Research Grant Application System

This document describes the use case diagram and its associated narratives for a software system called *Research Grant Application (RGA)* System.

UW-L offers research grants for its faculty members provided by the Provost office. Faculty members from any department can apply for this grant. When a faculty member applies for a research grant, he/she must first register with the system. If the registration is successful, the faculty member will have an account created for him/her. The faculty member then can login into the system to create a research grant application. A faculty member can create only one application. This application can be modified or deleted by the same faculty member at any time before the deadline for submitting the grant application. After the deadline, a faculty member can only view his/her own application. The faculty member will be notified via email whether he/she has been awarded the research grant. Email notification is outside the scope of the RGA system and will not be modeled.

A committee, consisting of faculty members within the university, will review all the applications submitted and decide which applications can be funded. A committee member is expected to view all applications and create a report that includes comments on the applications and score for each application. Once created, the same committee member can edit the report but cannot delete the report. Each committee member needs to login into the RGA system to view the applications and prepare reports. An administrative user (not a committee member) will add or delete the accounts for the committee members. The only tasks that an administrative user can do are to create and to delete committee members' accounts.

You are given the UML Use Case Diagram and use case narratives for RGA. Verify the use case narratives for (i) consistency and (ii) completeness.
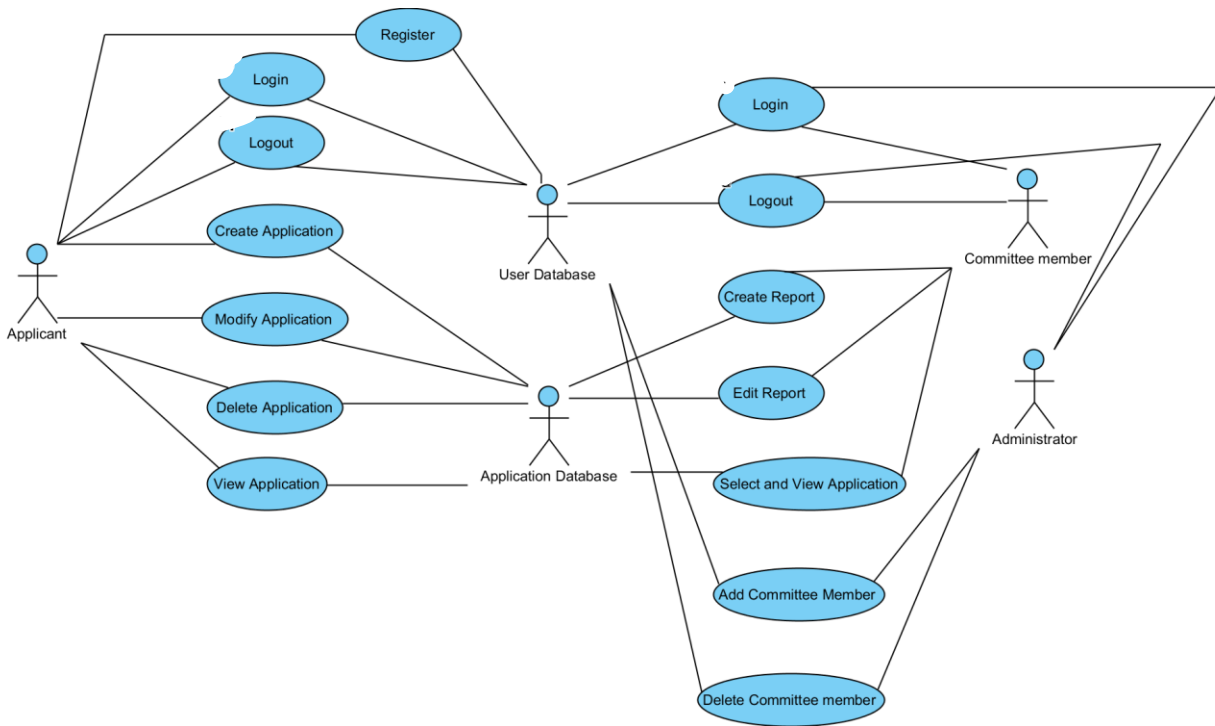
Figure 1: Use Case Diagram for RGA

Use Case Narratives

Use case ID: RGA-F0
Use case name: Register
Purpose: To get a new account in RGA system.
Primary actor: Applicant
Secondary actor: User Database
Input parameters: Name, ID
Output parameters: Username, Initial Password
Precondition: Both parameters must be given.
                 Both parameters must be in appropriate format.
Post-condition: If successful,
                 A new account is generated for this user and stored in the RAG system.
Successful scenario:
          1. User submits the two parameters.
          2. The two parameters are validated for format and completeness.
          3. The system ensures that there is no user in the database with the same <Name, ID>
             combination.
          4. The system generates a new account with a unique Username and an Initial Password
             and sends them to the user.
Exceptions: One or both parameters are missing.
                 One of both parameters are in incorrect format.
                 There is already an account in the system for this <Name, ID> pair.
Remarks: The system displays the login page/window after successful registration.

Use case ID: RGA-F1
Use case name: Login
Purpose: To login into the RGA system
Primary actor: Committee member, Applicant, Administrator
Secondary actor: User Database
Input parameters: Username, Password
Output parameters: None
Precondition: Input parameters must be in appropriate format.
                  Both input parameters must be given.
Post-condition: If successful,
                  a confirmation message is sent to the user for successful login.
Successful scenario:
                  1. User submits the two parameters.
                  2. Both parameters are validated for format and completeness.
                  3. Both parameters are sent to the database for matching.
                  4. The result of matching is sent back to the user.
Exceptions: One or both parameters are missing.
                  One or both parameters are in incorrect format.
                  There is no account in the User Database for the given Username and Password.
Additional remarks: A welcome page/window may be displayed after successful login.
                  Depending on the type of user, the welcome page/window may be different.

Use case ID: RGA-F2
Use case name: Logout
Purpose: To logout from the RGA system
Primary actor: Applicant, Administrator, Committee member
Secondary actor: User Database
Input parameters: None
Output parameters: None
Precondition: User must have logged in.
Post-condition: If successful,
                  user will be logged off from the RGA system.
Successful scenario:
                  1. User submits request to logout.
                  2. RGA system terminates all accesses for this user.
Exceptions: User did not login.
Remarks: Close all other pages/windows and display the login page/window after the user
                  logged out.

Use case ID: RGA-F3
Use case name: Create Application
Purpose: To create a new application by an applicant (faculty member).
Primary actor: Applicant
Secondary actor: Application Database
Input parameters: None
Output parameters: Application with a new unique Application ID
Precondition: The user must have logged in.

Post-condition: If successful,

          A new application is created with a unique Application ID. If the user saves the Application, then the application is saved in the Application Database; otherwise, the application will be discarded.

Successful scenario:

    1. User logs in and submits a request to create a new application.

    2. The system verifies whether the user has logged in, the user is an applicant and there is no other application created by this user before.

    3. The system ensures that the deadline for creating/submitting applications is not passed already.

    4. The system creates a new empty application with a unique Application ID.

    5. The user may fill up the application form.

    6. If the user selects 'save' option, the application will be saved in the Application Database. Otherwise, it will be discarded.

Exceptions: User did not login.

          User already created an application.

          The deadline for submitting applications has already passed.

Remarks: May open a new page/window for displaying the application.

Use case ID: RGA-F4

Use case name: Modify Application

Purpose: To modify an existing application by the applicant.

Primary actor: Applicant

Secondary actor: Application Database

Input parameters: None

Output parameters: Application

Precondition: None

Post-condition: If successful,

          The application previously created by the login user (if exists) will be modified and saved in the Application Database.

Successful scenario:

    1. User logs in and submits request to retrieve his/her application.

    2. The system ensures that the user has logged in and the user is an applicant.

    3. The system ensures that the deadline for submitting applications is not passed already.

    4. If the user has already created an application,

        4.1 the system retrieves the application and displays it to the user;

        4.2 the user may edit the application;

        4.3 if the user selects the 'save' option, the system saves the modified application in the Application Database; otherwise, it discards the modified application.

    5. If the user does not have a previously created application, the system displays a message to start a new application using the 'create application' functionality.

Exceptions: User did not login.

          User is not an applicant.

          The deadline for submitting applications has already passed.

Remarks: The application may be displayed on a separate page/window.

Use case ID: RGA-F5

Use case name: Delete Application
Purpose: To delete an existing application created by the applicant.
Primary actor: Applicant
Secondary actor: Application Database
Input parameters: Application ID
Output parameters: None
Precondition: None
Post-condition: If successful,
                 The application previously created by the login user (if exists) will be deleted from
                 the Application Database.
Successful scenario:
                 1. User logs in and submits request to delete his/her application.
                 2. The system ensures that the user has logged in and the user is an applicant.
                 3. The system ensures that the deadline for submitting applications is not passed
                    already.
                 4. If the user has already created an application, the system deletes the application
                    and displays a message to the user.
                 5. If the user does not have a previously created application, the system displays a
                    message indicating that no application has been created by this user.
Exceptions: User did not login.
                 User is not an applicant.
                 The deadline for submitting applications has already passed.
Remarks: None

Use case ID: RGA-F6
Use case name: View Application
Purpose: To view the application created by the user.
Primary actor: Applicant
Secondary actor: Application Database
Input parameters: None
Output parameters: Application
Precondition: None
Post-condition: If successful,
                 The application previously created by the login user (if exists) will be retrieved and
                 displayed to the user.
Successful scenario:
                 1. User logs in and submits request to retrieve his/her application.
                 2. The system ensures that the user has logged in and the user is an applicant.
                 3. If the user has already created an application,
                     the system retrieves the application and displays it to the user.
                 5. If the user does not have a previously created application, the system displays a
                    message indicating that no application has been created by this user.
Exceptions: User did not login.
                 User is not an applicant.
                 The deadline for submitting applications has already passed.
Remarks: Notice that the user can view the application even if the deadline for submission
                 has passed.

Use Case ID: RGA-C1
Use case name: Search and View Application
Purpose: To select and view an application; invoked by a committee member
Primary actor: Committee member
Secondary actor: Application Database
Input parameters: Application ID
Output parameters: Application
Precondition: Ensure that Application ID is provided.
                  Ensure that there exists an application in the Application Database with the given ID.
Post-condition: If successful,
                  the application with the given application ID is retrieved from the Application Database
                  and is displayed to the user.
Successful scenario:
                  1. User logs in and submits a request to select and view an application.
                  2. The system ensures that the user has logged in and the user is a committee member.
                  3. The system ensures that the deadline for submitting applications has passed.
                  4. If an application exists with the given application ID, the system retrieves the
                     application from the Application Database and displays to the user.
                  5. If no application exists with the given application ID, the system displays a message
                     to the user.
Exception: Application ID is not given.
                  The deadline for submitting applications has not passed yet.
                  User did not login.
                  User is not a committee member.
Remarks: To ensure that the committee member selects (and not types) the application ID, it is
                  preferable to implement a drop-down box to select an application ID from a list of
                  existing applications.
                  The application may be displayed on a separate page/window.

Use case ID: RGA-C2
Use case name: Create Report
Purpose: To create a new report by a committee member.
Primary actor: Committee member
Secondary actor: Application Database
Input parameters: Application ID
Output parameters: Report
Precondition: Ensure that Application ID is provided.
                  Ensure that there exists an application in the Application Database with the given ID.
Post-condition: If successful,
                  a report is created for this application with a unique report ID and saved in the
                  Application Database if the user selects the 'save' option; otherwise the report will be
                  discarded.
Successful scenario:
                  1. User logs in and submits an application ID to create a new report.
                  2. The system ensures that the user has logged in and the user is a committee member.
                  3. The system ensures that the deadline submitting applications has passed.
                  4. The system ensures that there is an application with the given Application ID in the
                     Application Database.

5. The system ensures that there is no report created for the given application.

6. The system displays a new empty report with a unique report ID.

7. The user may fill up the report.

8. If the user selects the 'save' option, the report will be saved in the Application Database. Otherwise, it will be discarded.

Exceptions: Application ID is not given.

There is already a report created for the selected application.

The deadline for submitting applications has not passed yet.

User did not login.

User is not a committee member.

Remarks: The application IDs may be displayed using a drop-down box so that the user will not make mistakes in typing in the application ID.

The report may be displayed on a separate page/window.

Use case ID: RGA-C3
Use case name: Edit Report
Purpose: To edit an existing report by a committee member.
Primary actor: Committee member
Secondary actor: Application Database
Input parameters: Report ID
Output parameters: Report
Precondition: Ensure that Report ID is given.

Ensure that there exists a report with the given Report ID.

Post-condition: If successful,

The report corresponding to Report ID will be retrieved from Application Database and

Is displayed to the user.

Successful scenario:

1. User logs in and submits a report ID to edit a report.

2. The system ensures that the user has logged in and the user is a committee member.

3. The system ensures that the deadline for submitting applications has passed.

4. the system ensures that there is a report in Applications Database with the given Report ID.

5. The system ensures that the report was created by the committee member who has currently logged in.

6. The system retrieves the report from Application Database and displays it to the user.

7. The user may edit the report.

8. If the user selects the 'save' option, the system stores the modified report in Application Database. Otherwise, the system will discard the modified report.

Exceptions: No Report ID is given.

No report exists with the given Report ID.

The committee member currently logged in is not the one who created the report.

The deadline for submitting applications has not passed yet.

User did not login.

User is not a committee member.

Remarks: The report IDs may be displayed using a drop-down box so that the user can select an ID instead of typing in the ID.

The report may be displayed on a separate page/window.

Use Case ID: RGA-A1
Use case name: Add Committee Member
Purpose: To create an account for a new committee member.
Primary actor: Administrator
Secondary actor: User Database
Input parameters: Name, ID
Output parameters: Username, Initial Password
Precondition: Ensure that both parameters are given.
                 Ensure that both parameters in appropriate format.
Post-condition: If successful,
                 A new account is created for the committee member whose name and ID are given
                 and stored in the User Database.
Successful scenario:
                 1. User logs in and submits Name and ID of a committee member to create a new
                    account for this committee member.
                 2. The system ensures that the user has logged in and the user is an administrator.
                 3. The system ensures that there is no account created for the <Name, ID> pair.
                 4. The system creates an account with a unique Username and an Initial Password and
                    sends them to the user. It also stores the new account in User Database.
Exceptions: One or both the parameters are not given.
                 One or both parameters are in incorrect format.
                 An account already exists for the given <Name, ID> pair.
                 User did not login.
                 User is not an administrator.
Remarks: None

Use Case ID: RGA-A2
Use case name: Delete Committee Member
Purpose: To delete the account for a committee member.
Primary actor: Administrator
Secondary actor: User Database
Input parameters: Username
Output parameters: None
Precondition: Input must not be empty.
                 Input is in appropriate format.
Post-condition: If successful,
                 The account with Username will be made not accessible.
Successful scenario:
                 1. User logs in and submits Username to delete the associated account.
                 2. The system ensures that the user has logged in and the user is an administrator.
                 3. The system ensures that there exists an account with the given Username and
                    the account belongs to a committee member.
                 4. The system removes all accesses to this account and updates User Database
                    accordingly.
Exceptions: Input is empty.
                 Input is not in proper format.
                 No account exists with the given Username.
                 User did not login.

User is not an administrator.

Remarks: The system may perform a 'soft delete' meaning that the account still exists but is not accessible.