Online College Magazine

Software Requirements Specification

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PROJECT GUIDE

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1.Introduction

1.1 Methodology

Rational Unified Process

The **Rational Unified Process** (**RUP**) is an iterative software development process framework created by the Rational Software Corporation, a division of IBM since 2003. The RUP has determined a project life cycle consisting of four phases. These phases allow the process to be presented at a high level in a similar way to how a 'waterfall'-styled project might be presented, although in essence the key to the process lies in the iterations of development that lie within all of the phases. Also, each phase has one key objective and milestone at the end that denotes the objective being accomplished. The visualization of RUP phases and disciplines over time is referred to as the RUP hump chart.

Inception Phase: The primary objective is to scope the system adequately as a basis for validating initial costing and budgets

Elaboration Phase: The primary objective is to mitigate the key risk items identified by analysis up to the end of this phase.

Construction Phase: The primary objective is to build the software system. In this phase, the main focus is on the development of components and other features of the system.

Transition Phase: The primary objective is to 'transit' the system from development into production, making it available to and understood by the end user.

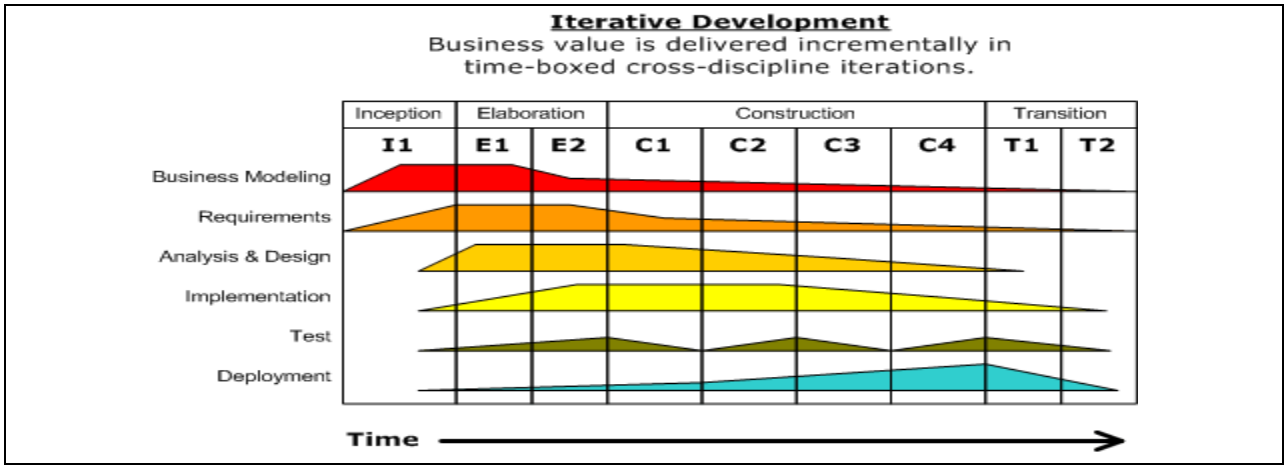

Fig 1.1: Phases OfRational Unified Process

1.2 Purpose

Online College Magazine is a web application which manages the articles posted by college students and faculties.

College students and faculties can post and read various articles managed by this web application. Articles can be searched by anybody in the world who has access to the internet. The prime motivating factor behind the creation of this system is providing opportunities to those who don't make it to the printed version thereby nurturing the creativity of students. This system also inspires user friendly interaction between the students and faculties in terms of sharing ideas.

1.3 Scope

- There are four basic users of the OCM-guests/anonymous users (unregistered users), Registeredusers (students and faculties), Moderators, Administrators.
- Every registered user, moderator and administrator has their respective profiles.
- Unregistered users can search articles, read them and comment on them. They can also post articles.
- Registered users can search articles, read them, rate and comment on them. They can also post articles to be validated by the moderators and can download articles.
- Moderators can deem an article valid or invalid which has been posted by the registered users according to certain constraints.
- Administrators add and delete moderators and users.

1.4 Definitions,Acronyms and Abbreviations

OCM

Online College Magazine. Itis a web application which manages the articles posted by college students and faculties.

Admin

Administrator. He has the authority to add/delete users and moderators and prepare the progress report of moderators.

Mod

Moderator. He can deem an article valid or invalid which has been posted by the registered users according to certain constraints.

WASCE
WebSphere Application Server Community Edition. It is an application server that runsand supports J2EE and web service applications.

DB2
Database_2.A database management system that provides a flexible and efficient databaseplatform to maintain records of students, teachers, admin and dm.

JSP
Java Server Pages. It is used to create dynamic web content.

J2EE
Java 2 Enterprise Edition.A programming platform which is a part of java platform for
developing and running distributed java.

UML
Unified Modeling Language is a standard language for writing software blueprints. The
UML may be used to visualize, specify, construct and document

XML
Extensible Markup Language is a text based format that let developers describe, deliver
and exchange structured data between a range of applications to client for display and manipulation.

RAD
Rational Application Developer is a development tool that helps to design web pages
and also helps to design the diagrams like ER, Database schema diagrams and to generate DDL.

1.5 Tools Used

Application architecture – JAVA, J2EE

JAVA-Java is an object-oriented programming language developed by Sun Microsystems a companybest known for its high end UNIX workstations. Java language was designed to be small, simple,and portable across platforms, operating systems, both at the source and at the binary level, whichmeans that Java programs (applet and application) can run on any machine that has the Java virtualmachine (JVM) installed.

J2EE-Java Platform, Enterprise Edition or **Java EE** is a widely used platform for server programmingin the Java programming language. The Java platform (Enterprise Edition) differs from the JavaStandard Edition Platform (Java SE) in that it adds libraries which provide functionality to deployfault-tolerant, distributed, multi-tier Java software, based largely on modular components runningon an application server.

Web server – WASCE - WebSphere Application Server Community Edition (from now on WASCE) is a free, certifiedJava EE 5 server for building and managing Java applications. It is IBM's supported distribution ofApache Geronimo that uses Tomcat for servlet container and Axis 2 for web services. Over 15WASCE developers are committers in the Apache Geronimo project.

Development tool –RAD - IBM Rational Application Developer for WebSphere Software (RAD) is an integrated developmentenvironment (IDE), made by IBM's Rational Software division, for visually designing, constructing,testing, and deploying Web services, portals, and Java (J2EE) applications.

Database platform – DB2 - DB2 Database is the database management system that delivers a flexible and cost effectivedatabase platform to build robust on demand business applications and supports the J2EE and webservices standards.

Design tool – Rational Software Architect - IBM Rational Software Architect, (RSA) made by IBM's Rational Software division, is a comprehensive modeling and development environment that uses the Unified Modeling Language (UML) for designing architecture for C++ and Java 2 Enterprise Edition (J2EE) applications and web services. Rational Software Architect is built on the Eclipse open-source software framework and includes capabilities focused on architectural code analysis, C++, and model-driven development (MDD) with UML for creating resilient applications & web services.

1.6 References

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- IBM Red Books.
- IBM TGMC Sample Synopsis.
- IBM – www.ibm.in/developerworks
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- Database Management Systems- Korth
- Complete Reference - J2EE - Keogh.

1.7 Technologies to be used

- DB2: Relational Database Management System.
- RAD: Rational Application Developer.
- WASCE: Websphere Application Server Community Edition.
- Rational Software Architect.

1.8 Overview

Proposed System:

- Registration for users, faculties.
- Posting of articles by registered members.
- Supervisors- To validate posted articles and upload them for browsing.
- Commenting and rating on articles.

Our Plan:

- Registration for users.
- Maintenance of archives of articles.
- Optional features like-editor's pick, top-rated articles, most read etc.
- Use of regex to eliminate obscene comments on articles.
- User reviews and ratings for articles.

Scopes for improvement:

CHALLENGES	POSSIBLE REMEDIES
Plagiarism	Extensive research to be done by moderators
Lenient authorization policy	Search for more stringent authorization policy
Unavailability of multilingual support	
Weak comment restriction mechanism	Constant updation of the REGEX repository
Cross platform scripting while commenting	Use of REGEX in java

2.Overall Description

2.1 Product Perspective

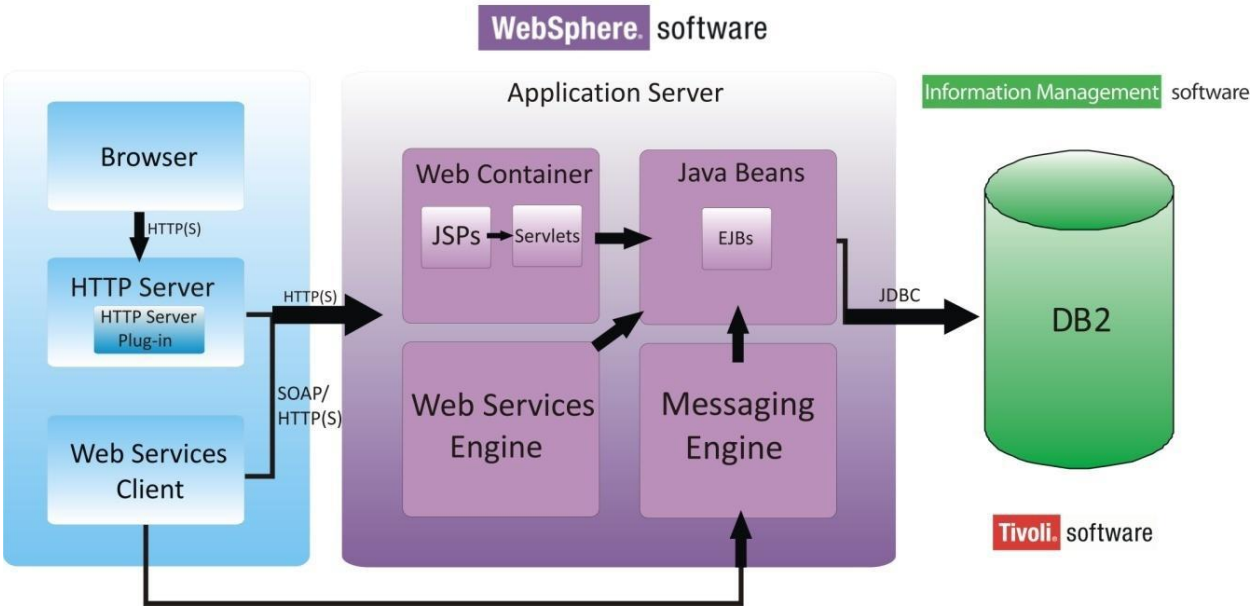


Fig 2.1: Product Perspective

2.2 Software Interface

Client on Internet

Web Browser, Operating System (any)

Client on Intranet

Web Browser, Operating System (any)

Web Server

WASCE, Operating System (Linux)

Data Base Server

DB2, Operating System (Linux).

Development End

RAD (J2EE, Java, Java Bean, Servlets, HTML, XML, AJAX), DB2, OS (Linux),WebSphere(Web Server)

2.3 HardwareInterface

MINIMUM REQUIREMENTS

Server side			
	Processor	Ram	Disk Space
INTERNET EXPLORER 6 or more	INTEL PENTIUM III or AMD 800 MHz	128 MB	100 MB
RAD	INTEL PENTIUM III or AMD 800 MHz	1 GB	3.5 GB
DB2- 9.7.5	INTEL PENTIUM III or AMD 800 MHz	512 MB	600 MB (excluding data)

RECOMMENDED REQUIREMENTS

Client side			
Internet Explorer 6 or above, Google chrome,Firefox	INTEL PENTIUM III or AMD 800 MHz	128 MB	

RECOMMENDED REQUIREMENTS

Server side			
	Processor	Ram	Disk Space
INTERNET EXPLORER 6 or more	INTEL PENTIUM IV or AMD 2 MHz	128 MB	100 MB
RAD	INTEL PENTIUM IV or above AMD 2 GHz	2 GB	3.5 GB
DB2 9.7.5	INTEL PENTIUM IV or AMD 2 MHz	512 MB	800-900 Mb(excluding data)

2.4 Communication Interface

- Client (customer) on Internet will be using HTTP/HTTPS protocol.
- Client (system user) on Internet will be using HTTP/HTTPS protocol.

2.5 Constraints

- GUI is only in English.
- Login and password is used for the identification of users.
- Only registered members will be allowed to post articles.
- Limited to HTTP/HTTPS.
- This system is working for single server.

2.6 ER Diagram

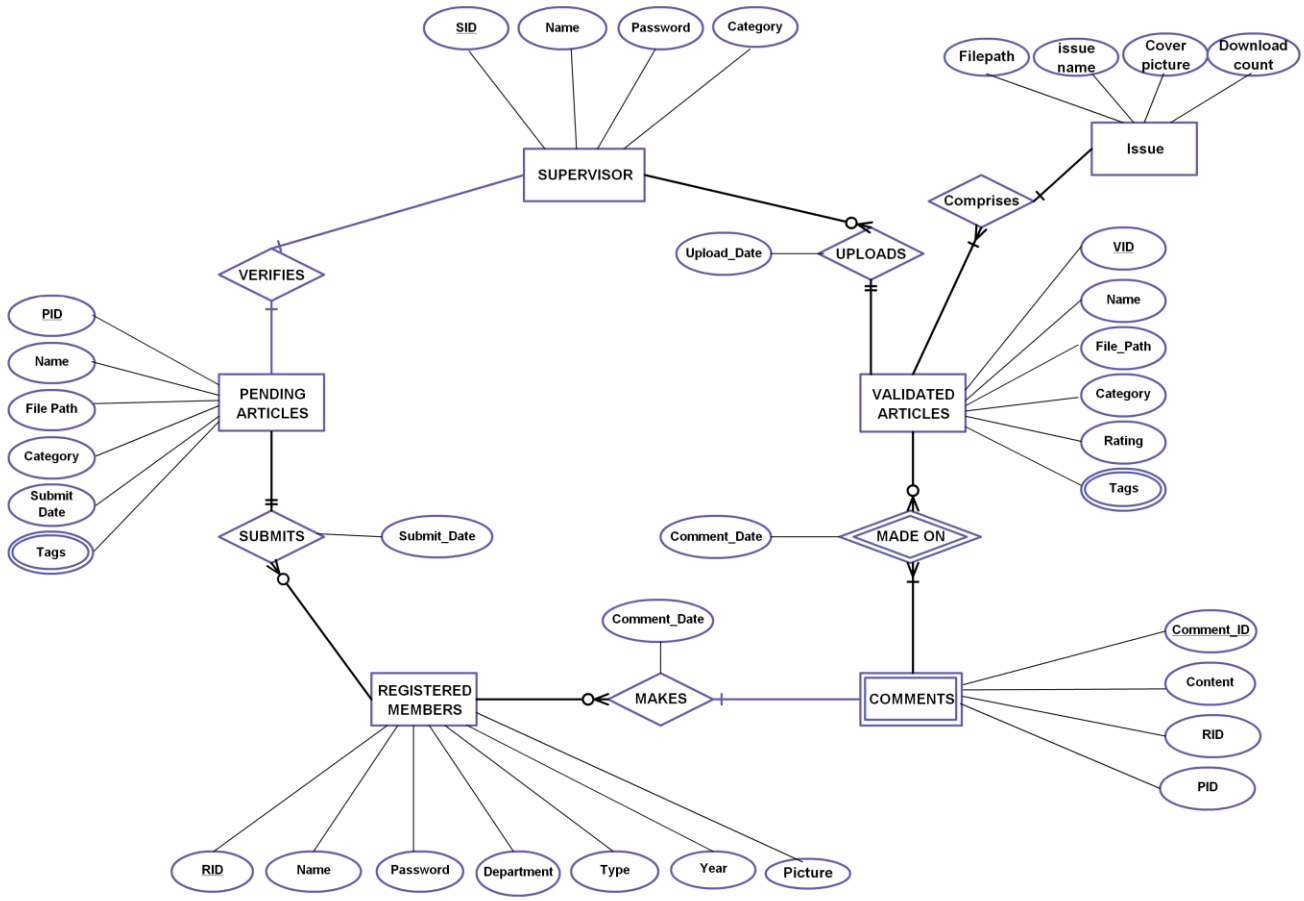


Fig 2.1: E.R.Diagram

2.7 Use Case Model Survey

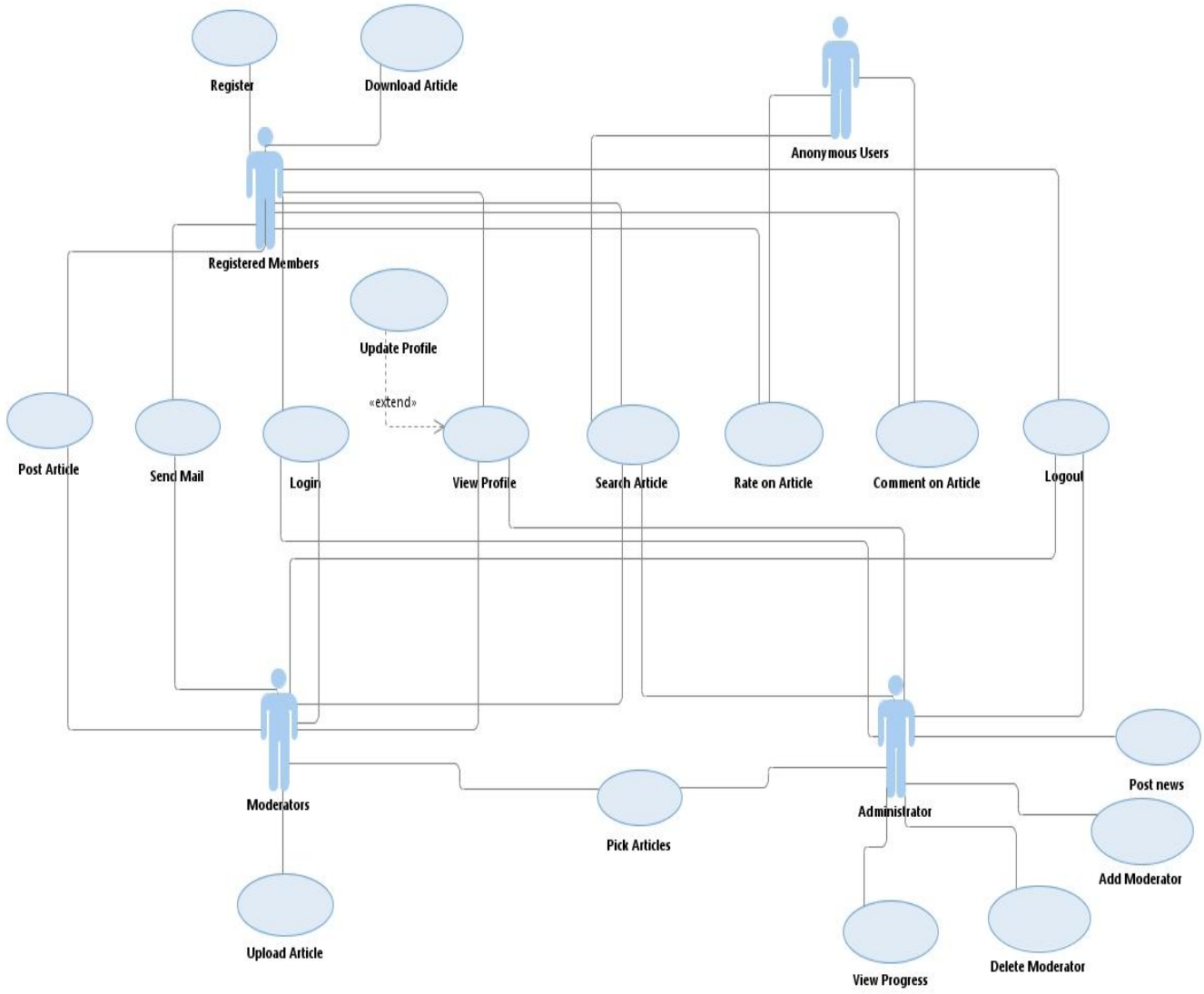


Fig 2.2: Use Case Model Survey

Registered members:

Registered members can search specific articles according to their needs, comment on them and rate them. After logging in they can post articles to be validated by the moderators. They can view their profiles and update their profiles. They can download articles as well.

Anonymous Users:

Anonymous users can search for specific articles, view them and comment and rate them as well.

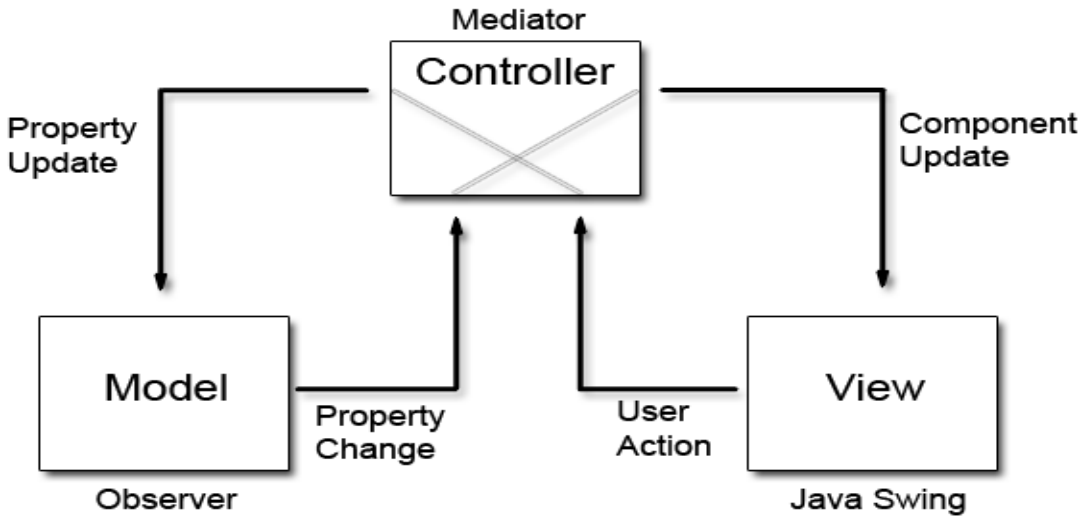
Moderators:

Moderators are entrusted with the task of validating articles posted by the registered users

Administrators:

Administrators add and delete moderators. They periodically post news and prepare progress reports of moderators on an individual basis.

2.8 Architecture Design



Model/view/controller (MVC) is a software architecture, currently considered an architectural pattern used in software engineering. The pattern isolates "domain logic" (the application logic for the user) from the user interface (input and presentation), permitting independent development, testing and maintenance of each (separation of concerns).

Use of the Model/View/Controller (MVC) pattern results in applications that separate the different aspects of the application (input logic, business logic, and UI logic), while providing a loose coupling between these elements

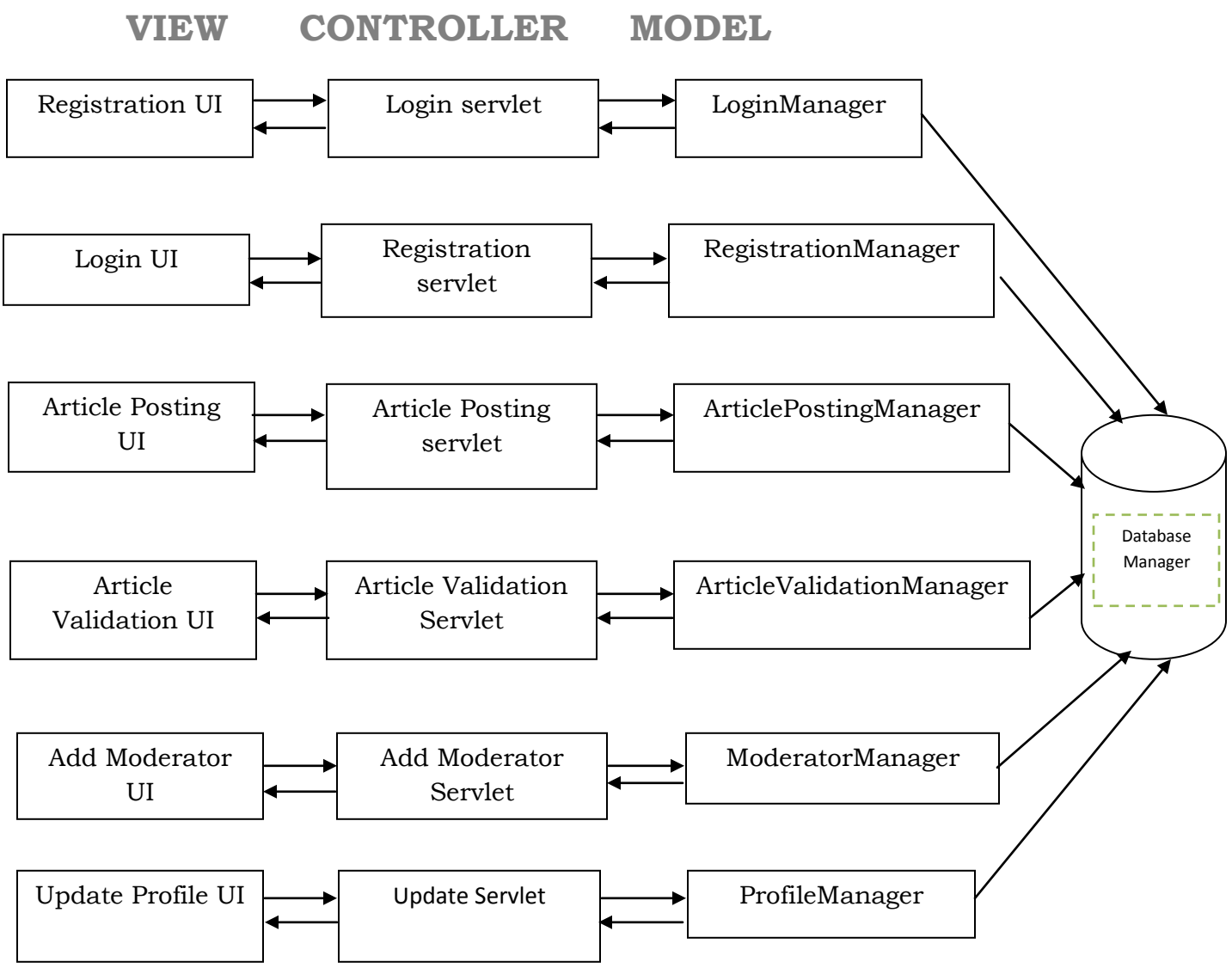


Fig 2.3: Architecture Design

2.9 Database Design

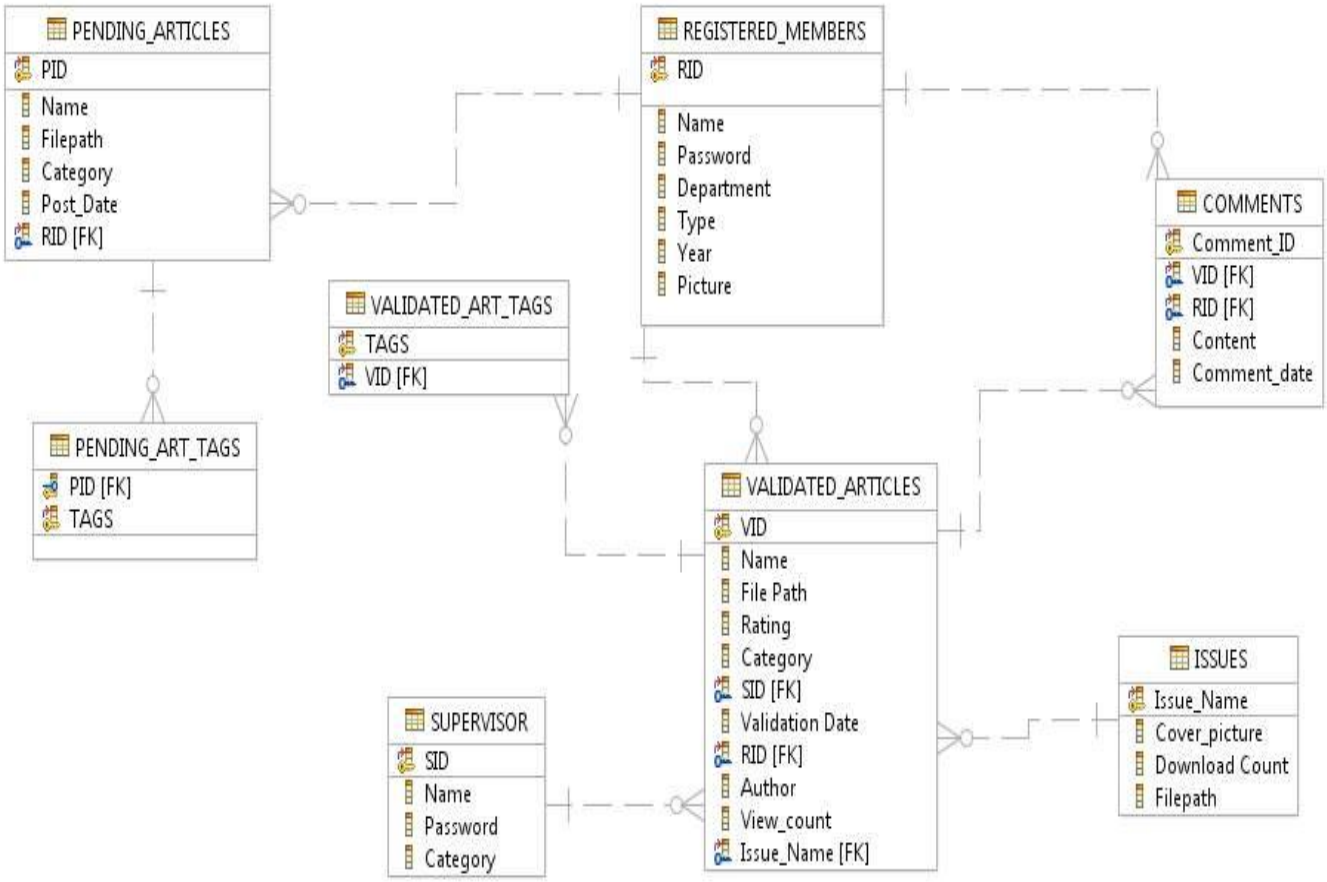


Fig 2.4: Database Design

2.10 Class Diagram

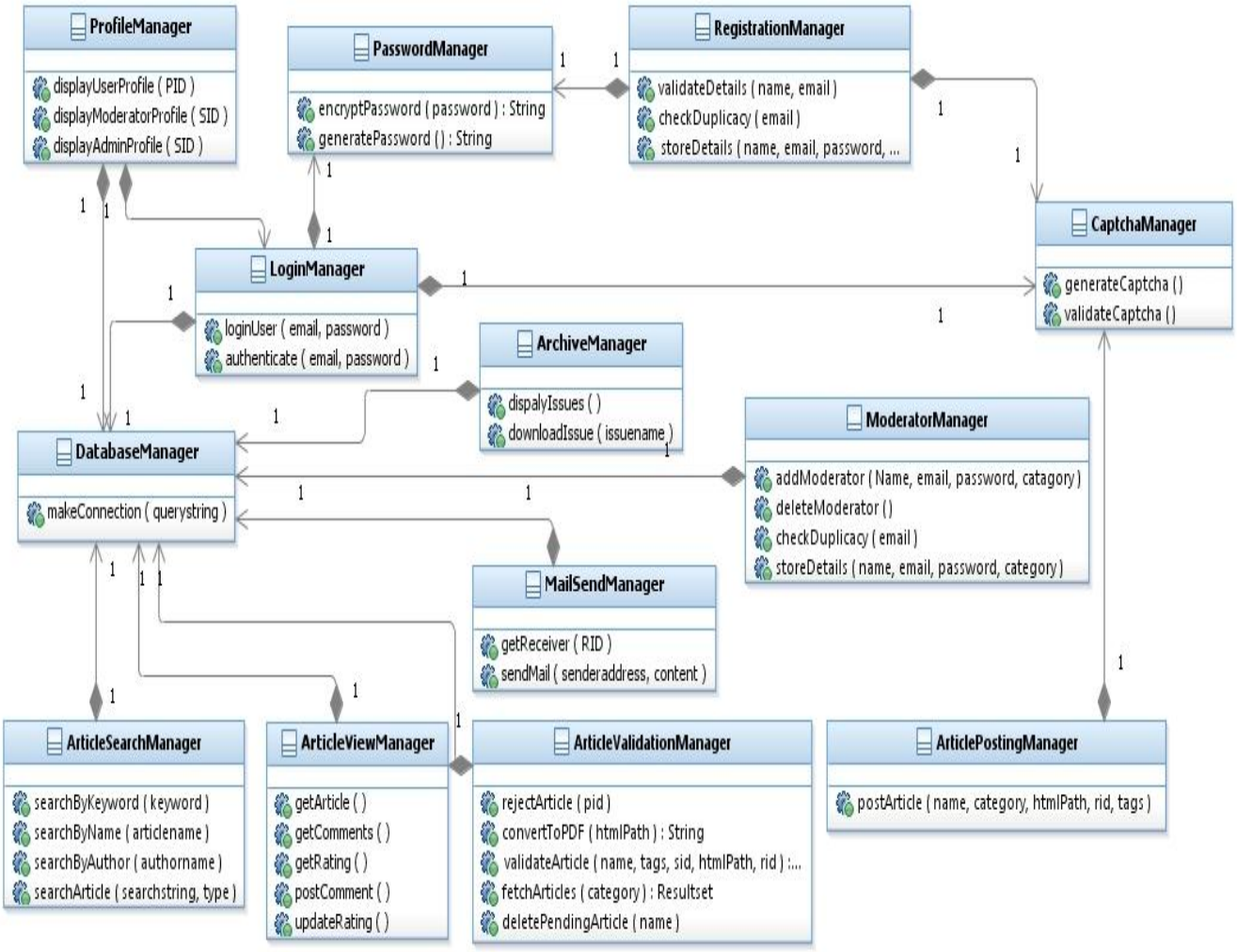


Fig 2.5: Class Diagram

3.Specific Requirements

3.1 Use Case Reports:

3.1.1 Registered members use case report

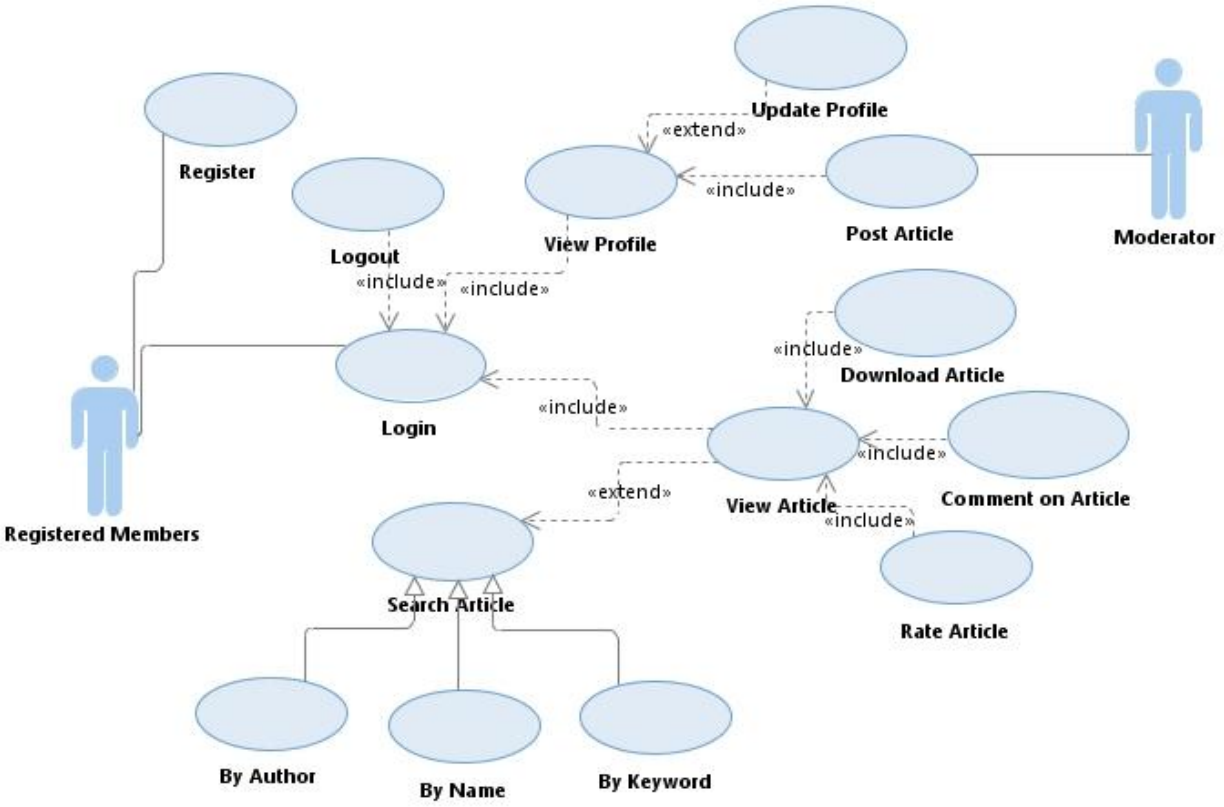


Fig 3.1: Use Case diagram for Registered members

USE CASE	DESCRIPTION
Login	Every registered member has to login to perform the following tasks.
View Profile	Every registered member has his/her profile containing all the details.
Update Profile	The users can update their profiles(if required).
Post Article	Registered users can post articles to be validated by the moderators.
View Article	They have the option of viewing existing articles.
Download Article	They can download the existing issues containing the particular article in the specified formats.
Comment on Article	Comments can be made on the articles.
Rate Article	The users can rate the articles as well.
Search articles	Users can search for an article by author, by name and by keyword.

3.1.2 Anonymous Users use case report

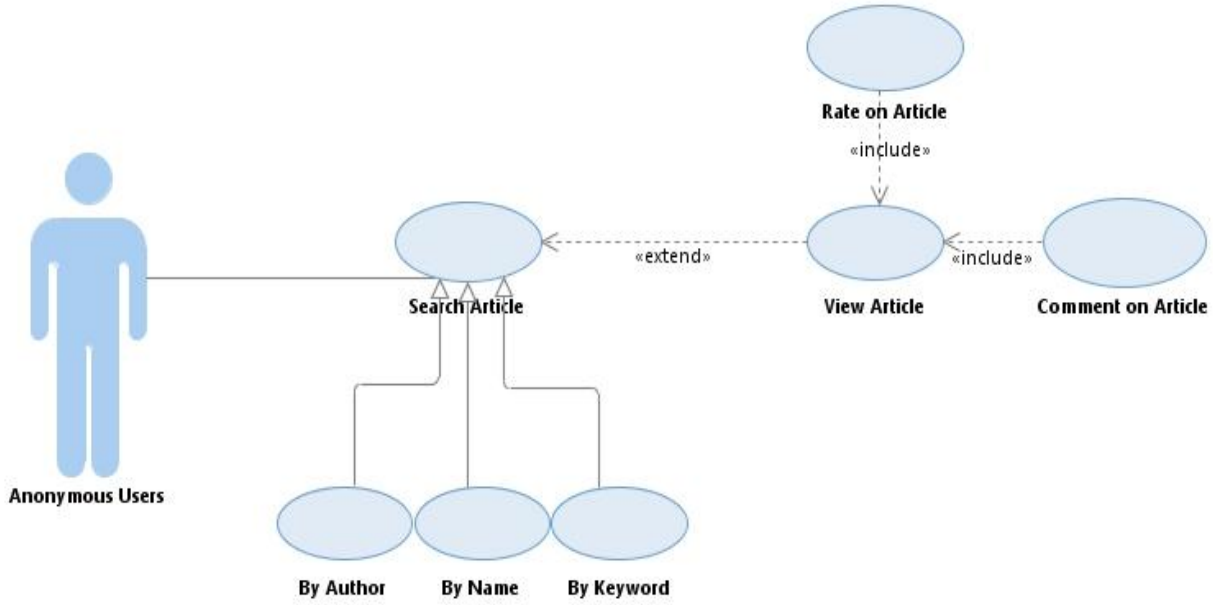


Fig 3.2: Use Case diagram for Anonymous users

USE CASE	DESCRIPTION
Search articles	Users can search for an article by author, by name and by keyword.
View Article	They have the option of viewing existing articles.
Comment on Article	Comments can be made on the articles.
Rate Article	The users can rate the articles as well.

3.1.3 Moderators use case report

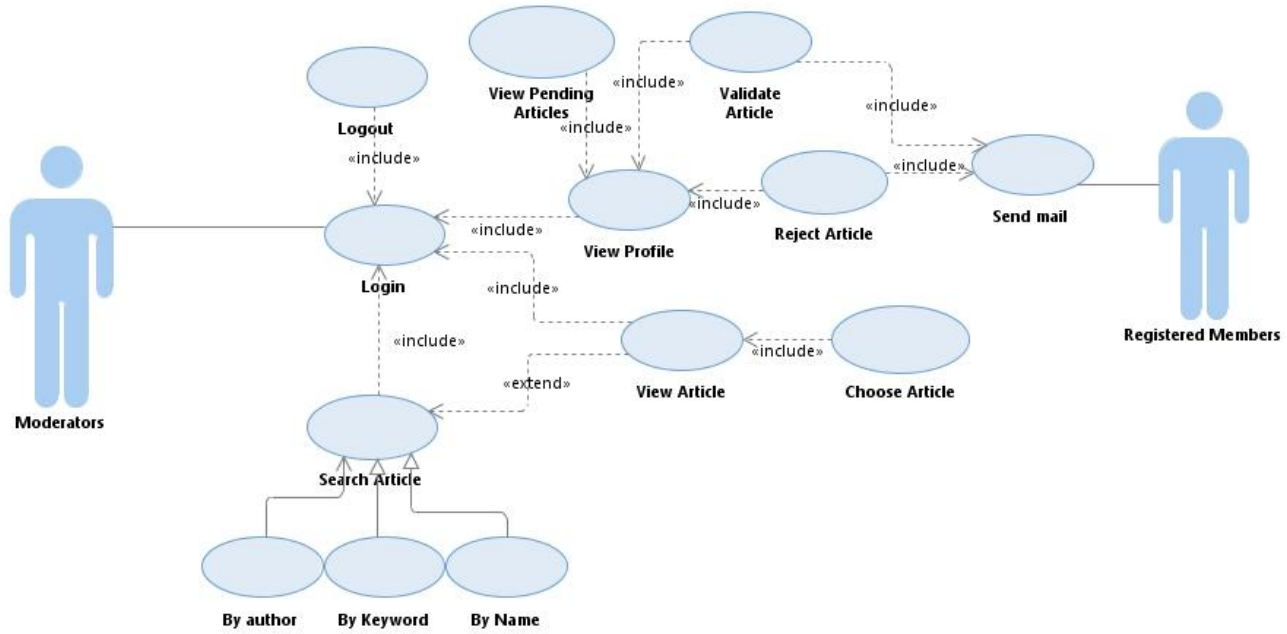


Fig 3.3 Use Case diagram for Moderators

USE CASE	DESCRIPTION
Login	Every moderator has to login to perform the following tasks.
Search articles	Moderators can search for an article by author, by name and by keyword.
View Profile	Every moderator has his/her profile containing all the details and the list of pending articles
View Pending articles	Moderators can view the articles that have to be validated by them.
Validate article	Moderators validate an article if it conforms with the authentication rules and its content is not objectionable
Reject article	Moderators reject an article if it is not authenticate and its content is objectionable.
View article	Moderators can view an article.
Choose article	Moderators can choose a particular article for "editor's pick" field.
Send mail	Moderators send acceptance or rejection mail to the registered users.

3.1.4 Administrators use case report

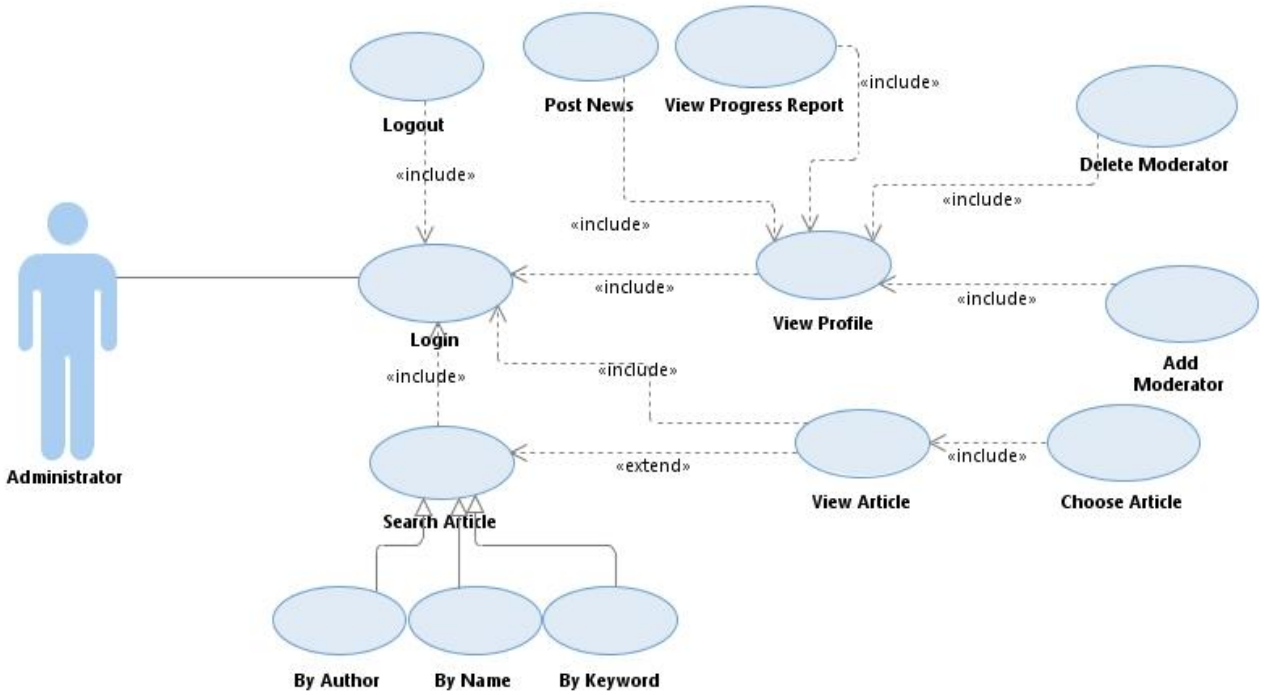


Fig 3.4: Use case diagram for Administrators

USE CASE	DESCRIPTION
Login	Every administrator has to login to perform the following tasks.
Search articles	Administrators can search for an article by author, by name and by keyword.
View Profile	Every administrator has his/her profile containing all the details and the list of pending articles
Post News	Administrators can post news about the current affairs of the magazine
View Progress Report	Administrators can view the progress reports of every moderator
Add Moderator	Administrators can add a moderator
Delete Moderator	Administrators can delete a moderator
View article	Administrators can view an article.
Choose article	Administratorscan choose a particular article for “editor’s pick” field.

3.2 ACTIVITY DIAGRAMS

3.2.1 User Registration Activity

- Initially user is made to fill all mandatory fields filled in registration form.
- Once the user clicks submit the mandatory fields are verified.
- If any of the mandatory fields are left empty or filled incorrectly, then theuser is informed to enter the correct values.
- Once all these verifications are succeeded, then the registrationis done and a page is displayed informing the user that the registration is successful.

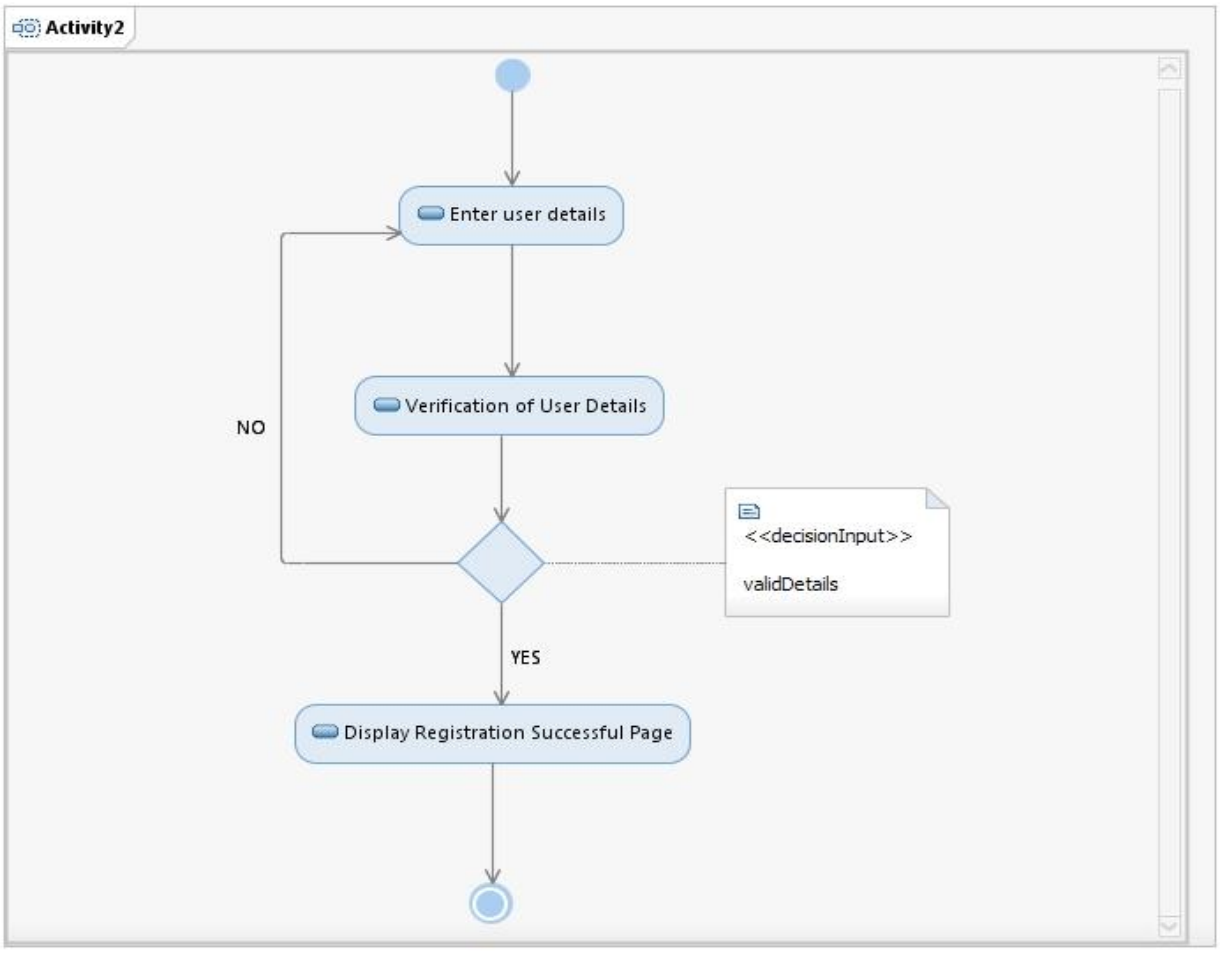


Fig 3.5: User Registration Activity Diagram

3.2.2 User Login Activity

- First the user is prompted for his/her username and password and type(student/faculty).
- Upon entry of both details the system checks if the matching pair of username-password is present in the database.
- If present the system displays the homepage along with a PROFILE tab which the user can use to see his/her profile.
- If no matching pair is found in the database the system will display an error message and prompt the user to re-enter details.

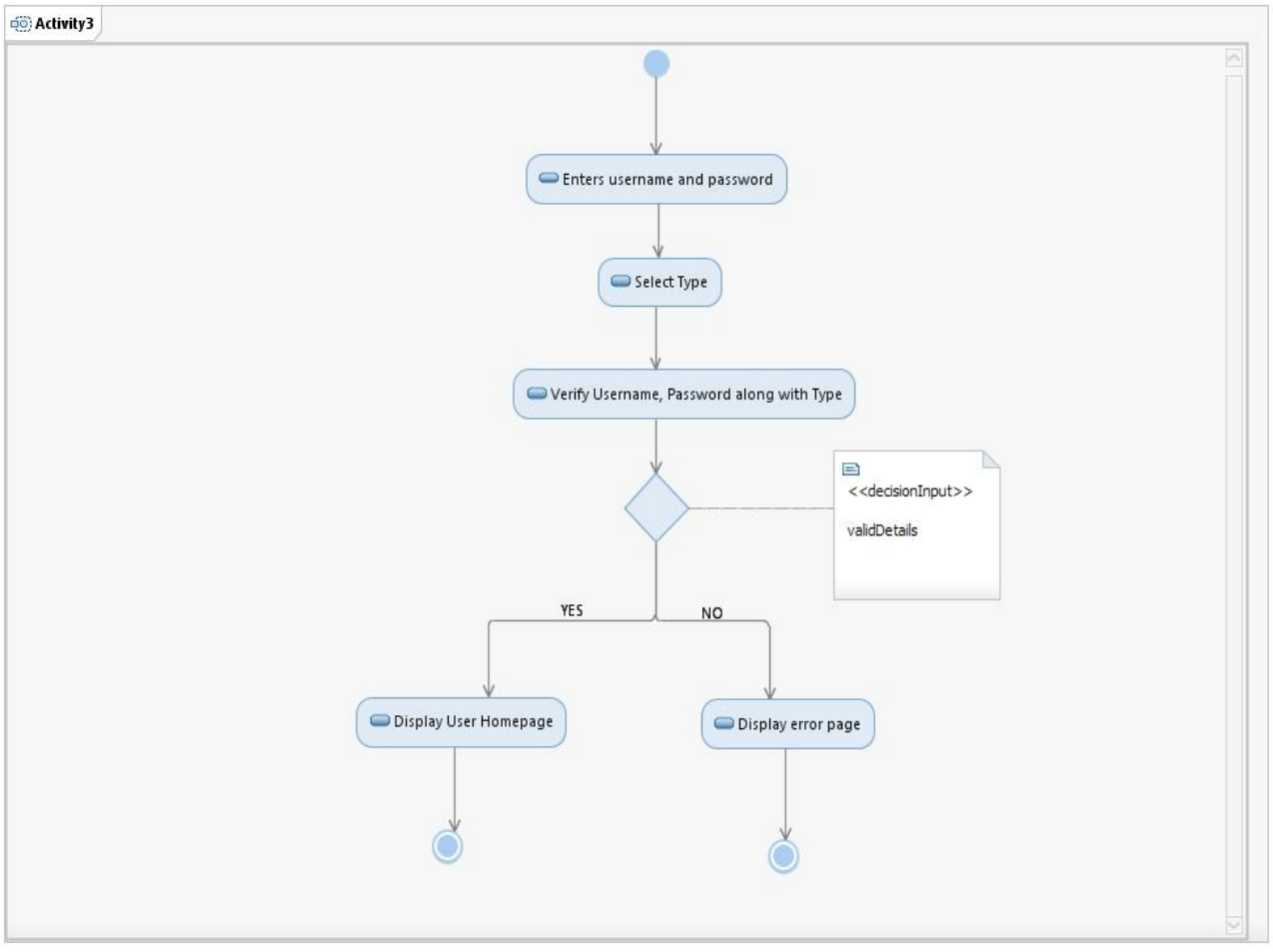


Fig 3.6: User Login Activity Diagram

3.2.3 Article Validation Activity

- The moderator views the pending article.
- If the article is validated it is posted and a confirmation mail is sent to the author.
- If it is not validated it is deleted from the pending article database and a rejection mail is sent to the author explaining the reasons.

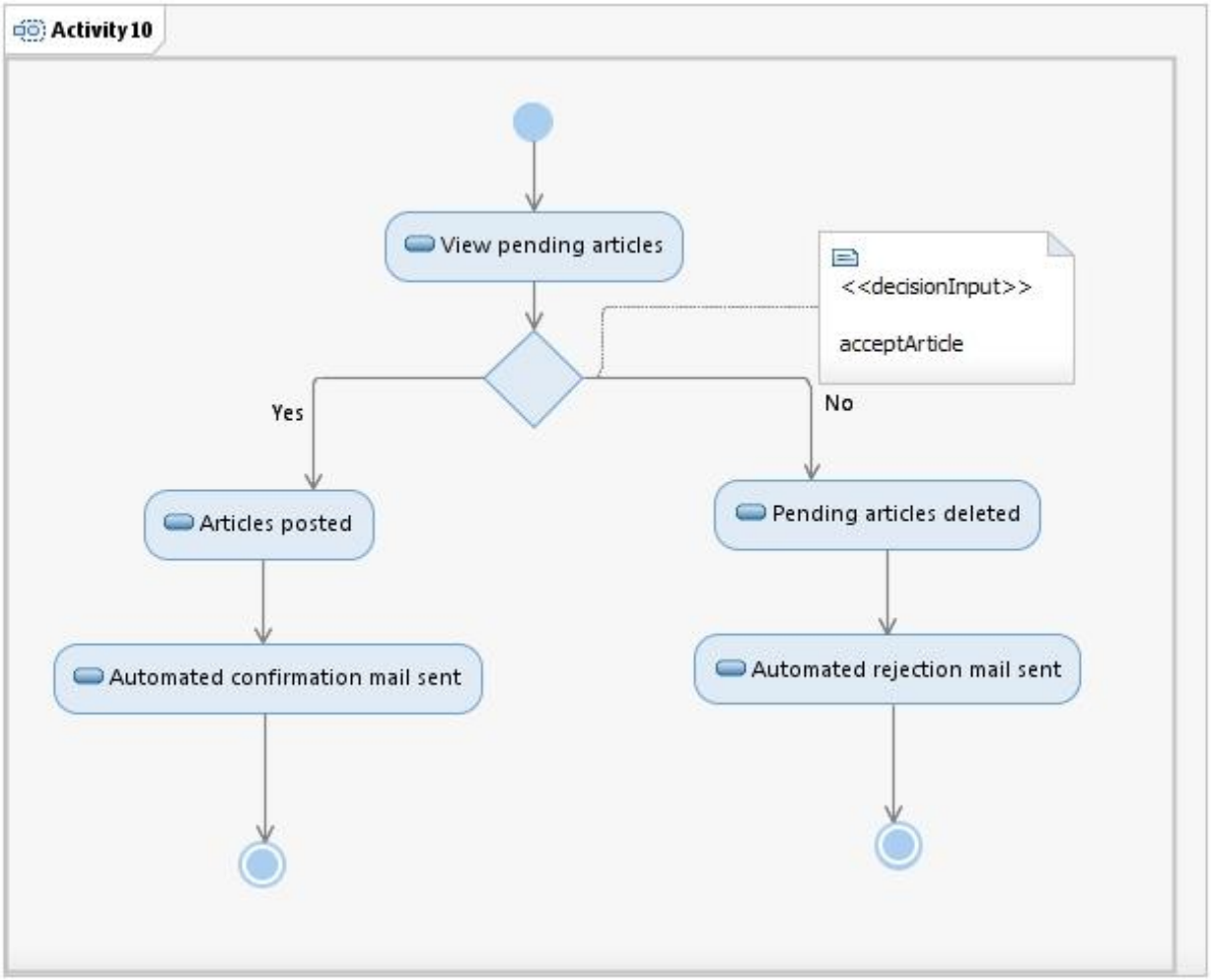


Fig 3.7: Article Validation Activity Diagram

3.2.4 Searching articles Activity

- The user enters the search string and the search type which can be any of the following 3 types
  - Article Name
  - Author Name
  - Keywords related to an article
- The system then searches the database to try and find articles matching the search criteria and search string.
- On success a listing of the articles are displayed.
- Else the user is prompted to search again by refining the search string.

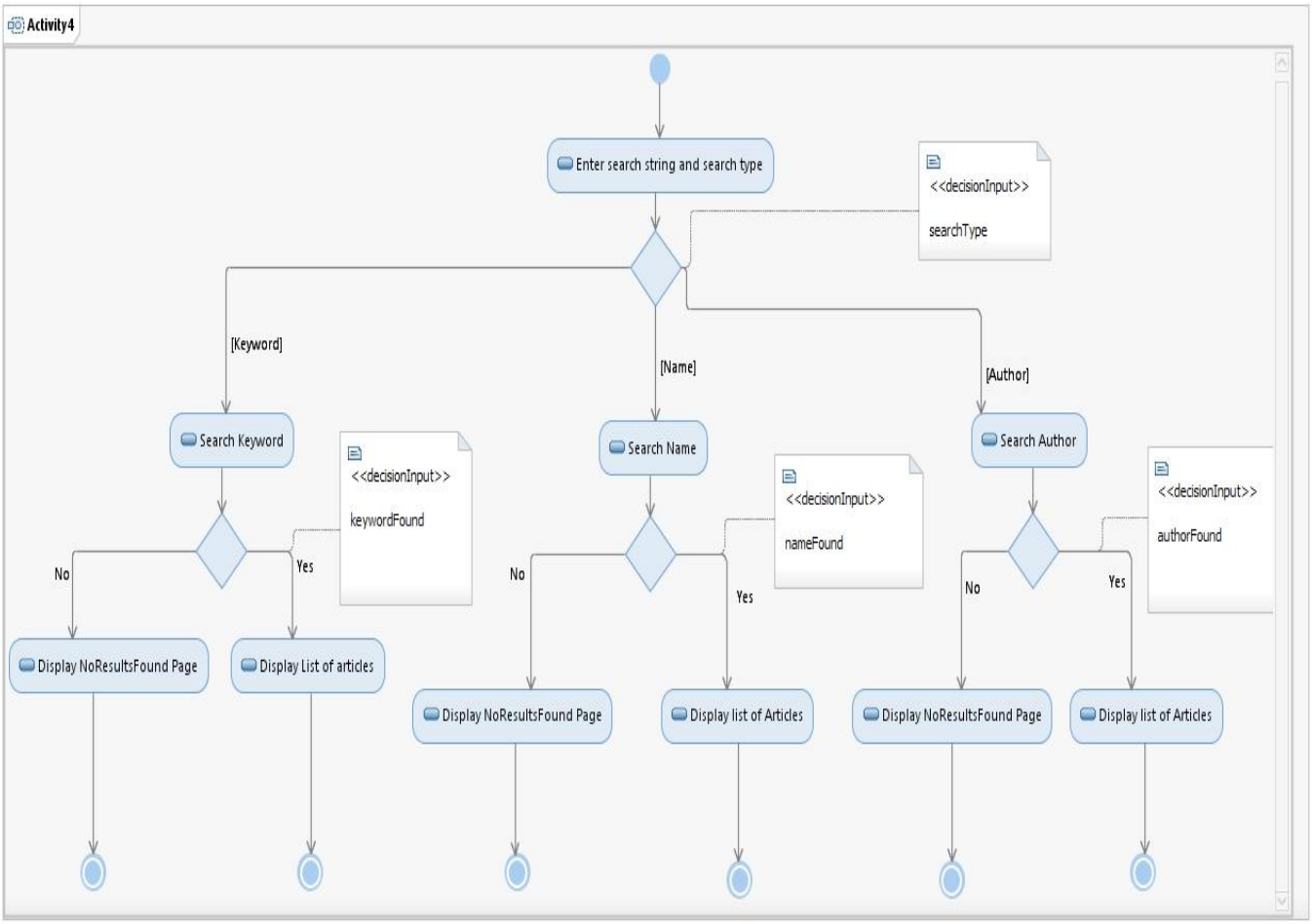


Fig 3.8: Searching Articles Activity Diagram

3.2.5 Moderator Add Activity

- Administrators clicks on the add moderator in his/her homepage and enters the required details about the moderator to be added.
- If the moderator details do not already exist in the database, automated confirmation mail is sent to the moderator and the process completes successfully.
- Otherwise, a duplicity message is shown to the administrator.

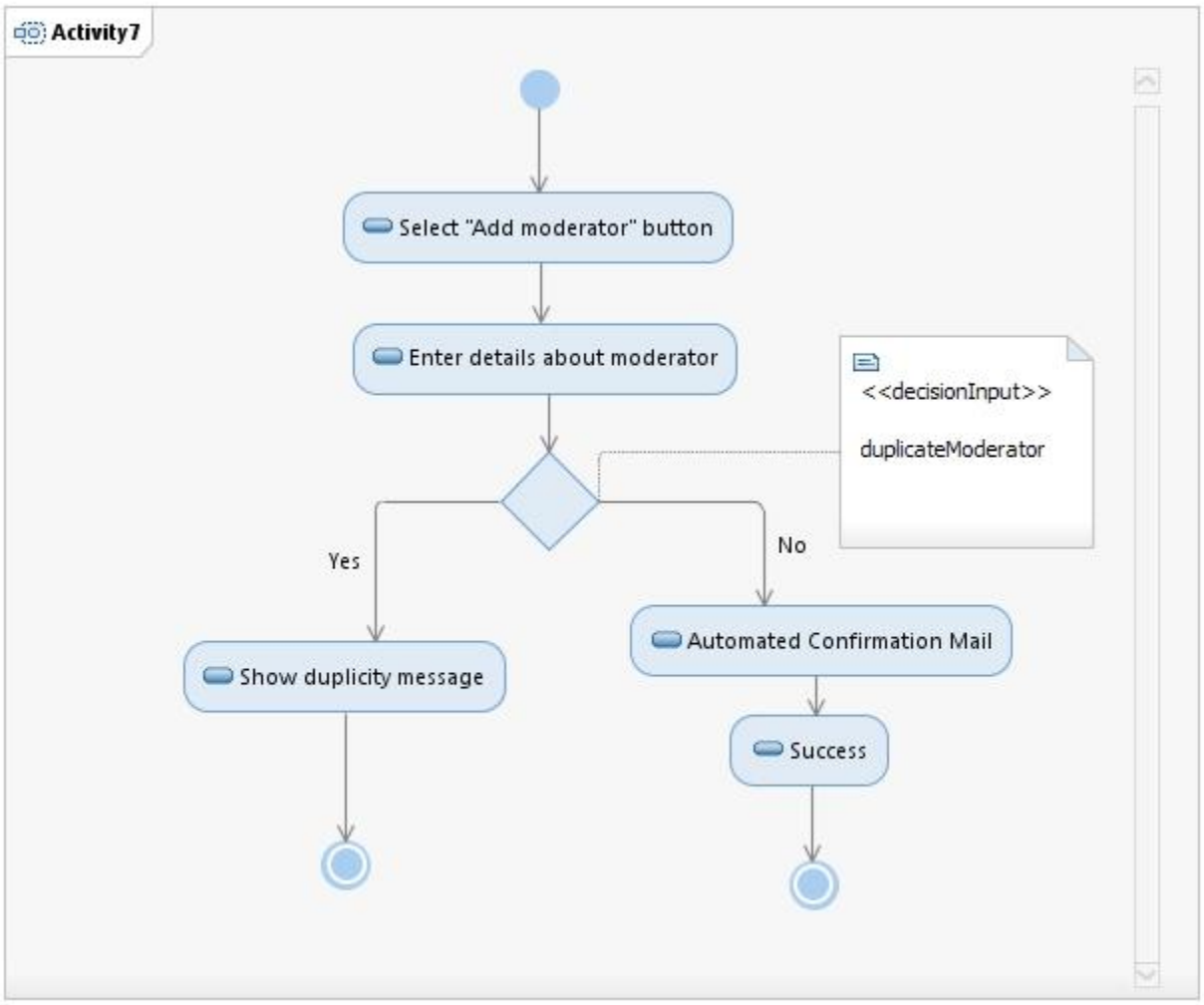


Fig 3.9: Moderator Addition Activity diagram

3.3 Sequence Diagrams

3.3.1 User Registration Sequence Diagram

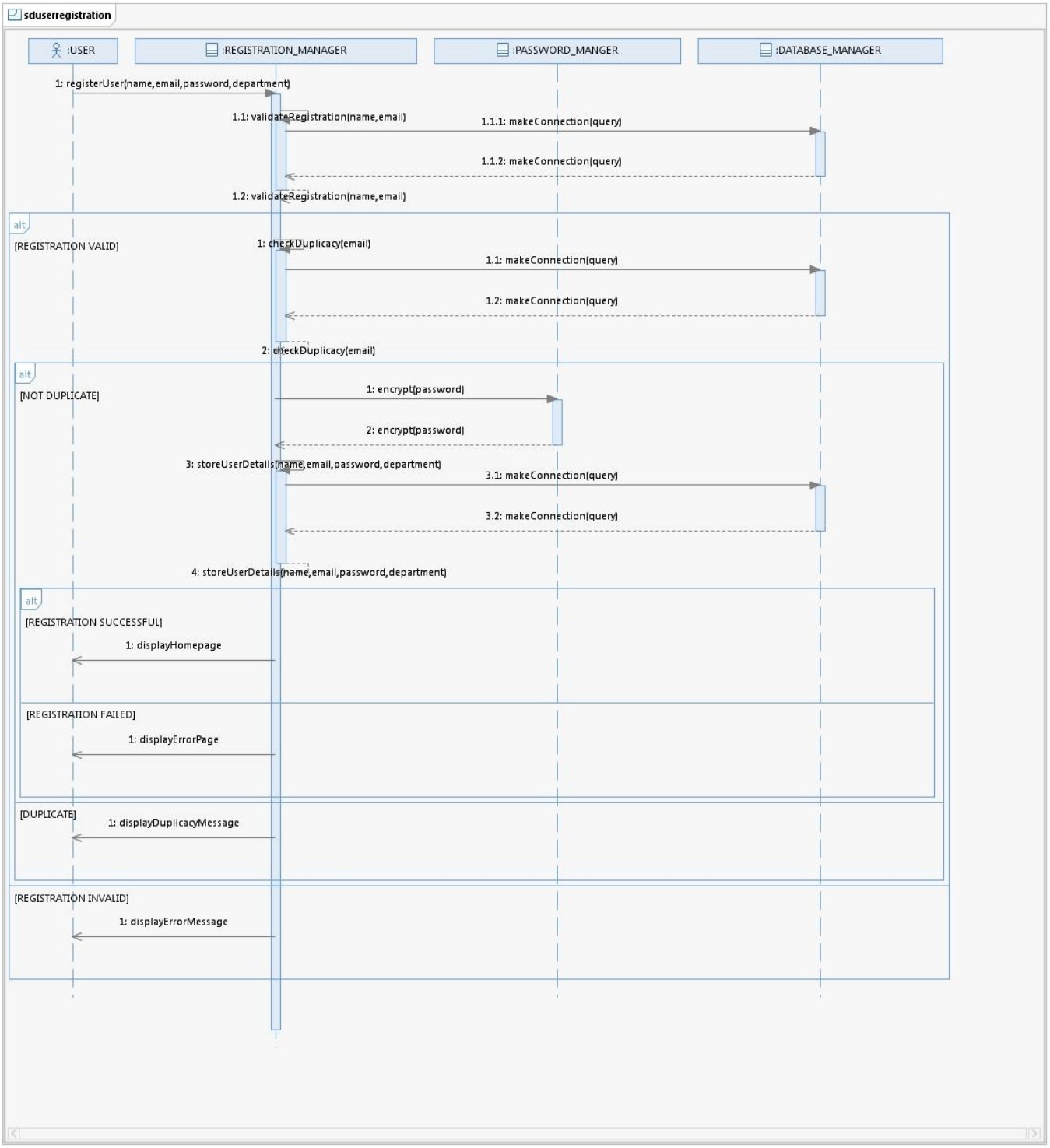


Fig 3.10: User Registration Sequence Diagram

3.3.2 User Login Sequence Diagram

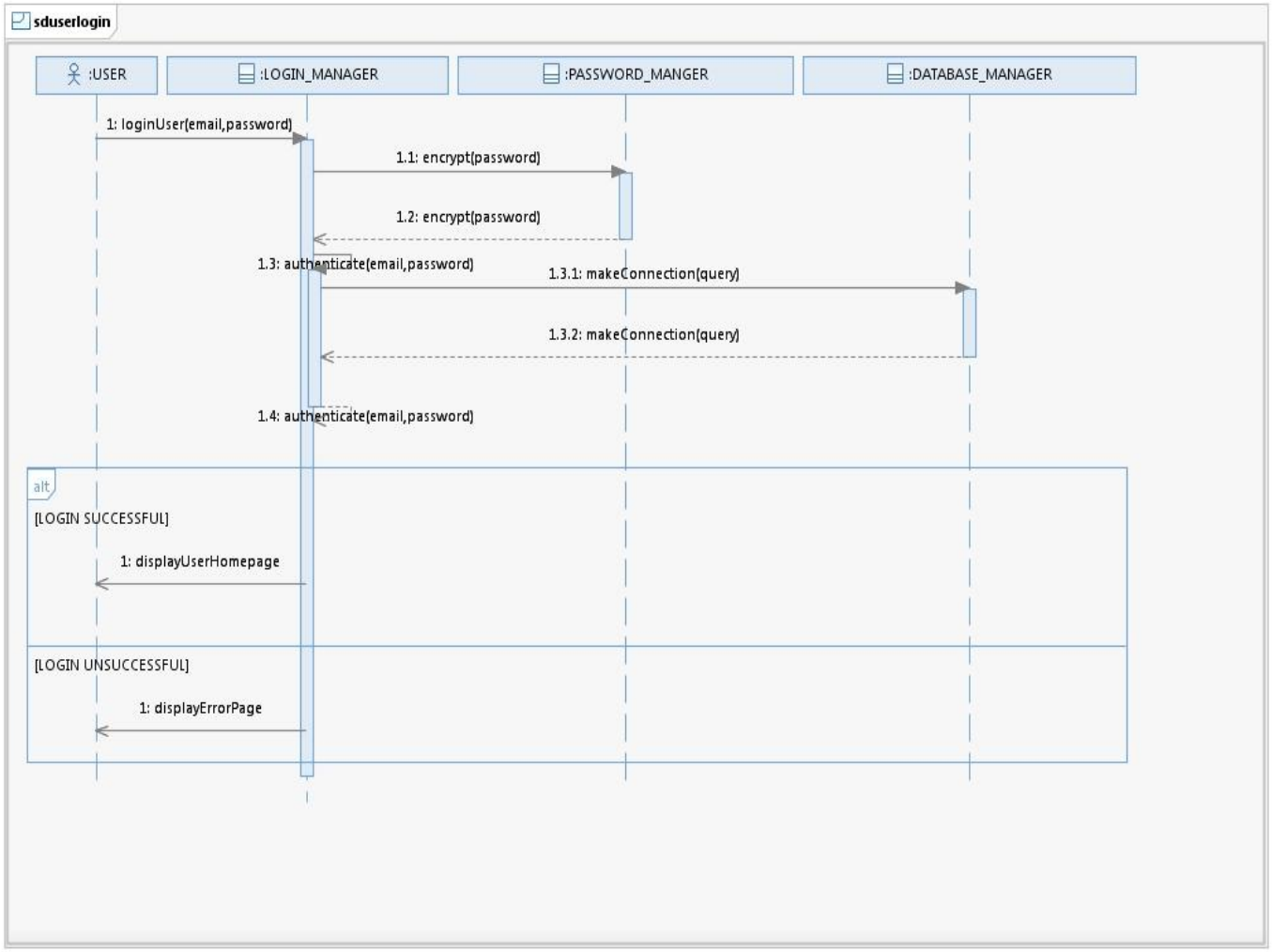


Fig 3.11 User Login Sequence Diagram

3.3.3 Article Search Sequence Diagram

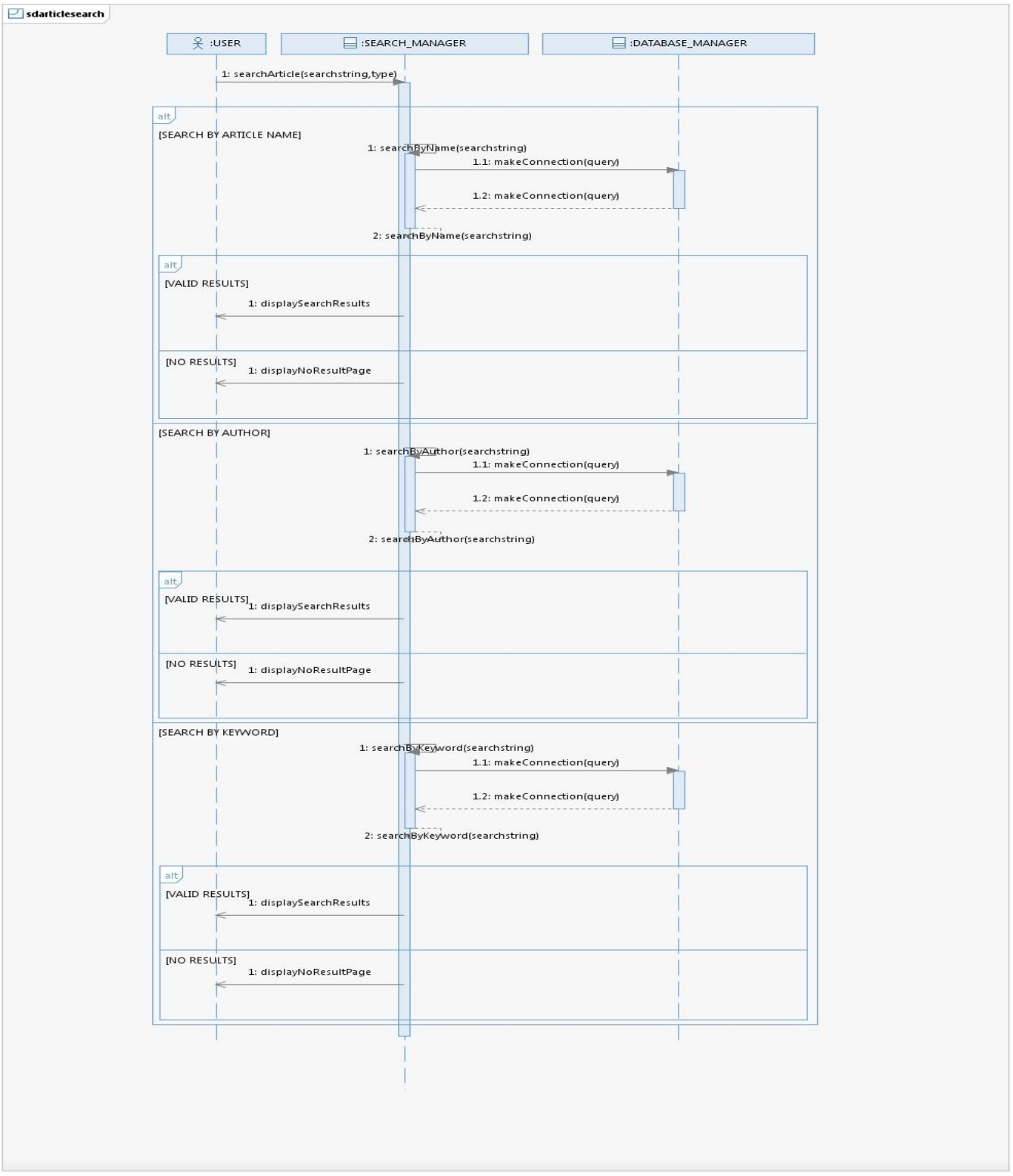


Fig 3.12 Article Search Sequence Diagram

3.3.4 Article Validation Sequence Diagram

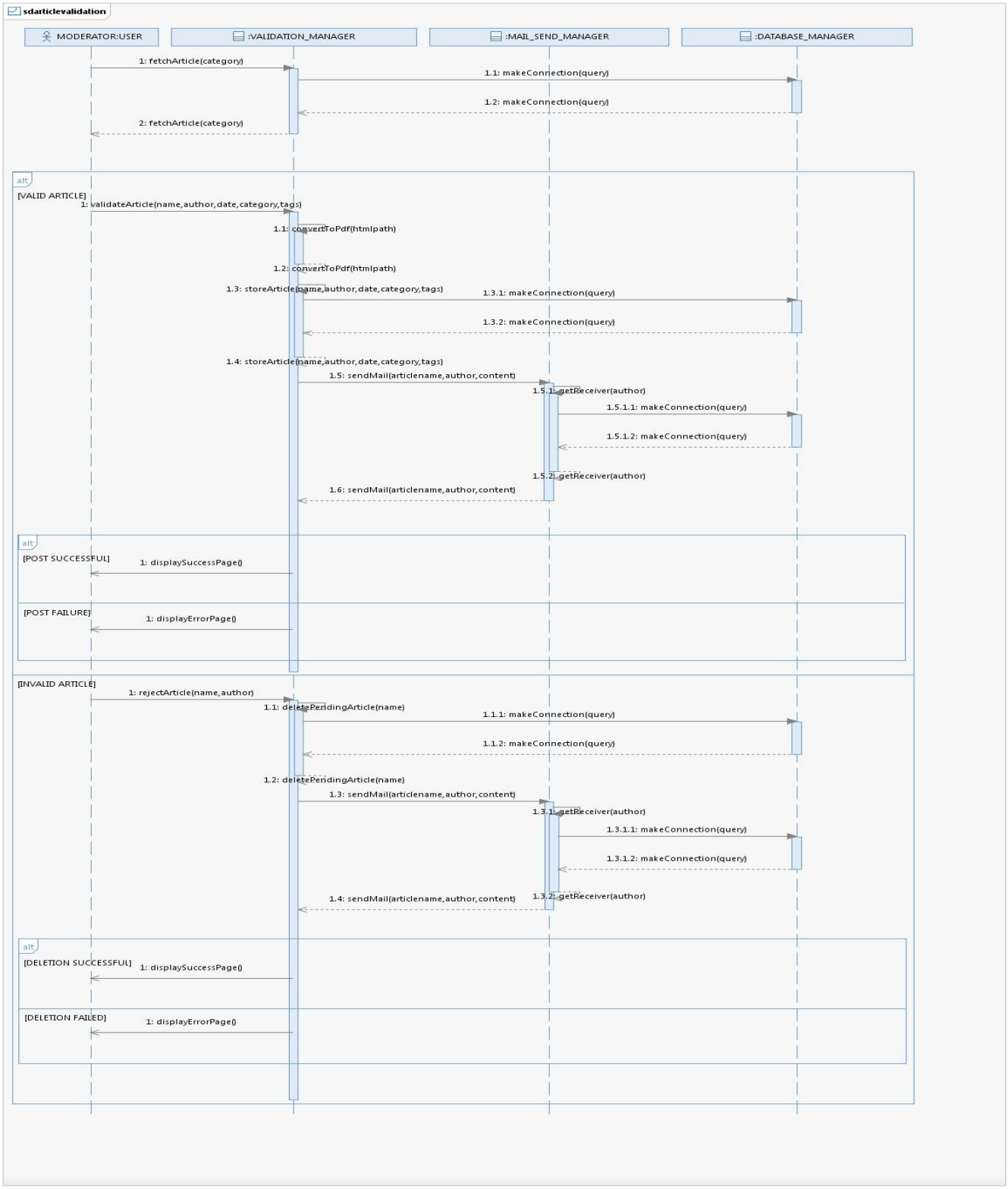


Fig 3.13: Article validation Sequence diagram

3.3.5 Article Posting Sequence Diagram

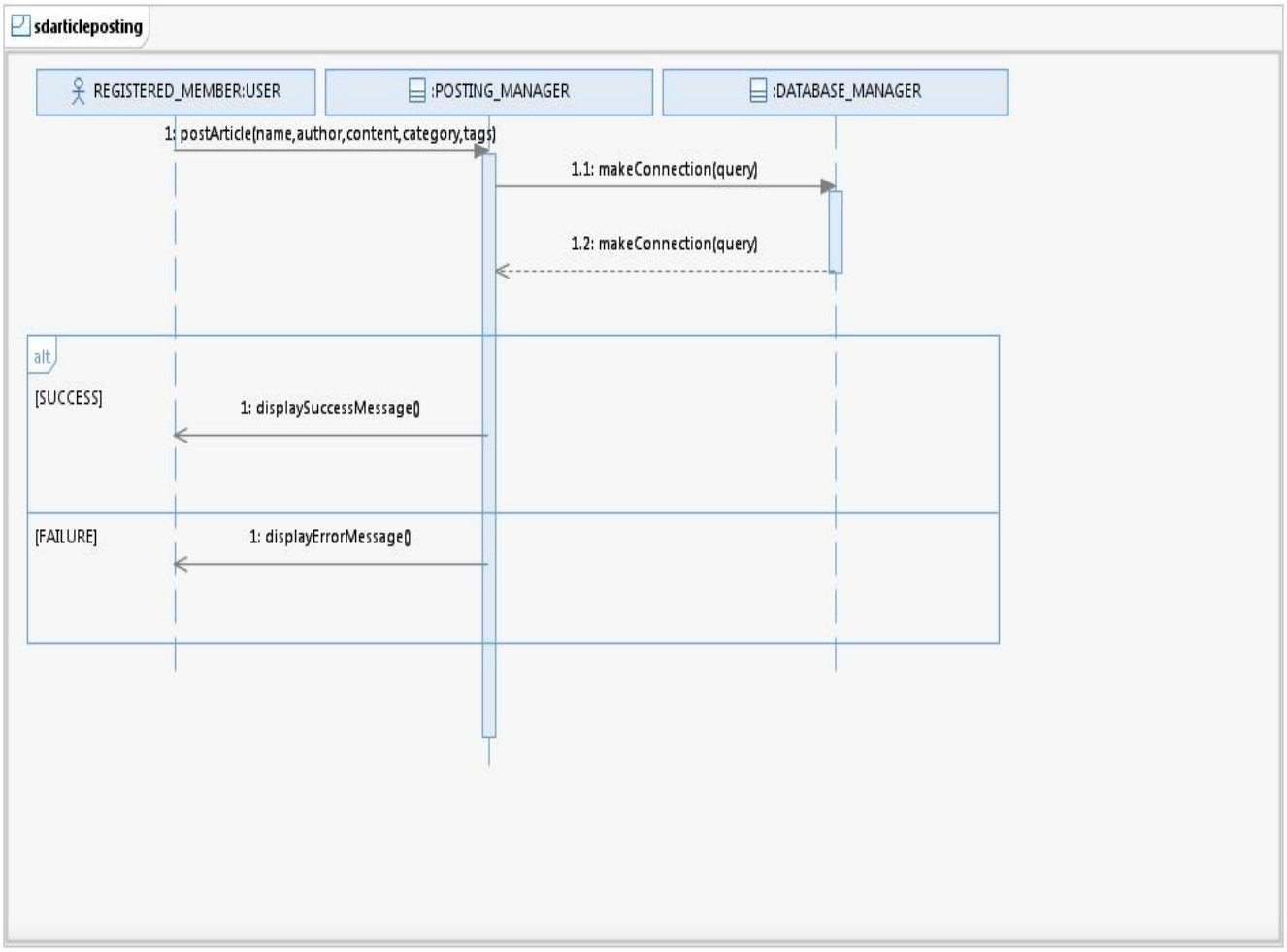


Fig 3.14: Article Posting Sequence Diagram

3.3.6 Moderator Addition Sequence Diagram

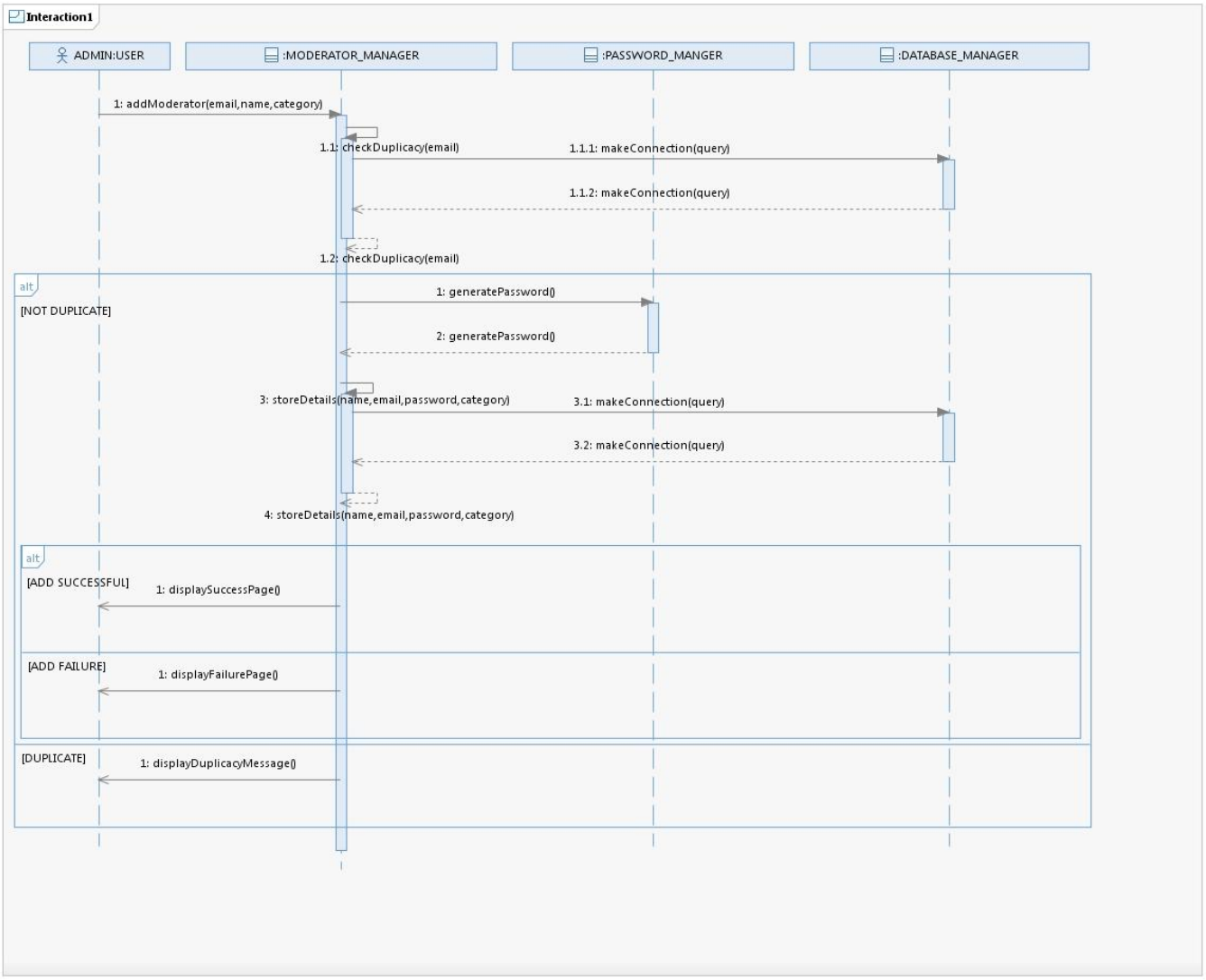


Fig 3.15: Moderator Addition Sequence Diagram

Vote Of Thanks

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