

Modeling



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1. Use Case Scenarios

1.1. User Registration

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

Date: 11/07/2020

Version: 1

USE CASE NAME:	User Registration	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#001	
PRIORITY:	High	
PRIMARY BUSINESS ACTOR:	• Guests	
OTHER PARTICIPATING ACTORS:	• Database (Information Receiver) • System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	• Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the registration process conducted by the guests in order to become members of the system. Registering as a member gives you the privileges to upload materials, update materials and post in the forum.	
PRE-CONDITION:	Be a guest in the system.	
TRIGGER:	The guest requests to become a member of the system.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: Guest expresses their interest in becoming a member by clicking on the Register button.	Step 2: System returns the page with the Register form.
	Step 3: Guest enters their username, email, password - two times, name of affiliated institution and country.	Step 4: System sends a membership request on the email address the guest provided.
	Step 5: Guest accepts the membership through the email address they provided.	Step 6: System assigns a Member ID to guest and guest becomes an official member.
		Step 7: System stores member information in database records.

		Step 8: System grants admittance to guest and returns official membership email.
ALTERNATE COURSES:	Alt-Step 3: If the desired password entered two times is not the same the system will show an error message to the user, telling them the passwords do not match, and not proceed with the following steps.	
	Alt-Step 3: If the email address already exists in the database, instead of sending a membership confirmation, the system will show a message to the user that they are already a member and will not proceed with the following steps.	
	Alt-Step 5: If the guest does not accept the membership through the email address they provided in 24 hours, the system will not proceed with the following steps.	
CONCLUSION:	Guest receives confirmation of becoming a member.	
POST-CONDITION:	Guest is successfully registered and admitted as a member. Member records are generated and stored in the database.	
BUSINESS RULES:	Any modification (insert, delete, update) for the Database shall be synchronized and done only by the administrator in ward.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	N/A	
ASSUMPTIONS:	N/A	
OPEN ISSUES:	<ul style="list-style-type: none"> Security measures to ensure privacy of personal information needed. 	

1.2. Search Materials

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

Date: 11/01/2020

Version: 1

USE CASE NAME:	Search Materials	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#002	
PRIORITY:	High	
PRIMARY BUSINESS ACTOR:	<ul style="list-style-type: none">Website Users:<ul style="list-style-type: none">Guests (Not Logged-In Users)Members (Logged-In Users)	
OTHER PARTICIPATING ACTORS:	<ul style="list-style-type: none">Database (Information Receiver)System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	<ul style="list-style-type: none">Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the search process conducted by website users (guests and members). It enables them to find relevant materials previously uploaded by members and verified by the administrative staff.	
PRE-CONDITION:	<ul style="list-style-type: none">Be a website user (guest or member) in the system.Documents need to be uploaded, verified by the administration staff and saved in the database, so the website user can search through them.	
TRIGGER:	The website user requests to search materials on the website.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: User expresses their interest in searching a material by clicking on the Search button, selecting a preferred language entering a string and/or category.	Step 2: System requests from the database to check all materials where the entered string and/or category appears.
		Step 3: Database returns all relevant information, i.e. all materials containing the entered string and/or category, to the system.
		Step 4: System presents the results it got from the database on a new page within the website.

ALTERNATE COURSES:	Alt-Step 4: If the database does not return any materials, the system will prompt the user to modify the search through an error message: "No materials found. Please modify your search."
CONCLUSION:	All relevant documents will be displayed on a new page within the website for the user to search through.
POST-CONDITION:	N/A
BUSINESS RULES:	The administrative team of Veritas Technology is in charge of ensuring and maintaining the connection between the database and the system
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	N/A
ASSUMPTIONS:	<ul style="list-style-type: none"> • The database shall be synchronized with the system • The user writes the string in the preferred language they previously specified
OPEN ISSUES:	<ul style="list-style-type: none"> • The Search method only allows user to search by a string and/or category which could be a limiting option for users.

1.3. Download Material

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

Date: 11/01/2020

Version: 1

USE CASE NAME:	Download Material	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#003	
PRIORITY:	High	
PRIMARY BUSINESS ACTOR:	<ul style="list-style-type: none">Website Users:<ul style="list-style-type: none">Guests (Not Logged-In Users)Members (Logged-In Users)	
OTHER PARTICIPATING ACTORS:	<ul style="list-style-type: none">Database (Information Receiver)System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	<ul style="list-style-type: none">Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the download process conducted by website users (guests and members). It enables them to download materials they searched for.	
PRE-CONDITION:	<ul style="list-style-type: none">Be a website user (guest or member) in the system who has performed a search.Document needs to be uploaded, verified by the administration staff and saved in the database.	
TRIGGER:	The website user requests to download material from the website.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: User expresses their interest in downloading a material by clicking on the Download button.	Step 2: System requests the document from the database.
		Step 3: Database returns the document to the system.
		Step 4: System initiates the download process.
ALTERNATE COURSES:	N/A	
CONCLUSION:	User has the document downloaded on their device.	
POST-CONDITION:	N/A	
BUSINESS RULES:	The administrative team of Veritas Technology is in charge of ensuring and maintaining the connection between the database and the system	

IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	N/A
ASSUMPTIONS:	<ul style="list-style-type: none"> • The database shall be synchronized with the system
OPEN ISSUES:	<ul style="list-style-type: none"> • Compatibility: the downloaded material might not be opened on all operating systems. For instance, a file with the extension “doc” likely is intended for Microsoft Word and user will need that application installed before the file can be viewed.

1.4. Upload Material

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

Date: 11/01/2020

Version: 1

USE CASE NAME:	Upload Material	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#004	
PRIORITY:	High	
PRIMARY BUSINESS ACTOR:	• Members (Logged-In Users)	
OTHER PARTICIPATING ACTORS:	• Database (Information Receiver) • System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	• Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the upload process conducted by website members which enables them to upload STEM related materials.	
PRE-CONDITION:	• Be a registered member in the system. • Document needs to be STEM-related, complete and ready to be uploaded.	
TRIGGER:	The website user requests to upload material to the website.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: User expresses their interest in uploading a material by clicking on the Upload button.	Step 2: System returns the Upload Form.
	Step 3: User fills out the form, where he specifies the language, STEM subfield and category of the material, uploads the material and submits the form.	Step 4: System stores the material and material information in database records.
		Step 5: Administrative team checks the uploaded material, modifies it if needed and approves it.
		Step 6: The system publishes the material on the website.

ALTERNATE COURSES:	Alt-Step 5: The administrative team has the right to reject the uploaded material if it is not relevant to STEM and/or violates Veritas Technology's policies.
CONCLUSION:	Material uploaded under the right category on the website.
POST-CONDITION:	N/A
BUSINESS RULES:	The administrative team of Veritas Technology is in charge of ensuring the quality, completeness and appropriability of the content that is being uploaded.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	The administrative team needs to constantly monitor the upload requests, approve and categorize the added materials, enforce the code of conduct and maintain the system 24/7.
ASSUMPTIONS:	N/A
OPEN ISSUES:	<ul style="list-style-type: none"> Security - the system might receive upload requests for materials with malicious contents.

1.5. Update Material

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

Date: 11/01/2020

Version: 1

USE CASE NAME:	Update Material	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#005	
PRIORITY:	High	
PRIMARY BUSINESS ACTOR:	• Members (Logged-In Users)	
OTHER PARTICIPATING ACTORS:	• Database (Information Receiver) • System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	• Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the update process conducted by members that enables them to update previously uploaded materials.	
PRE-CONDITION:	• Be a registered member in the system • The existing document needs to be updated	
TRIGGER:	The website member requests to update an existing material on the website.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: User expresses their interest in updating a material by clicking on the Update button.	Step 2: System returns the Update Form.
	Step 3: User fills out the form, where he specifies the document they want to update, uploads the updated material and submits the form.	Step 4: System stores the updated material in database records.
		Step 5: Administrative team checks if the updates are valid, modifies them if needed, and approves them.
		Step 6: The system publishes the updated material on the website.

ALTERNATE COURSES:	Alt-Step 5: The administrative team has the right to reject the updated material if it is not relevant to STEM and/or violates Veritas Technology's policies.
CONCLUSION:	Updated document will be displayed on a new page within the website together with its older version(s).
POST-CONDITION:	N/A
BUSINESS RULES:	The administrative team of Veritas Technology is in charge of ensuring and maintaining the connection between the database and the system
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	The administrative team needs to constantly monitor the update requests, approve or reject the updated materials, enforce the code of conduct and maintain the system 24/7.
ASSUMPTIONS:	N/A
OPEN ISSUES:	<ul style="list-style-type: none"> Security - the system might receive update requests for materials with malicious contents.

1.6. Post on Forum

Authors: Sofija Jancheska, Mariam Elgamal and Tina Krulec

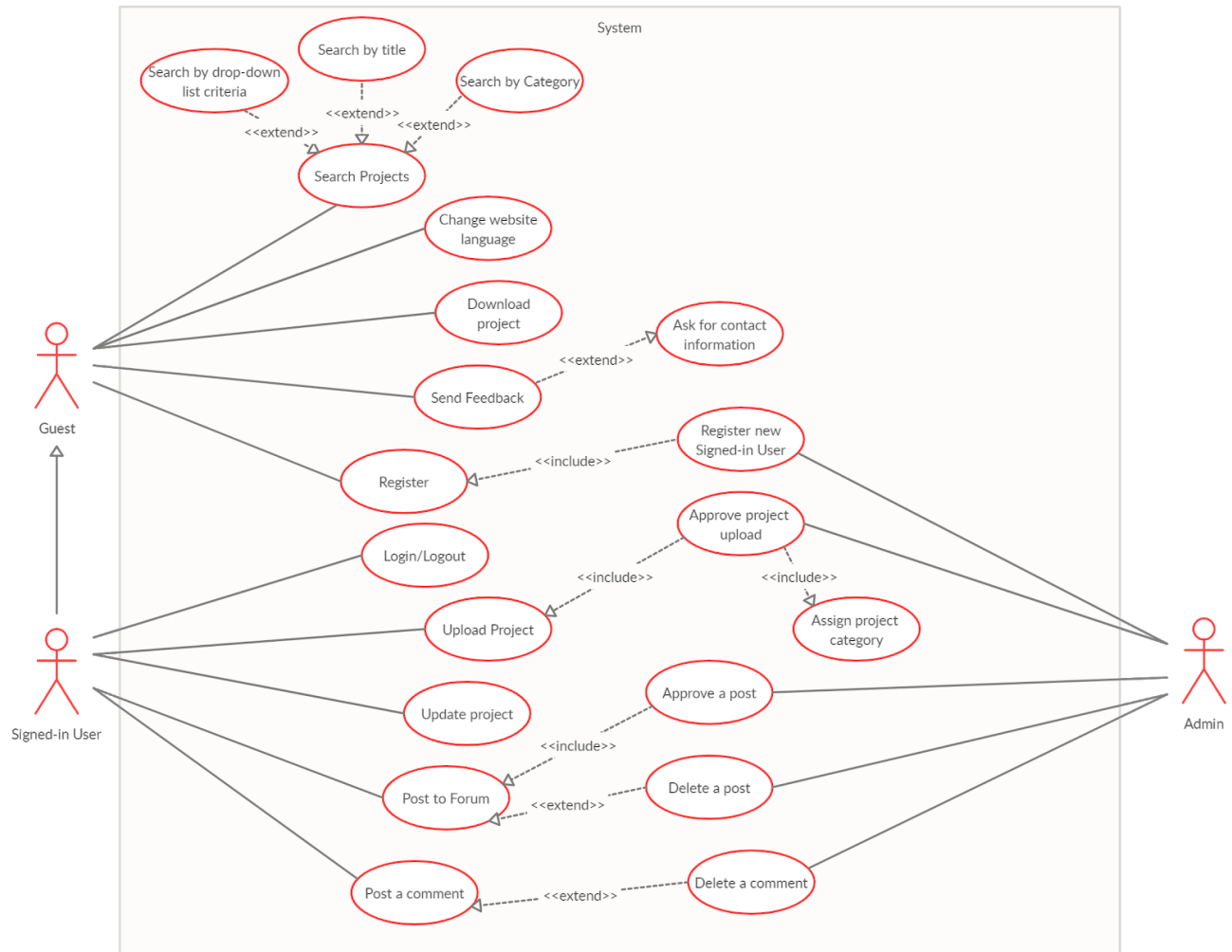
Date: 11/01/2020

Version: 1

USE CASE NAME:	Post on Forum	USE CASE TYPE Functional Requirement: <input type="checkbox"/>
USE CASE ID:	#006	
PRIORITY:	Low	
PRIMARY BUSINESS ACTOR:	• Members (Logged-In Users)	
OTHER PARTICIPATING ACTORS:	• Database (Information Receiver) • System (the link between user and database)	
OTHER INTERESTED STAKEHOLDERS:	• Administrative Staff of Veritas Technology (Interested in maintaining and monitoring the data added to the database)	
SHORT DESCRIPTION:	This use case describes the process through which posts on the forum can be published.	
PRE-CONDITION:	• Be a registered member in the system	
TRIGGER:	The website member requests to publish a comment on the website's forum.	
TYPICAL COURSE OF EVENTS:	Actor Action	System Response
	Step 1: User expresses their interest to contribute to a website's Forum discussion by filling out the text box and clicking the "Publish" button.	Step 2: System stores the information provided in the form in database records.
		Step 3: Administrative staff checks the requested post's content and approves it.
		Step 4: The system publishes the post on the Forum part of the website.
ALTERNATE COURSES:	Alt-Step 4: The administrative team has the right to reject the post if it is not relevant to STEM and/or violates Veritas Technology's policies.	
CONCLUSION:	Post will be displayed on the Forum discussion page within the website	
POST-CONDITION:	N/A	
BUSINESS RULES:	The administrative team of Veritas Technology is in charge of ensuring and maintaining the connection between the database and the system	

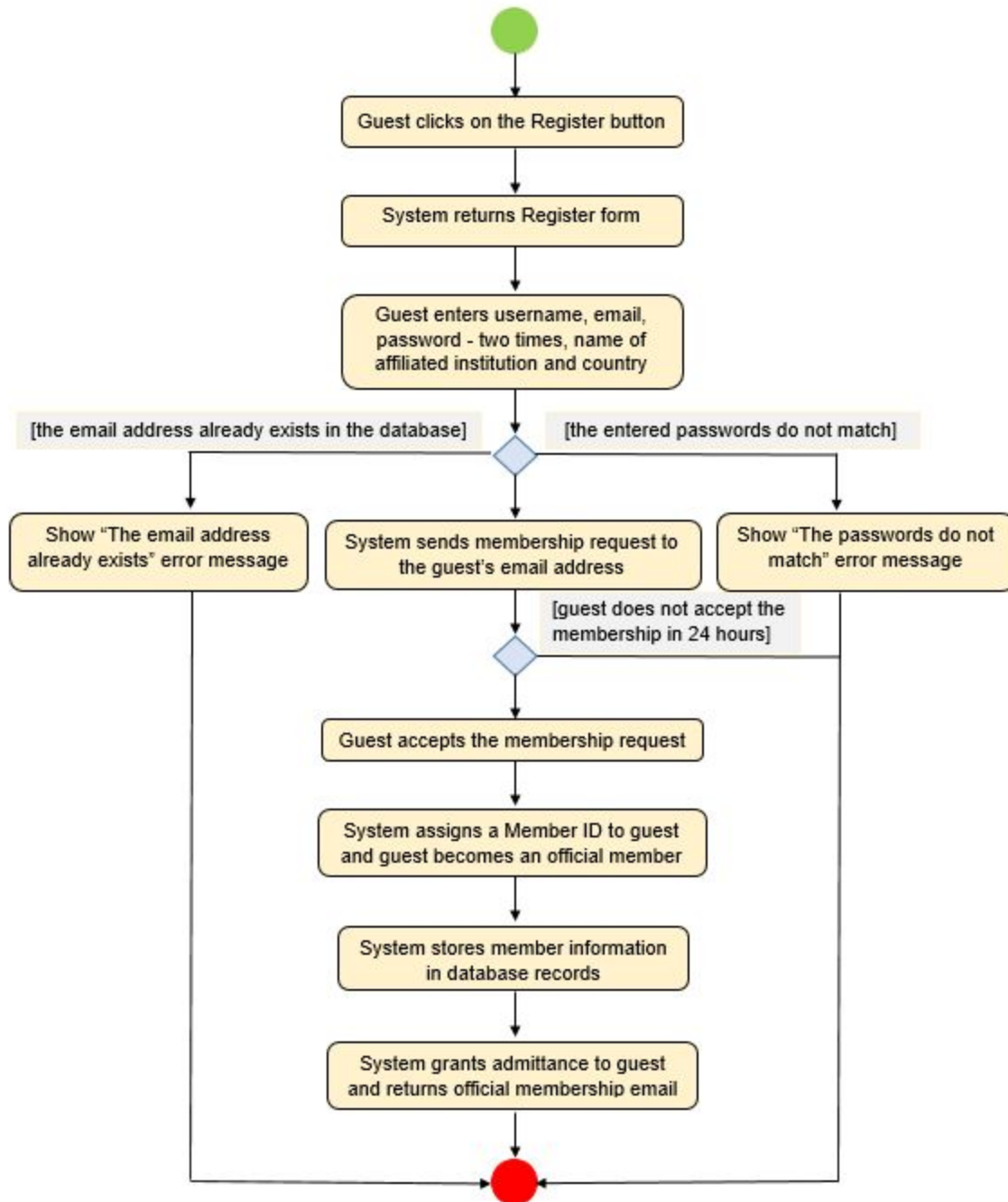
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS:	The administrative team needs to constantly monitor the posts on the forum, enforce the code of conduct and maintain the system 24/7.
ASSUMPTIONS:	User wants to publish the post in its a suitable discussion topic within the Forum.
OPEN ISSUES:	<ul style="list-style-type: none"> • Security - the system might receive spam posts with malicious users' behavioral characteristics.

2. Use Case Diagram

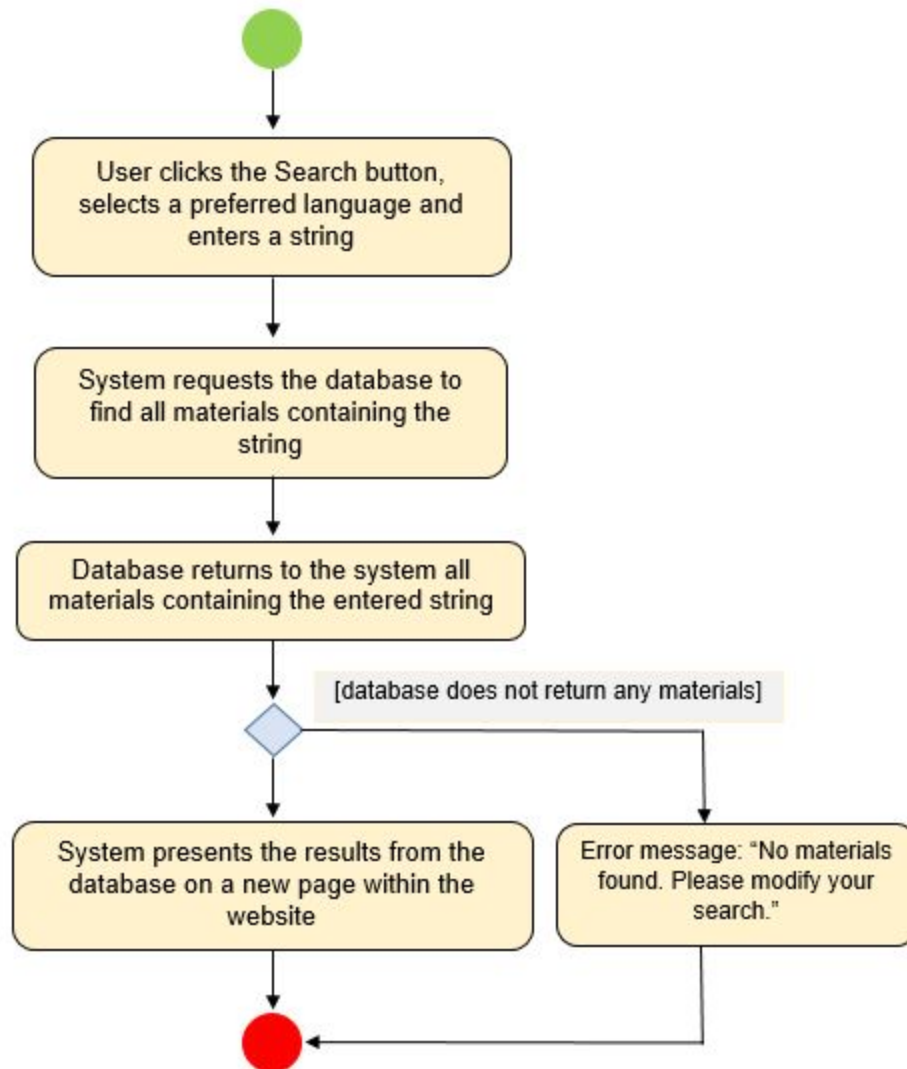


3. Activity Diagrams

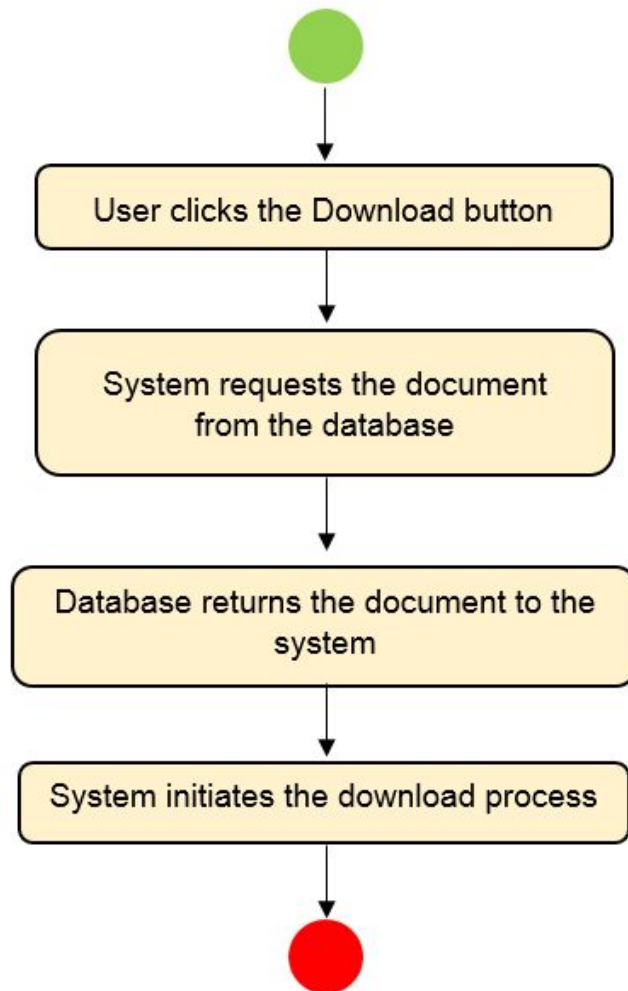
3.1. Guest Registration



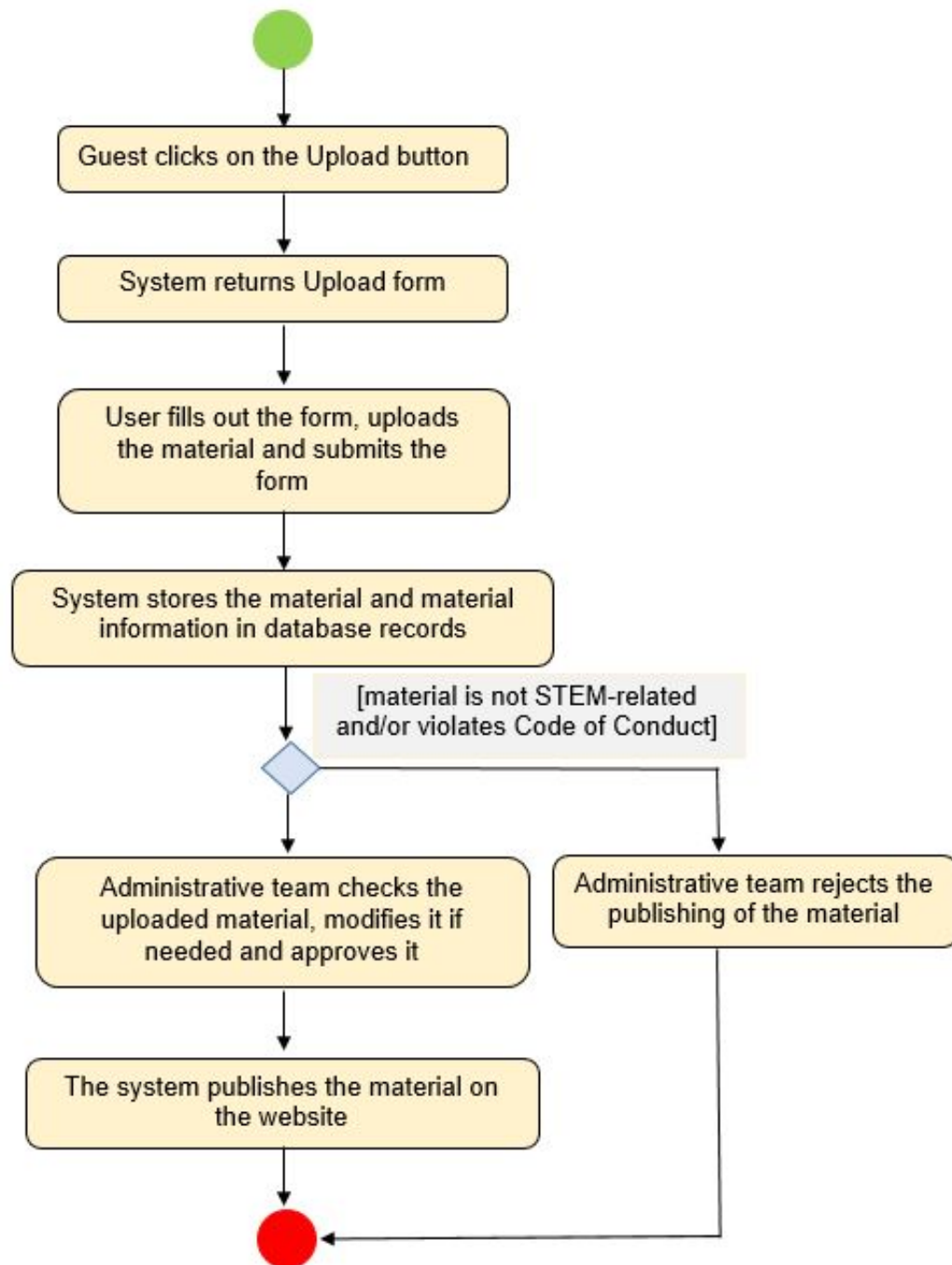
3.2. Search Materials



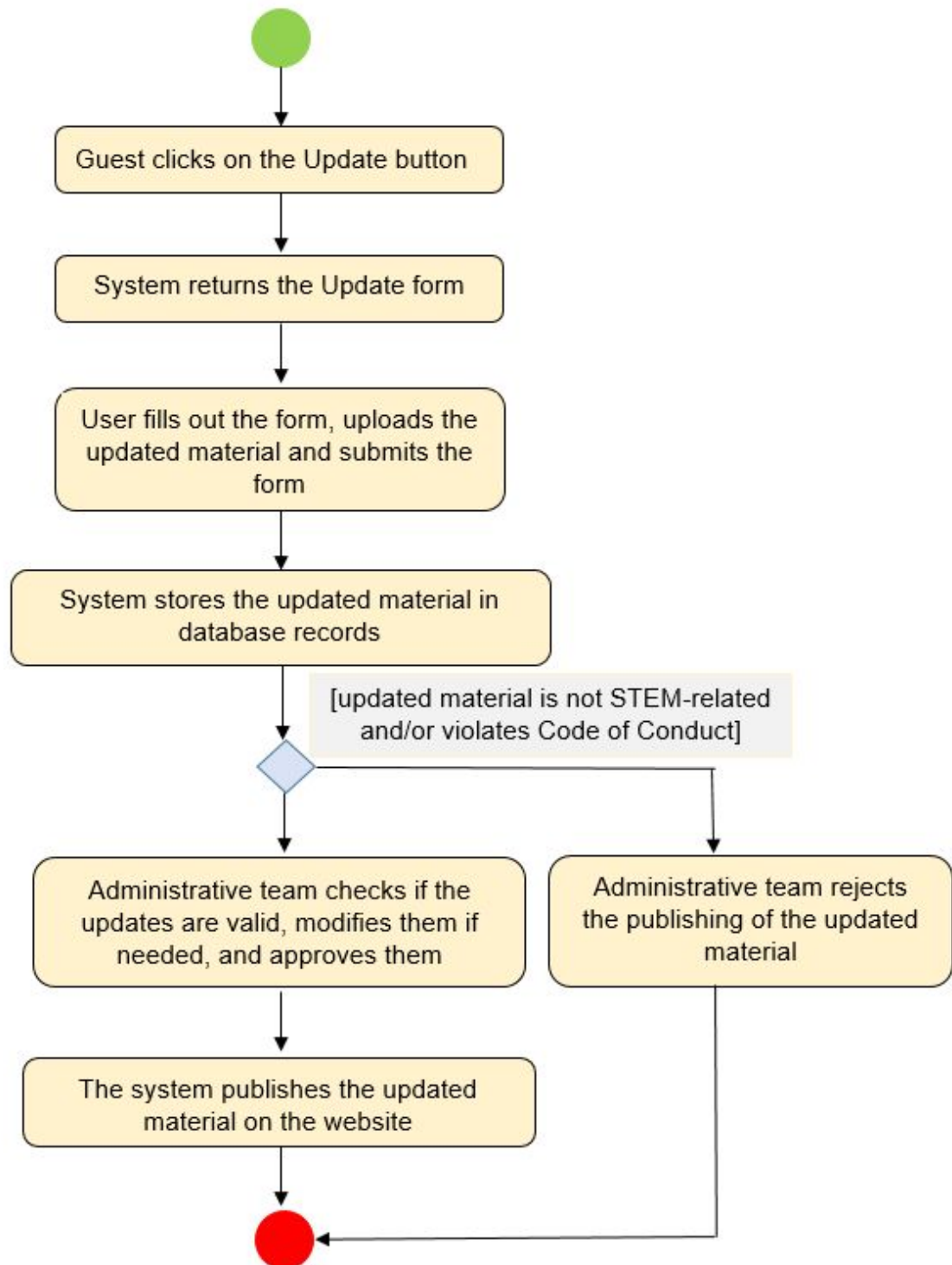
3.3. Download Material



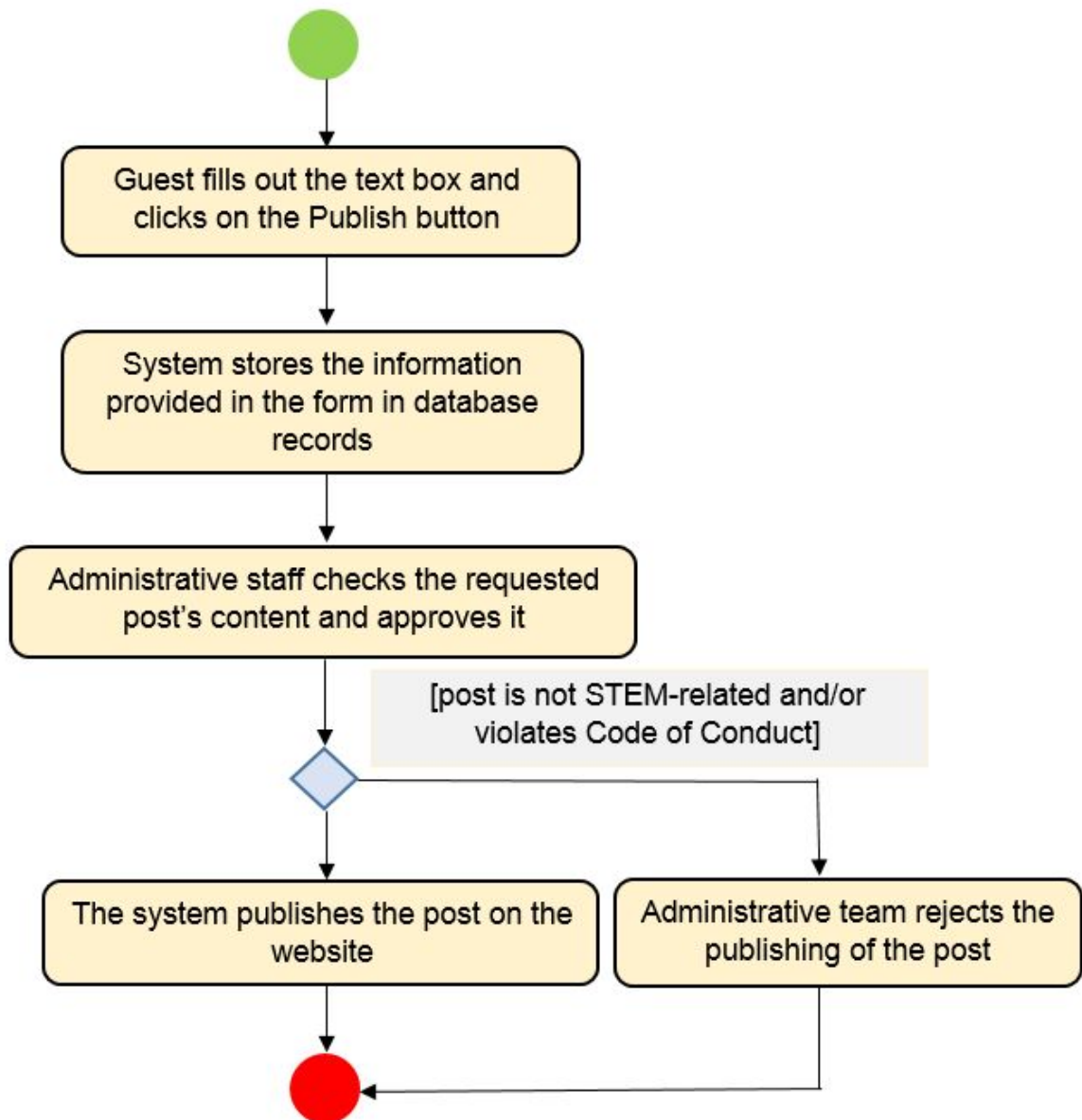
3.4. Upload Material



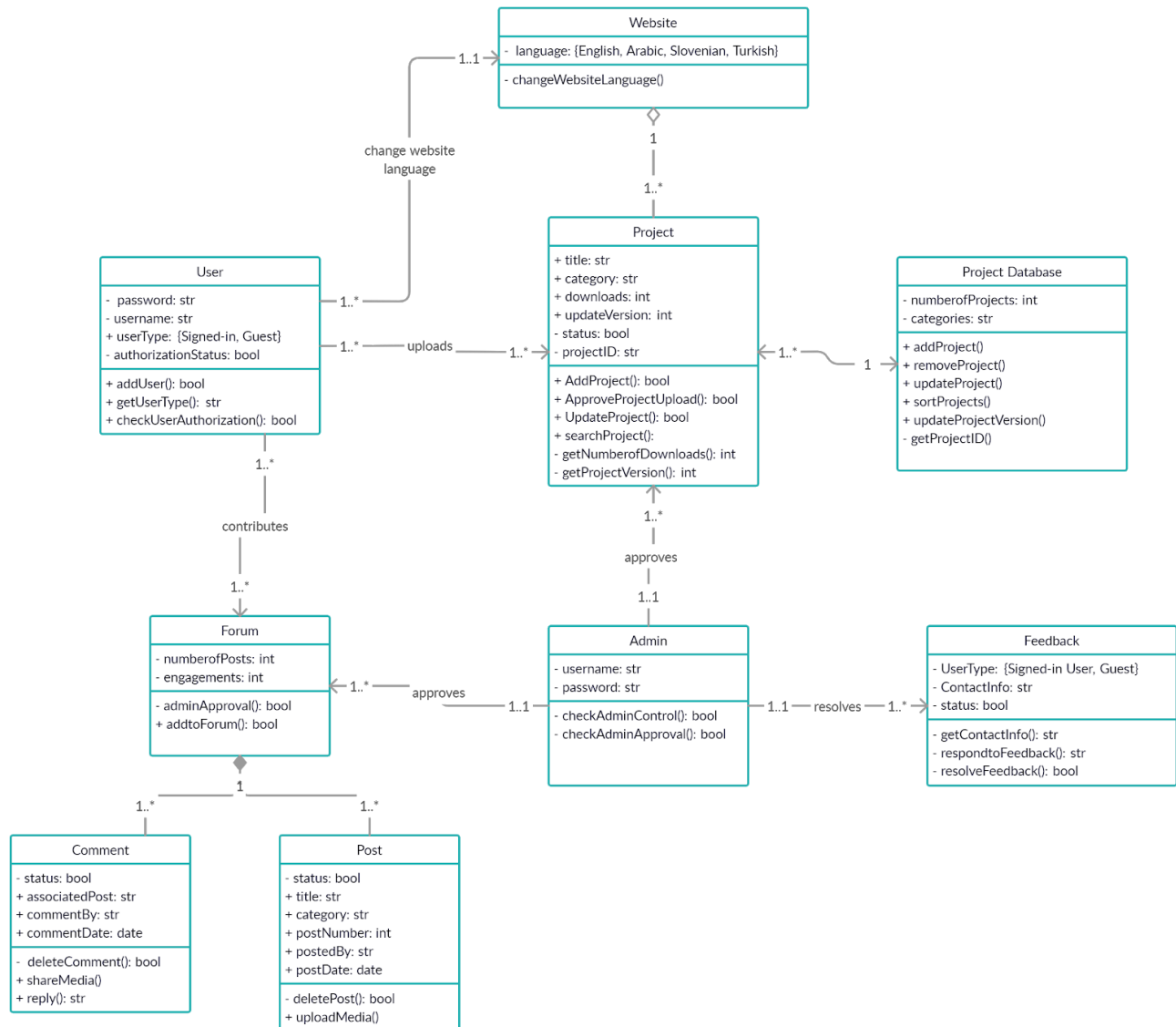
3.5. Update Material



3.6. Post on Forum



4. Class Diagram



Creational Patterns:

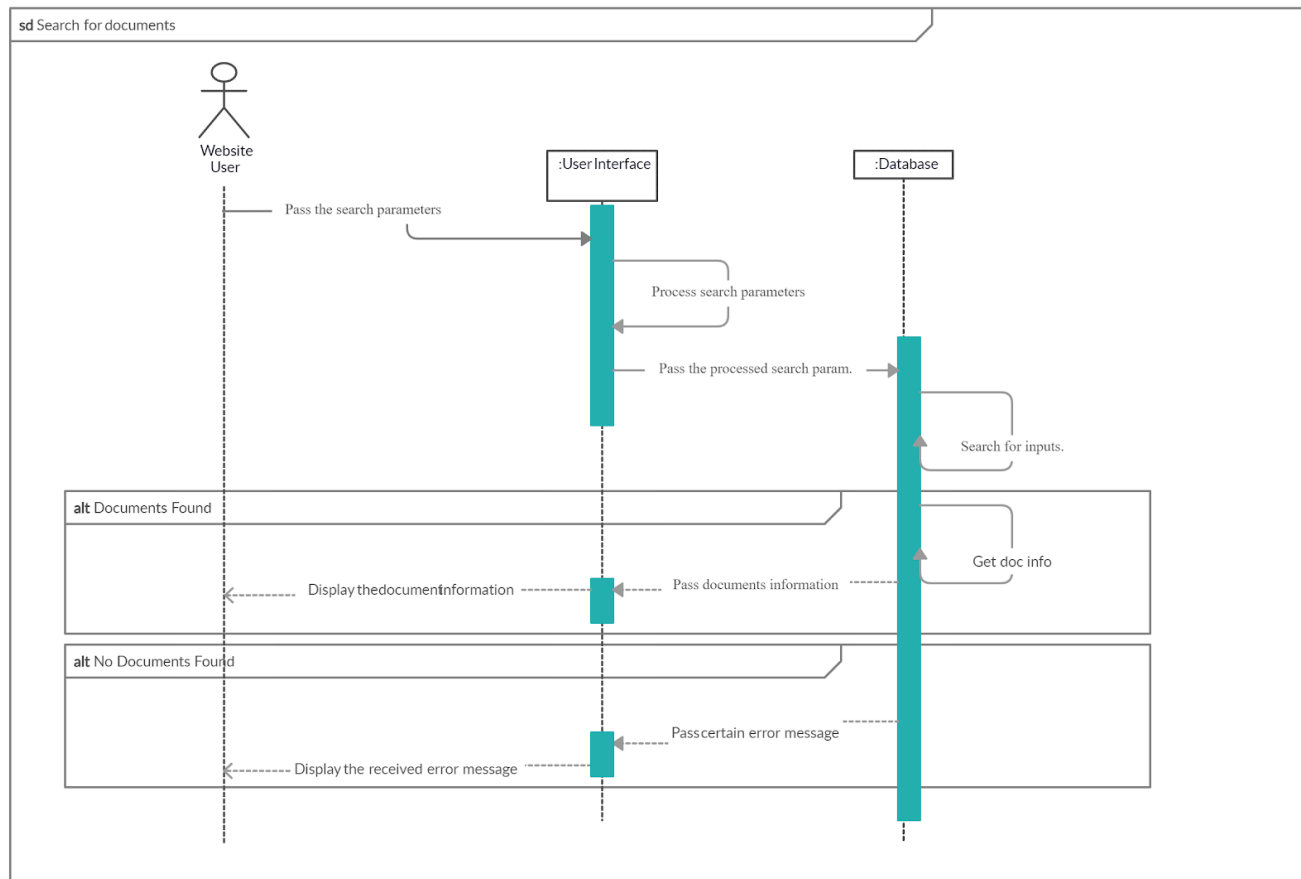
Composition: We used composition to break down the main constituents of the forum into post and comment since they require different authorizations and approvals by the admin. Where the post requires authorization from the admin before it's published and comments do not require admin authorization. Both can be deleted/removed by the admin. We also used composition to describe the relationship between project database and projects, where the project database is composed of the projects.

Aggregation: We use aggregation to describe the relationship of the website and the projects. The website is essentially an aggregation of projects for users to access, download and upload with other users.

Information Expert: Admin is responsible for assigning the category to the projects and approving project uploads and managing different forum contributions.

5. Sequence Diagrams

5.1. Search Materials



5.2. Download Material

