SOFTWARE ENGINEERING 712S

Research Output Management System User Requirements Document.

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1.Introduction

1.1 PURPOSE

The purpose of this Software Requirements Specification is to outline the requirements of the FCI Research output management system, it will give a complete overview of the system including the user interface, system mechanics and what the system will do, the imperatives under which it should work and how the system will respond to outside improvements. The document is designed for the developers and all stakeholders and it will be presented to the client for approval, and then the team can develop the first version of the system

1.2 PROJECT BACKGROUND

Currently there is no central online and dedicated system that manages Research Output for various researchers' publications. The current records are kept and recorded in excel and word documents which is highly inefficient and difficult to draw reports from various faculties.

1.3 PROJECT OBJECTIVES

The Project Objectives are to:

- Capture the universities multiple research outputs.
- Create a web interface that allows the general public to access research and innovation outputs and to give platforms for researchers to edit and publish their research
- Provide an ability to produce reports by using various filtering options such as output type, by contributor, multiple or single authored, SDG, quarter (Q1, …, Q4), outlet for managers (HoDs, Associate Deans and Dean) and researchers.
- Have the Flexibility to change reports.
- Give the general public an easier access to valuable information

1.3 SCOPE

The system will be a web storing system which will keep track of the faculty and student research and innovation outputs that meet the NUSTS Research Publication Standards and feed into NUST's reports. This system will be intended to amplify the supervisor's usefulness by giving apparatuses to help with computerizing the storing and editing processes of research outputs. It will allow the managers to generate reports about other users or themselves regarding their research.

2. The Overall Description

2.1 System Environment Overview
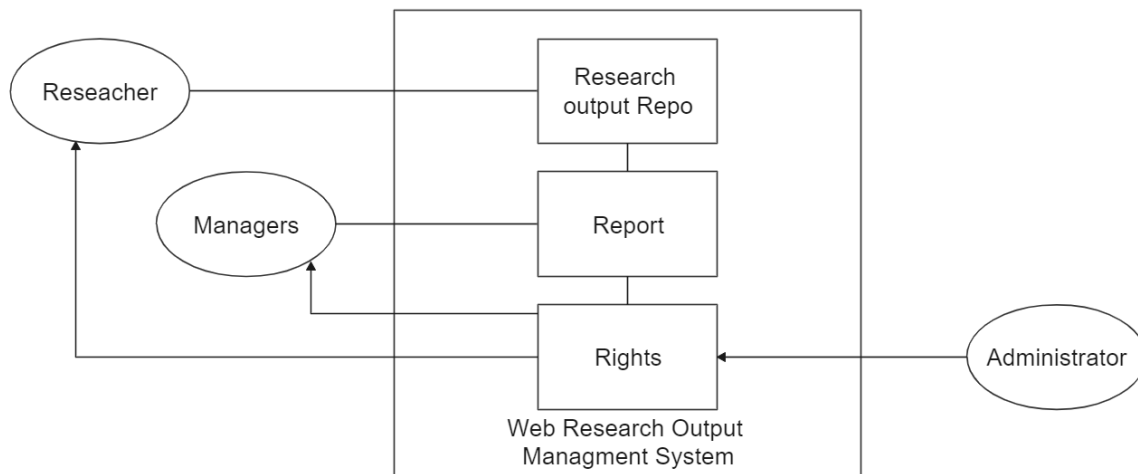
The research output management system has 3 active types of users, the researcher, the managers and the administrators. The administrator is responsible of assigning different rights to the accounts created. The Researcher uploads, edits and downloads their own research outputs. Managers (HoDs, Associate Deans and Dean) should be able to draw reports.

3 Functional Requirements

As demonstrated in the system environment model above, there are three specific types of users that will interact with this system, namely the various managers (HoDs, Associate Deans and Dean), researchers/owners and the administrator who will have the most privileges in the system.

3.1 The Administrator

The administrator account will have for the following functionalities:

- Ability to log in.
- Ability to create and manage user and manager (HoDs, Associate Deans and Dean) accounts.
- Assign rights to different users for example for the researchers assign rights to either upload/download/edit the research outputs and for the managers (HoDs, Associate Deans and Dean), rights to either generate reports for themselves or other researchers.
- Ability to delete users.
- Ability to generate overall system reports

3.2 The managers (HoDs, Associate Deans and Dean)

The managers will have the following functionalities:

- Ability to log in using their staff credentials.
- Ability to view publications made by the various authors.
- Ability to draw reports based on faculty.
- Ability to draw reports by certain criteria: output type, by contributor, multiple or single authored, SDG, quarter (Q1, …, Q4), outlet.
- Reports will be produced in different formats pdf, excel etc.

3.3 The Authors/owners/ researchers

The authors/researchers will have the following functionalities

- Ability to log in.
- **Ability to add research by adding the necessary information highlighted below:**
    - Publication Details e.g., publication date, name of researcher.
    - Details of co-authorship, collaboration and supported SGDs.
    - Type of Publication e.g., Post graduate supervision, Peer Reviewed Conference publications, Oral/Conference presentations etc.
    - Uploading research document.
- Ability to download, upload research.
- Ability to draw reports by certain criteria: output type, by contributor, multiple or single authored, SDG, quarter (Q1, …, Q4), outlet.

3.4 Public users

The general public will have the following functionalities:

- Ability to view, search and filter published research outputs.
- Ability to download research outputs.
- Ability to read research outputs.

4. User Interface Specification

This interface will be described in three sections: the first to the third sections are the specifications for each individual user's interface, as each user will have a slightly different interface to navigate. Once users have logged in will be given different functionalities due to the type of account that they have.

4.1 General Interface

- Users (managers, researchers, administrators) will be served with a login
- Users (managers, researchers, administrators) will have a navigation bar that shows their system capabilities based on privileges assigned by administrator.
- Settings
- profile page
- logout

4.2 The Administrator

- The interface will include all of the details mentioned in the "General Interface" section.
- **Menu Options and their uses on the interfaces:**
    - **Create Users**: add user information and rights/privileges.
    - **View users**: See users in the system with ability to edit and delete users.
    - **System Reports:** View user based and publication-based reports by various options.

4.3 The managers (HoDs, Associate Deans and Dean)

- The interface will include all of the details mentioned in the "General Interface" section
- Menu Options
    - **Reports**: will give them ability to filter reports by by contributor, multiple or single authored, SDG, quarter (Q1, …, Q4).

4.4 The Authors/owners/ researchers

- The interface will include all of the details mentioned in the "General Interface" section
- Menu Options
    - **Add Research**: Publication Details e.g., publication date, name of researcher.
    - **View research**: See previously researched publications.
    - **Reports**: will give them ability to filter reports by by contributor, multiple or single authored, SDG, quarter (Q1, …, Q4).

5.Non-Functional Requirements

5.1 AUDIT, CONTROL & SECURITY REQUIREMENT

5.1.1 System Audit Requirements
The System shall provide audit trail functionalities which include:

- Keep record of user login/logout information, e.g., unsuccessful login attempts, login and logout times, etc.;
- Keep record of user profile information such as creation/update/deletion of user, post/rank, user group belonged to, etc.;
- Keep record of user group profile information such as creation/update/deletion of user group, functions access rights and privileges of the user group, etc.;
- Keep detailed record of the audit trail, which shall include user ID, functions performed, etc;

5.1.2 System Control Requirements
The System shall provide control functionalities which include

- User must be provided with a unique user ID and password to log-in the system.
- User groups are created according to the level of access rights and functions that are allowed to access.
- System administration functions should be defined in a separate function menu and separated from other normal user functions.
- Users should be disallowed to click into menu items in which no access rights are granted.

5.1.3 System Security Requirements
- All user passwords must not be displayed on screen during user input.
- All user passwords must be at least 8 characters and include special character like &,#,$,@
- All imported/uploaded data files must be virus-free.
- All security patches should be properly tested before installed to all system software/programs before production roll out.

5.1.4 BACKUP AND RECOVERY REQUIREMENTS
- The System shall provide monthly system and data backup.
- The backup shall be performed and completed at midnight.

5.3 DISASTER RECOVERY REQUIREMENTS
- The system should have an effective solution for resilience and disaster recovery.
- In case of total system loss, the system shall be recovered by restoring the latest system backup within 6 hours.

5.4 USABILITY REQUIREMENTS

- The system should meet the following usability requirements:
- Menu items, field labels, system or error messages, etc. shown in the user interface should be clear, direct, consistent, meaningful and easy to understand.
- User should be able to on-line browse the user manual by clicking into a hyperlink provided in main menu. The user manual should be clear, and should provide sufficient guidance to users.
- The menu navigation should be clear and consistent throughout the system.
- User actions should be consistent, e.g., for actions which cannot be undone, should always ask for user confirmation and allow users to cancel.

5.5 SYSTEM AVAILABILITY REQUIREMENTS

- The system will be available 24/7 as it will be online