL database which is freely available to all enterprises so there will be no additional cost for the database software itself.

### Design and Implementation Constraints

The product will conform to standard MySQL core packages to enable greater update and management flexibility. Some security precautions will be taken to ensure that the data is not available to students and staff from other faculties.

### User Documentation

Conceptual, logical and physical diagrams of the database will be delivered along with instructions on maintaining the database will be delivered with the product in the form of a PDF or E-Manual.

### Assumptions and Dependencies

It is assumed that all users and the database itself have read/write access to a common file system area, for the purpose of linking documents such as PDFs or image scans to applications.

An associated front end application for users to interface with database has not yet been designed. It is expected that once it has been analysed and requirements gathered then small modifications to the database are expected to be made, predominately in the form of new queries.

## Target users and audience

Figure 1 Project Scope Diagram. The new database software product shown in context of the wider human-computer RHD application system

Existing human-email system

Applicants

Applicant

…

Applicant

Applicant

University Office of Graduate Research

Email communications to progress applications:

* Unstructured
* No quick overview of application status
* Not shared with other staff systematically
* Entirely manual

CSEM Member of Staff (MoS)

MoS

…

MoS

MoS

…

MoS

…

MoS

…

MoS

Professional

RHD Co-ordination

Academic

Mature, quality applications are elevated to the formal, formed-based, university-level process.

**System boundary**

Database

operations

User operations

and feedback

Putative User Interface

* Adds structure to initial application process
* Provides quick overview of application status
* Introduces some automation
  + - * Proformas
      * Checklists of required information and documentation
* Supports systematic sharing of application information among staff

Applicants

Staff

Application info checklist

Fields of research

Decisions

Proformas

The user classes for this system are CSEM Professional Staff, CSEM Academic Staff, and CSEM RHD Co-ordination Staff. Note that members of the CSEM RHD Co-ordination Staff are all also ether Professional or Academic Staff.

A common characteristic shared by all staff members is that they don’t have a lot of time available to help develop RHD applications. Thus it’s critical that the database product provide the ability to quickly get a picture of an application’s status, and prompts of how best to progress the application from that point.

Another possible user class could be those Academic Staff who have expressed an interest in supervising an applicant’s project. However, as we expect there will be frequent, perhaps even ambiguous, shifts into and out of this user class, and we don’t want to create a lot of work for users to have to update this information continuously, we chose not to distinguish this class in terms of their feature requirements.

Another possible user class could be the Applicants themselves. We can see clear benefits if the applicant were able to access their application directly, as they would be able to add any outstanding information themselves directly. This would avoid the requirement of emailing questions and information to staff members. However, for the purposes of this initial stage of development we won’t consider the applicants as a user of this system. We leave that to a subsequent iteration of this system’s development.

## User views