Sri Lanka Institute of Information Technology

Software Requirement

Specification Document

Research Project Management Tool

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Table of Contents

1.Introduction

1.1 Purpose

This is a research project management tool which is designed mainly for the students who are pursuing their 4th year in their degree. In the 4th year of the degree every student must do a research project which will be offered as a 16-credit module which will be a two semesters long project. To do the research project there should be a group of 4 members, and the student group must find a research topic in a specific research field.

After selecting a topic, the student must find a supervisor to guide them, and the supervisor should have the same interest in the same research field. After the supervisor accepts the topic, the student group should find a co-supervisor of the same research interest. This system will be helpful for the students to manage the research project and automating certain tasks. By this system the students will be able to easily work on their research group projects where many of the tasks will be automated and this system will be helpful in maintaining and managing the research project.

1.2 Scope of the system

The system is defined as a research project management system, the focus will be to manage the research project and to automate certain tasks.
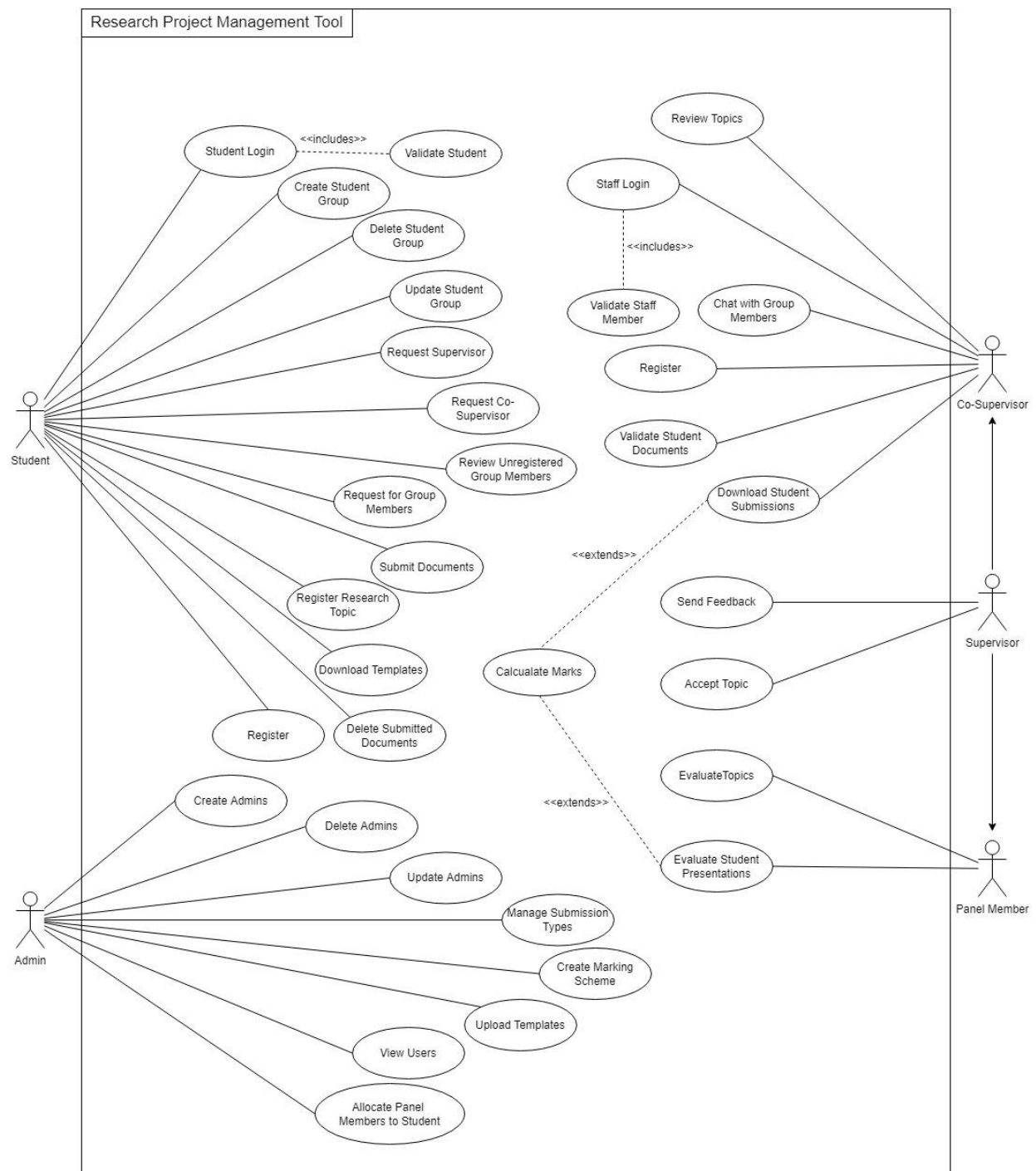
First the students must form a student group of 4 members so in this system there's a function where the students can register their group and if the registered student group does have the sufficient count of members the system will allocate students to form a group of 4 members.

The process of selecting supervisors and co-supervisors will be also a function where the students will be given the chance to select a supervisor and a co-supervisor through the system and after selecting the supervisor and co-supervisor, the selected supervisor and co-supervisor will be sent an auto generated mail where the supervisor and co-supervisor must accept the request according to their willingness.

After finalizing the supervisor student must send a document including the topic details of the Research. Then the topic evaluation panel will evaluate the topic and send feedback to the student group. If the topic is accepted, they can continue to do the project. If rejected, they must find a new topic and submit it back.

There are several evaluation stages. Document submissions are evaluated by the supervisor or the co-supervisor. Presentations will be evaluated by a separate panel. The final Thesis will be double evaluated by the supervisor and a blind reviewer.

2. Overall Description

Research Project Management Tool

Student Login <<includes>> Validate Student

Create Student Group

Delete Student Group

Update Student Group

Request Supervisor

Request Co-Supervisor

Review Unregistered Group Members

Request for Group Members

Submit Documents

Register Research Topic

Download Templates

Register

Delete Submitted Documents

Student

Review Topics

Staff Login

<<includes>>

Validate Staff Member

Chat with Group Members

Register

Validate Student Documents

Download Student Submissions

<<extends>>

Calcualate Marks

Send Feedback

Accept Topic

<<extends>>

EvaluateTopics

Evaluate Student Presentations

Co-Supervisor

Supervisor

Panel Member

Create Admins

Delete Admins

Update Admins

Manage Submission Types

Create Marking Scheme

Upload Templates

View Users

Allocate Panel Members to Student

Admin

The above class diagram shows the entire view of the system. There are five actors in the system, namely student, supervisor, co-supervisor, panel member, and admin. The users must have a registered account to access the system. The student will be able to login to the system if the student doesn't have a registered account, he or she will be able to register to the system by creating a new account. When the student enters the login credentials then the system will validate the entered login credentials and if the login credentials are correct the user will be redirected to the home page of the system. Registered students will be allowed to create a group, where the leader must create a student group and add the other members to the group, here the other members must have a registered account in the system. The leader will only have the authority to delete or update the student group, but the other members can leave the student group at any time. The leadership can be transferred by updating the group details. If there are students without any student group, they can request for a group so if there are students with insufficient members, they can add the requested student. The leaders also can request for members if there are insufficient members in the group. The leader can request for a supervisor and a co-supervisor for the research group. The students must select a topic which is related to the supervisor's interested research field and the selected topic must be approved by the supervisor to proceed for the next step. If the topic is accepted, then the leader must register the research topic. The students are allowed to submit documents to the system and to delete the submitted document if necessary. The students can download any template which will be required in documentation for the research.

The admin is a main role in the system where the admin has the authority to manage and maintain the system. The admin has the authority to create or remove any user from the system. The admin also can view any user who is registered to the system. The admin also can edit or update any user in the system. The admin is allowed to manage the submission types and creation of marking schemes according to the research group is done by the admin. The templates of the documents which are needed for the research are uploaded by the admin and admin have the permission to maintain the uploaded templates. The admin will allocate the panel member to the respective research groups.

Supervisor will be the person who will be reviewing the research group with the help of the selected co-supervisor. The supervisor must have a registered account if the supervisor doesn't have a registered account the student will not be able to select the supervisor for their research group. Here the supervisor will be given permission to accept the research topic which is selected by the student group, and he/she has the right to reject the topic if it is not aligned with the research field of the supervisor. The supervisor also reviews the work progress and gives feedback to the students.

Co-supervisor will also have the permission to review the topic which is selected by the students. The co-supervisor will be able to login to the system using a staff login. The login will be validated and if the login credentials are correct the supervisor/co-supervisor will be able to login to the system. The co-supervisor can chat with the group members. The student submitted documents will be evaluated by the co-supervisor. The supervisor and co-supervisor can download the submitted documents which are submitted by the research group.

The panel member will evaluate the topics selected by the groups and evaluation of student presentations will be done by the panel member who is allocated to the research group.

3. Specific Requirements

3.1 Functional Requirements

3.1.1 User Registration

- The student must have a registered account to access the system

- The student will be able to view or update the entered details

- The supervisor and co-supervisor must have a registered account to access the system

- The supervisor and co-supervisor will be able to view or update the entered details

- The system sends a confirmation email when a new user account is created

3.1.2 Admin Privileges

- The admin will have the authority to add or remove any user from the system

- The admin has the authority to accept the newly enrolled users to the system

3.1.3 Create Submission Types

- The system shall allow the admin to write the title of the submission type and upload the related

  documents.

- The system shall allow the admin to set submission start date and close date.

- The system shall allow the admin to create what files will be allowed by the system.

- The system shall allow the admin to add the created submission type to the submission list.

- The system shall allow the student to go inside the selected submission type.

- The system shall allow the student to upload related document in the space

- The system shall allow the admin to update and delete the submission type from the list.

- The system shall allow the student to update and delete the submitted folder into the system.

3.1.4 Allocate Panel Members to student groups

- The system shall display the current registered group and available panel members.

- The system shall allow the admin to select one group and go inside. Then admin can set the panel member's name and details.

- The system shall allow the admin to delete and update panel members details.

- The system shall send an email to relevant panel member including group details and necessary details.

- After panel members accept the email, the system shall allocate that member to the related group and send an email with panel member details to the group leader.

3.1.5 Create Marking Schemes

- The System shall allow the admin to upload marking schemes under the task.

- The System shall allow the admin to delete and update the marking scheme document.

- The System shall allow the admin to send marking schemes to panel members.

- The System shall display the marking schemes to the students.

3.1.6 Upload Document/ Presentation Templates

- The System shall divide the page by weeks and the system shall allow the admin to add, delete and update the documents under the week.

- The System shall allow the admin to write the notices under the week title.

- The System shall allow the student to download the documents by the system.

3.1.7 Create Student Groups

- The system shall allow the user to see if the user currently is in a group.

- The system shall allow the user to create a group and assign a group ID automatically.

- The system shall allow the user to add group members to the created group.

- The system shall allow the user to remove group members from the group.

- The system shall display the group members currently in the group.

- The system shall notify the group members after being added into a group by the group leader.

- The system shall send an email to the group leader after adding all the members and confirmed.

- The system shall allow the user to update group members and details of the group.

- The system shall send a notification about the new group creation to the supervisors.

- The system shall notify the group members after the grouping is approved.

3.1.8 Register Research Topic

- The system shall allow the user to add research details and register a research topic.

- The system shall notify the staff when a new research topic is registered.

- The system shall allow the group leader to update research topics related to the group.

- The system shall notify the staff if a research topic is updated.

- The system shall send a notification when the topic is approved by the staff.

- The system shall allow the user to delete topics related to their group.

3.1.9 Request a supervisor

- The system shall allow the user to search for available supervisors for their topic.

- The system shall allow the user to request for a supervisor.

- The system shall notify the admin when a group requests for a supervisor.

- The system shall send an email to the group members after a supervisor is assigned to the group

- The system shall display the details of the supervisor to the group members.

- The system shall allow the user to request another supervisor.

- The system shall allow the user to rate the supervisor.

3.1.10 Request a Co Supervisor

- The system shall allow the user to search for available co-supervisors for their topic.

- The system shall allow the user to request for a co-supervisor.

- The system shall notify the admin when a group requests for a co-supervisor.

- The system shall send an email to the group members after a co-supervisor is assigned to the

  group.

- The system shall display the details of the co-supervisor to the group members.

- The system shall allow the user to request another co-supervisor.

- The system shall allow the user to rate the co-supervisor.

3.1.11 Request for a group

- The system shall allow the user to request for a group if they do not have a group to find.

- The system shall allow the user to search other group members that do not have a group.

- The system shall allow the user to request to assign to a group automatically according to the

  topic they are interested in.

- The system shall assign users to groups as they requested.

- The system shall notify the user after assigning to a group.

- The system shall allow the user to request to change the group for limited requirements.

3.1.12 Submit Documents

- The system shall allow the user to submit documents.

- The system shall allow the user to delete the submitted document.

- The system shall notify the assigned staff members.

- The system shall allocate date and time for interview and presentations after the document is

  submitted.

- The system shall notify the user with informing date and times.

3.1.13 Download Templates

- The system shall allow the user to download templates.

- The system shall allow the user to search for templates.

3.1.14 Accept Topics

- The supervisor will be able to view the student groups, view the students who are in that group,

  and the topic they have selected

- The system shall allow the supervisor / co supervisor to accept to reject topics using buttons

- The system shall allow the supervisor / co supervisor to check the reports of students

3.1.15 Chat with the groups

- The system shall allow the supervisor / co supervisor to chat with students

- The students will be able to resolve their issues using this chat system

- The system allows students to join the chat

3.1.16 Evaluate documents submitted by groups using the provided marking scheme

- The system allows the supervisor/ co supervisor to access to the submitted documents

- The system allows the supervisor/ co supervisor to access to the marking schemes created by admin

- The supervisor/ co supervisor will be able to add points to the submitted documents by looking at the marking scheme, to the relevant marking sheet

3.1.17 Admin will add panel members to the panels

- The panel member will be added by the admin to the panels

- The panel member can view the students assigned for them

- The panel member can view the presentation time slots assigned for them

3.1.18 Evaluate Topics

- The panel member will be able to evaluate the topics of student groups

3.1.19 Evaluate students' presentations according to the provided marking scheme

- The system allows the supervisor/ co supervisor to access to the submitted presentations

- The system allows the supervisor/ co supervisor to access to the marking schemes created by admin

- The supervisor/ co supervisor will be able to add points to the presentations

3.2 Non-Functional Requirements

3.2.1 Usability

3.2.1.1 Graphical User Interface

- The system must ensure that all web pages have a consistent appearance and feel.

- Each product in the product catalogue must have a digital picture provided by the system.

- The system must support the use of icons and toolbars.

3.2.1.2 Accessibility

- The system must be accessible and easy to work to people who don't have computer literature.

- The system may be accessed at any time and from any location.

3.2.2 Reliability & Availability

3.2.2.1 Back-end Internal Computers

- The system must store all databases on redundant machines with automated failover.

- The system must provide database replication to off-site storage facilities.

- Storage must be provided by the system on all database storage drives.

3.2.2.2 Application availability

- The system must be implemented in the finest cloud service provider, which must be always available with minimal disruptions and downtimes.

- To connect with users, the cloud service provider must be available anywhere with a minimal need of internet connectivity.

- The system must offer storage on all database storage disks.

3.2.3 Performance

- The product must be web-based and must be run from a web server.

- The product will require an initial load time based on the strength of the internet connection, which is also dependent on the media from which the product is run.

3.2.4 Security

3.2.4.1 Data Transfer

- In all interactions involving private client information, the system must employ secure connections.

- After a period of inactivity, the system should automatically log out all customers.

- All transactions must be confirmed by the system with the customer's web browser.

- The system shall not leave any cookies revealing the user's password on the customer's machine.

- The system shall not leave any cookies containing any of the user's sensitive information on the customer's computer.

3.2.4.2 Data Storage

- A customer's password must never be shown in the web browser. It must always be repeated with special characters that indicate typed characters.

- After collecting a customer's credit card number from the database, the customer's web browser must never show it. It must always display only the final four digits of the credit card number.

- The back-end servers of the system must never display a customer's password. The customer's password may be reset, but it is never shown.

- Only authorized administrators should have access to the system's back-end servers.

- The back-end databases of the system must be encrypted.

3.2.4.3 User Authentication

- The user is authenticated using a token-based system with Json Web Tokens.

- The system is communicating with the backend and frontend to validate the user activities using authentication token.

3.2.5 Supportability

3.2.5.1 Configuration Management Tool

- The source code for this system must be kept in configuration management tools.

3.2.6 Design Constraints

3.2.6.1 Web Based Product

- There is no necessity for memory.

- Web browsers such as Internet Explorer must be installed on the PCs.

- The product must be stored in such a way that it is easily accessible to the client.

- The loading of the product should take no more than five minutes.

- To use the software, you must have a general understanding of fundamental computer

  abilities.