**Module 4 Software Requirements Specification**
**CS 260 - Advanced Software Engineering**

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# Software Requirements Specification

**for**

# Research Repository System

**Version 1.0 approved**

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**Bulacan State University**

# Revision History

| Name | Date | Reason For Changes | Version |
|---|---|---|---|
| | | | |
| | | | |

# 1. Introduction

## 1.1 Purpose

This documentation shows the Software Requirements Specification (SRS) of the proposed Research Repository System (RRS) version 1.0 for Bulacan State University (BulSU). It covers both the software and hardware requirements of the proposed project.

## 1.2 Document Conventions

This document follows the simplified IEEE standard for SRS Documentation[1]. This is not yet the final version of the SRS, and any additional requirements from the client can be entertained upon reaching an agreement with all the stakeholders.

## 1.3 Intended Audience and Reading Suggestions

This documentation is intended to provide an insight of the requirements of the RRS, with given emphasis for the following stakeholders:

1. Developers

   This SRS provides an overview of the requirements of the project, thus giving the developers a bird's eye view of how the proposed project is going to be developed with respect to the project's specification
2. Project Manager/s

1 http://www.cse.msu.edu/~cse870/IEEEXplore-SRS-template.pdf

This documentation could provide an idea to project managers on different resources they may allot to in this proposed project.

3. Testers

   Given the requirements of the proposed project, testers could have a glimpse on how the project should be tested.

## 1.4 Product Scope

The proposed project aims to provide a repository for all research studies made inside Bulacan State University. Specifically, the proposed project aims to:

1. Store research studies made to disseminate to the next generation
2. Help researchers find papers related to their study and accumulate respondents easily.

Additionally, the project is expected to benefit the following stakeholders, directly or indirectly:

1. BulSU Faculty members – Studies made will be accessible to students and other faculty which will make them more acknowledged/recognized.
2. BulSU Students – Data gathering will be easier since finding related studies will just be a few clicks away.

## 1.5 References

http://www.cse.msu.edu/~cse870/IEEEXplore-SRS-template.pdf

# 2. Overall Description

## 2.1 Product Perspective

The proposed system was meant to be a solution for faster data gathering; storing of student's unpublished paper and faculty members published studies.

## 2.2 Product Functions

Generally, the proposed project aims to provide the following functions:

- Store and disseminate research studies
- Log-in the student and/or faculty member
- Log-out the student and/or faculty member
- Provide research questionnaire
- Give points for students to view research studies they need

## 2.3 User Classes and Characteristics

The following user classes are expected to utilize the proposed project:

1. Students – Students are able to view research studies but needs certain points. They can upload their questionnaire to accumulate respondents and answer to gain more points.
2. Faculties – Like the students, faculties are able to answer and upload questionnaires. But in terms of viewing research studies, they are no longer required to use/have points for viewing their desired research studies.
3. Admin/s - These users have advanced technical capabilities of using the system and are responsible for its maintenance. They have the privilege of generating, printing, giving access to students, and looking into reports provided by the system.

## 2.4 Operating Environment

The proposed project is perceived to be operating well at the following minimum prescribed environment:

| | **Client** | **Server** |
|---|---|---|
| **CPU** | 1.7 GHz Dual-Core | 3.0Ghz Quad-Core |
| **RAM** | 4GB | 16GB |
| **HDD** | 500GB | 4TB |
| **OS** | Windows 10 | Windows Server 2019 |

## 2.5 Design and Implementation Constraints

- The proposed project should be attached to a reliable server that preferably has a reliable internet connection. The project is heavily reliant on this, and will be inoperable if network issues arise.

## 2.6 User Documentation

Tutorial is present on the user interface of the proposed project upon logging in for the first time.

System testing will be done before the deployment of the proposed project.

## 2.7 Assumptions and Dependencies

This documentation assumes the following:

- The proposed project should be attached to a reliable server network.

# 3. External Interface Requirements

## 3.1 Software Interfaces

Each client station is preferably installed with a Windows 10 operating system and will communicate with the server that has a Windows Server 2019 OS. For maximum compatibility, storage and retrieval of data will be interfaced with MS SQL.

# 4. System Features

## 4.1 Personal Information Registration

### 4.1.1 Description and Priority

This will ask and accept personal information from the student and/or faculty members (regular users), and will store them in the server database that will be used to compare with the credentials of the enrolled students and faculty of the university.

Priority: High

### 4.1.2 Stimulus/Response Sequences

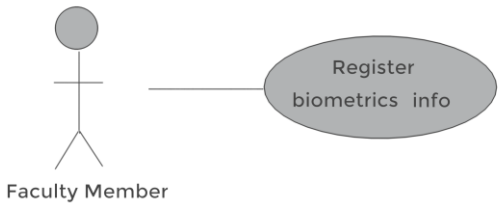


*Figure 1. Use Case for Personal Information Registration*

- Users register their personal information.
- System asks the users to agree with data privacy terms
- System will save login credentials once the users agree and verified to be a faculty or enrolled student of the university.

### 4.1.3 Functional Requirements

REQ-1.1: The user should provide important information, these are:

- Student/Employee Number
- Last Name
- First Name
- Middle Name (if applicable)
- College/Department (Predefined choices, if applicable)
- Rank (Predefined choices, if applicable)
- Year (if applicable)
- Section (if applicable)
- Course( (if applicable)
- Birthdate
- Birthplace
- Complete Address
  - House/Unit Number
  - Block
  - Street
  - Barangay
  - City/Town
  - Province
  - Zip Code
- Email Address
- Contact Number

REQ-1.2: The system should verify the user information.

REQ-1.3: The system will only save the user only if they agree with the data privacy terms and pass the verification.

## 4.2 Log-in and Log-out

### 4.2.1 Description and Priority

This feature will be used by the students/faculty member to log-in and log-out of the system.

Priority: Medium

### 4.2.2 Stimulus/Response Sequences

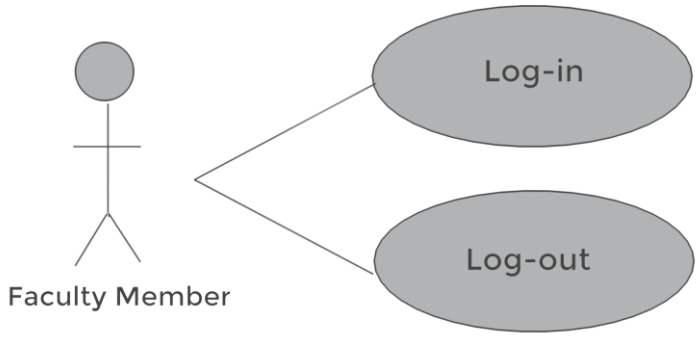


*Figure 2. Use Case for Log-in and Log-out*

- Users log-in before they can access research studies

#### 4.2.3 Functional Requirements

REQ-2.1: The user should choose between Student or Faculty login options.

REQ-2.2: After choosing an option, users should login into their account using their login credentials

REQ-2.3: The system should display a message if the authentication is successful

REQ-2.4: An error message should be displayed if the system encounters one of the following:

- Login error
- Logged in as student
- Logged in as faculty

## 4.3 Research Paper Viewing

#### 4.3.1 Description and Priority

This feature enables the users to view study of their choice.

Priority: High

#### 4.3.2 Stimulus/Response Sequences

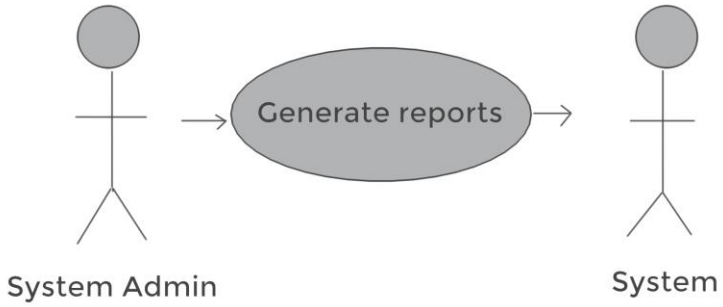


*Figure 3. Use Case for Research Study Viewing*

- System determines the user privileges:
  - Student
    - Total viewable studies will be limited to the points they have
  - Faculty
    - They will have access to every study within the system

### 4.3.3 Functional Requirements

REQ-3.1: Viewing of studies have requirements:

- Account type should be Faculty or Admin
- If student, accumulating points increases the studies you can view

## 4.4 Reports Generation

### 4.4.1 Description and Priority

This feature enables the system to generate reports based on user's activity.

Priority: High

### 4.4.2 Stimulus/Response Sequences

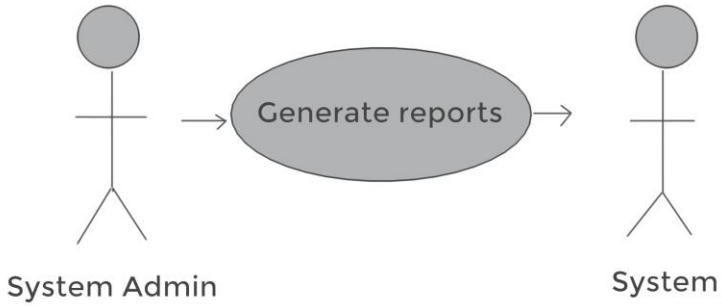


*Figure 4. Use Case for Reports Generation*

- System admin selects a report type:
  - Student / Faculty Member Report
    - This report shows the activity of the selected user
  - Research Studies Report
    - This report shows the names of the users who viewed the study
  - Top Study Report
    - This report shows the top study viewed by the users

### 4.4.3 Functional Requirements

REQ-4.1: There should be three types of reports the system admin can choose from:
- Student / Faculty Member Report
- Research Studies Report
- Top Study Report

REQ-4.2: For the Student / Faculty Member Report, the following details are needed:
- Student / Faculty Name

REQ-4.3: For the Research Studies Report, the following details are needed:
- Research Paper Title

REQ-4.4: For the Top Study Report, the following details are needed:
- Period (date)

REQ-4.5: Only the system administrator can generate reports

## 4.5 Uploading and Answering Questionnaire

### 4.5.1 Description and Priority

This feature allows users to upload questionnaire for their research and to answer questionnaire to gain points.

Priority: High

### 4.5.2 Stimulus/Response Sequences

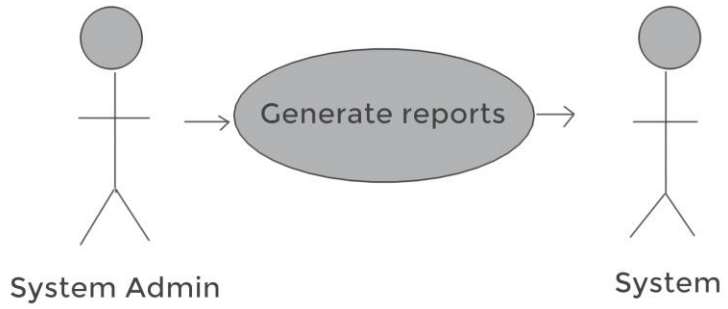


*Figure 5. Use Case for Uploading and Answering Questionnaire*

- User will choose between Upload or Answer questionnaire:
  - Upload
    - They can upload their questionnaire to gather respondents remotely.
  - Answer
    - By answering, they help researchers gain more respondents and students earn points that they can use to view studies they like.

### 4.5.3 Functional Requirements

REQ-5.1: To upload a questionnaire, the researcher should provide:

- Questions
- Target respondents
- Deadline

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

As the proposed project is expected to be heavily used, it is perceived that the system should be able to handle huge data traffic during the following peak hours:

- 6:30 AM to 6:00 PM
- 10:00 PM to 5:00 AM

## 5.2 Security Requirements

The proposed project should conform to existing data privacy laws, and therefore the relative data of the student/faculty members stored and generated by the system is restricted to authorized users only. It is also prescribed that the system should prevent plagiarism by means of using watermarks and preventing user to screenshot the studies.

## 5.3 Software Quality Attributes

The following software quality attributes are prescribed to be evident in the system:

- User-Friendliness
  - The proposed project should exhibit a user interface that is very user friendly, as the intended users are a diverse demographic.
- Availability
  - The system should be available always.
- Maintainability
  - The system should be easy to maintain and should be easily accessible once it is up and running again.

## 5.4 Business Rules

- Students/Faculty members should be able to upload, view, and answer questionnaires; and be able to view research studies stored in the system.
- System Admin are the ones who can generate reports. They can be a personnel from the IT or MIS department.
- Super Admin is the one responsible for the maintenance of the system. He can also be the System Admin.

# 6. Other Requirements

# Appendix A: Glossary

- **Student –** Currently enrolled students within the university.
- **Faculty Members** - Employees who have teaching loads. They can be a regular employee, non-regular (BulSU uses the term “part-timer”), and adjunct.

# Appendix B: Analysis Models

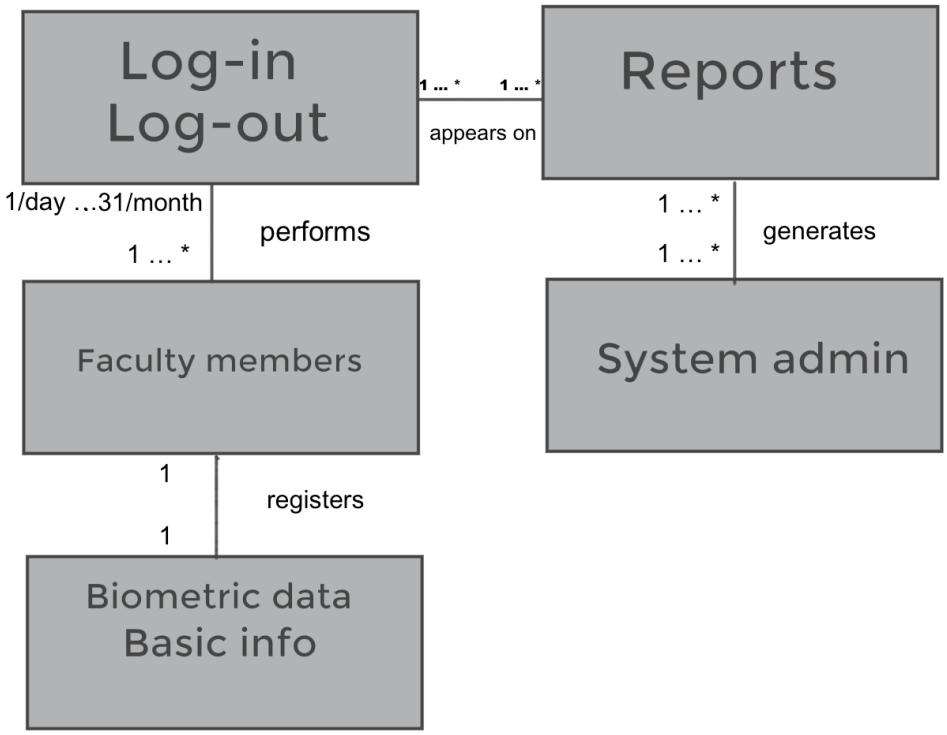


*Figure 6. Class Diagram*

Figure 6 shows the class diagram of the proposed project. It further shows that:

- The *Faculty Members* and *Log-in/Log-out* classes can be associated with one or more instances of each other, with certain number of limit with logins and logouts, for example:
  - A faculty member can have one set of login and logout per day, up to 31 sets per month
  - It is possible that multiple faculty members can have the same logins and logouts because of how the client stations are spread-out across the campus
- One faculty member can only register one biometric information/basic information
- The *Log-in/Log-out* and *Reports* classes can be associated with one or more instances of each other, for example:
  - A certain login/logout history can appear on multiple reports
  - Several login/logout history can appear on the same report
- The *System Admin* and *Reports* classes can be associated with one or more instances of each other, for example:
  - A system administrator can generate multiple reports
  - Multiple system administrators can generate the same report

# Appendix C: To Be Determined List

- Final UI of the system
- Data privacy policies/laws details