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University of Pretoria

COS 730

Software Engineering 1

UPRM

University of Pretoria Research Manager
Software Requirements Specification

Author:
Jason Richard Evans *u13032608*
Vivian Venter *u13238435*

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Instructor: Ms. V. Pieterse
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Contents

1 Introduction

1.1 Purpose

This document serves as the software requirements specification (SRS) for UPRM (University of Pretoria Research Manager). The requirements will include both the functional and non-functional requirements. This document is written as a requirements guideline for the software enigineers and any other party involved in the creation of UPRM.

1.2 Scope

The UPRM scope consists of a/an,

- research manager, known as RM.
- statistics query tool, known as RMSQ.
- event/venue creation tool known as RMVC.
- report generator tool, known as RMR.

Description of each product within the scope of UPRM:

- RM - This will be the main focus for UPRM. This tool will assist the researcher with creating a new research "project". The user/s will have to be able to create a new project, enter the research topic, create an approximate timeline for the completion of the paper which can then relate to percentage of completion. During the writing of the paper, the user should be able to change or edit the research topic. Once the user has marked the paper as complete, the user/s should be able to submit the paper to venue/s of their choice registered on the UPRM system.
- RMSQ - The statistics query tool has its own subset of tools combined into one system integrated with UPRM. The statistics query tool will have to be able to generate statistics at a global system level as well as at a user based level. With the statistics query tool we will have to factor in privacy issues and hence only certain functionality will be granted to certain users based on preferences set by the main UPRM user of project leader. On a **global level**, the user will have to be able to generate statistics on the following:

  - Percentage of paper acceptance for institution.
  - Percentage of papers accepted per venue.
  - Percentage of papers accepted for certain user/researcher.
  - How many papers are currently being produced by the institution.
  - How many papers are currently being produced by a certain user/researcher.
  - Tracking the percentage of completion of a paper for a certain researcher.

- RMVC - The venue creation tool will be the access point to external venue organisers such as conferences and research papers. This will assist the organisers of such venues to easily call on papers as well as assisting the researchers in submitting their research paper to multiple venues. With this functionality in the UPRM the user/s will have to be able to create, read, delete and update **CRUD** their own venues. The deadlines for submissions will have to be posted or indicated that there does not exist a deadline for submissions. The venues will also then, after papers have been submitted, be able to send feedback to the researchers on their paper as follow:
  - Accepted (Published)
  - Accepted (Not Published)
  - Accepted with minor revisions
  - Rejected
- RMR -

1.3 Definitions, Acronyms and Abbreviations

- **UPRM** - The system at hand, University of Pretoria Research Manager
- **RM** - Research Manager
- **RMSQ** - Research Manager Statistics Query Tool
- **RMVC** - Research Manager Venue Creation
- **RMR** - Research Manager Reports

1.4 References

[Microsoft 2015] Msdn.microsoft.com, (2015). Chapter 16: Quality Attributes. [online] Available at: https://msdn.microsoft.com/en-us/library/ee658094.aspx [Accessed 14 February 2016].

[Stearns Prof.] Users.csc.calpoly.edu, (2016). Stearn Quality Attributes. [online] Available at: http://users.csc.calpoly.edu/ jdalbey/SWE/QA/QualityAttributesStearns.html [Accessed 14 February 2016].

1.5 Overview

The remainder of this document includes an overview of the UPRM system functionality and system interaction with other systems. The text will also introduce different types of stakeholders and their interaction with the UPRM system. Some system constraints and assumptions about UPRM will also be stated and explored upon.

2 General Description

This section will give an overview of the whole UPRM system and its subsystems. In this section the UPRM system will be explained in its context, the different stakeholders will be introduced and the basic functionality of the UPRM system will be described. Throughout this section, the constraints and assumptions for the system will be presented.

2.1 Product Perspective

2.2 Product Functions

2.3 User Characteristics

2.4 General Constraints

2.5 Assumptions and Dependencies

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

3.2 Functional Requirements

3.2.1 Functional Requirement/Feature Name

3.3 Use Cases

3.3.1 Use Case Name or Number

3.4 Classes/Objects

3.4.1 Class/Objects Name or Number

3.5 Non-Functional Requirements

3.5.1 Performance

3.5.2 Reliability

3.5.3 Availability

3.5.4 Security

Security is one of the most significant non-functional requirements as the data that is processed and stored by UPRM is of a sensitive nature. A vast amount of research ideas and the progress status on current research will be stored by UPRM needless to say, if such data falls into the wrong hands it could jeopardise the research project or the idea of the research.

In terms of security, UPRM should,

- never reveal the current progress of research projects to unauthorized parties.
- never reveal future research ideas to unauthorized parties.
- prevent the loss of any data (personal and research related data).

In terms of security requirements, UPRM should,

- make use of strong passwords.
- utilise two step verification.
- make sure that password resets is done by an administrator.

3.5.5 Maintainability

3.5.6 Portability

3.6 Inverse Requirements

3.7 Design Constraints

3.8 Logical Database Requirements

3.9 Other Requirements

4 Analysis Models

4.1 Sequence Diagrams

4.2 Activity Diagrams

5 Change Management Process

TO ADD TEXT

6 Appendices

6.1 Appendix 1

6.2 Appendix 2

6.3 Appendix 3