

BOĞAZİÇİ UNIVERSITY

SWE573 – Final Project Report

What is This Thing? Application

Mustafa Bektaş

21/12/2024

[Deployment Link](#)

[Git Repository](#)

[Git Tag Version](#)

HONOR CODE

Related to the submission of all the project deliverables for the Swe573 Fall 2024 semester project reported in this report, I, Mustafa Bektaş, declare that:

- I am a student in the Software Engineering MS program at Bogazici University and am registered for Swe573 course during the Fall 2024 semester.
- All the material that I am submitting related to my project (including but not limited to the project repository, the final project report, and supplementary documents) have been exclusively prepared by myself.
- I have prepared this material individually without the assistance of anyone else with the exception of permitted peer assistance which I have explicitly disclosed in this report.

Mustafa Bektaş

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1. Project Overview

This application was designed to help users identify mysterious objects via community discussions. Users can create posts which describe the mysterious object in detail and other users can interact with the post by comments/replies and upvotes/downvotes. The application also has a search function which searches for post titles, descriptions and tags for keywords.

Key Features:

- Create and manage posts with images and detailed descriptions.
- Dynamically fetch tags from Wikidata during post creation.
- Comment, reply and vote on posts.
- Receive notifications for actions such as comments, upvotes and best answers.
- Search for posts using keywords in titles, descriptions or tags.
- Profile page for displaying user posts and comments.

2. Software Requirements Specifications

2.1. User Authentication

- Enable user registration via email.
- Provide a secure login system using passwords.

2.2. Posting System

- Allow users to create posts with text descriptions and image uploads.
- Include options to categorize posts (e.g., object, plant, tool) and add relevant tags.

2.3. Commenting System

- Support threaded comments with upvote/downvote functionality.
- Allow users to edit or delete their own comments.

2.4. Voting Mechanism

- Implement an upvote/downvote system for posts and comments.
- Display the most upvoted comment at the top of the comment section.

2.5. Search and Filtering

- Enable full-text search across all posts.
- Offer filtering options by categories, tags, popularity, and recency.

2.6. Profile Management

- Provide user profile pages that display their posts and comments.
- Ensure all profiles are public to allow interaction and evaluation by the community.

2.7. Notifications

- Send notifications for new comments, upvotes, or when a comment is marked as the best answer.

2.8. Best Answer System

- Allow the post creator to mark a comment as the best answer.
- Display a visual indicator to highlight the best answer selected.

3. Design Documents

3.1 Entity-Relationship Diagram

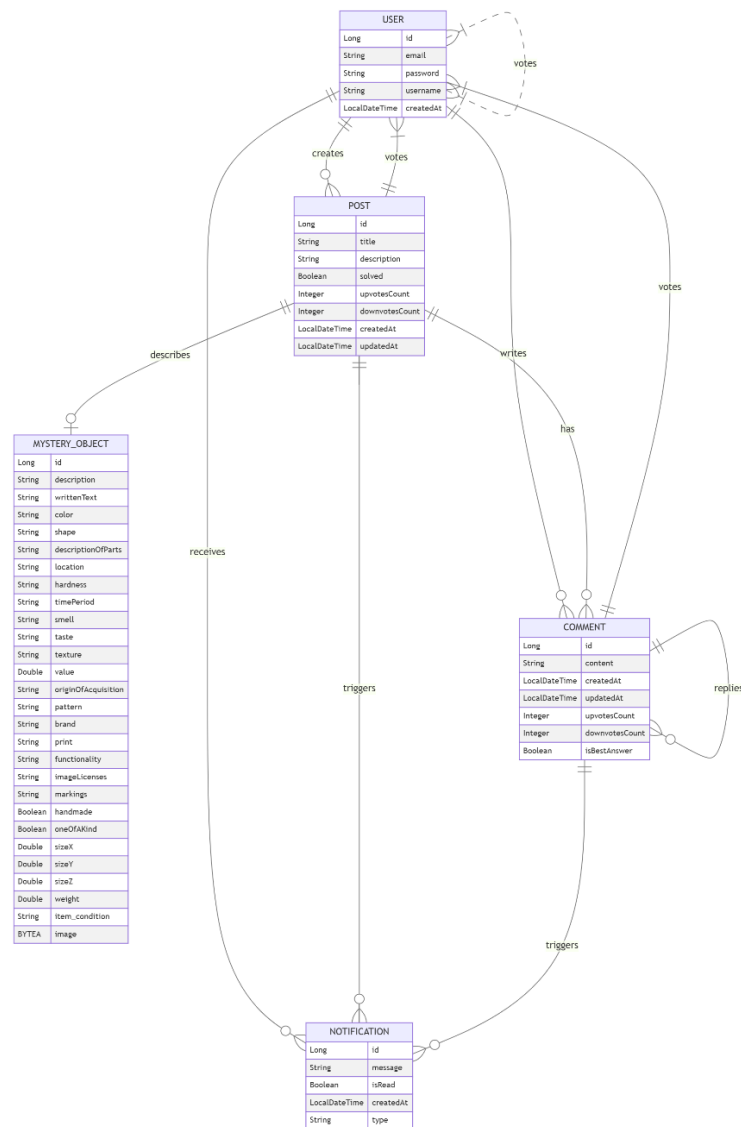


Figure 3.1 – Entity-Relationship Diagram.

Key Relationships:

1. **User and Post** – A user can create multiple posts.
2. **User and Comment** – A user can write multiple comments.
3. **User and Notification** – A user can receive multiple notifications.
4. **Post and Mystery Object** – Each post can have one associated mystery object.
5. **Post and Comment** – Each post can have multiple comments.
6. **Comment and Replies** – Comments can have nested replies.
7. **Votes** – Both posts and comments can have upvotes and downvotes from users.
8. **Notifications** – Notifications are triggered by actions related to comments, upvotes, and best answers.

3.2 Sequence Diagrams

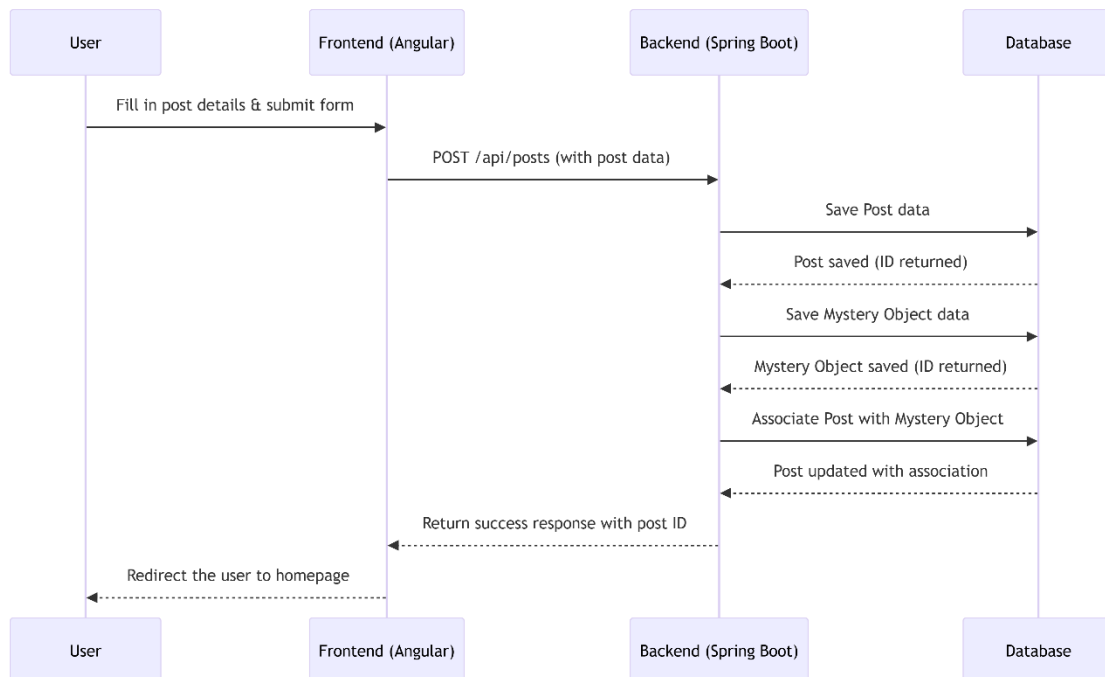


Figure 3.2 – Sequence diagram for creating a post.

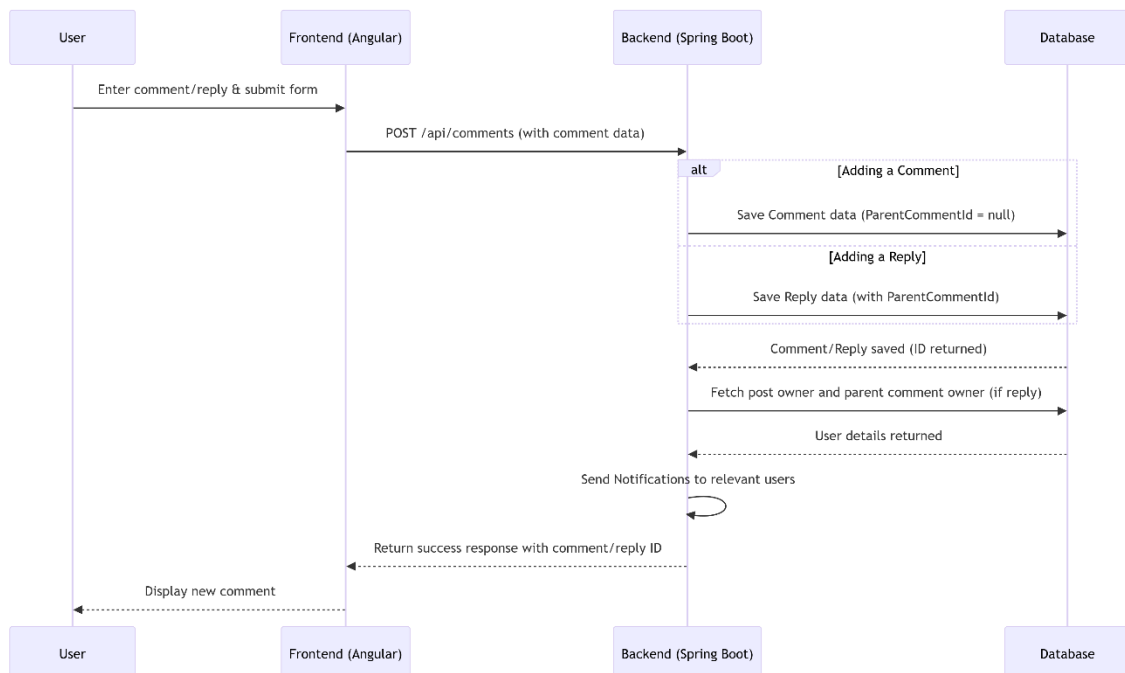


Figure 3.3 - Sequence diagram for creating a comment/reply.

4. Project Status

Requirement	Status
Enable user registration via email	Completed
Provide a secure login system using passwords	Completed
Allow users to create posts with text descriptions and image uploads	Completed
Include options to categorize posts and add relevant tags	Partial – Users can add tags to posts but there is no post categorization option
Support threaded comments with upvote/downvote functionality	Completed
Allow users to edit or delete their own comments	Not Completed – No edit or delete function for comments
Implement an upvote/downvote system for posts and comments	Completed
Display the most upvoted comment at the top of the comment section	Not Completed/Ignored – Best comment is shown at top
Enable full-text search across all posts	Completed
Offer filtering options to search results by categories, tags, popularity, and recency	Partial – Search results are automatically sorted by recency
Provide user profile pages that display their posts and comments	Completed
Ensure all profiles are public to allow interaction and evaluation by the community	Completed
Send notifications for new comments, upvotes, or best answers	Completed
Allow the post creator to mark a comment as the best answer	Completed
Display a visual indicator to highlight the best answer selected	Completed

5. Status of Deployment

The application is fully dockerized and deployed on cloud. The database runs on AWS RDS, and both backend and frontend applications run on Google Cloud. The deployment link is:

<https://swe573-frontend-594781402587.us-central1.run.app/>

6. Installation Instructions

- Make sure you have Docker installed on your computer
- Clone the repository to a local folder using:

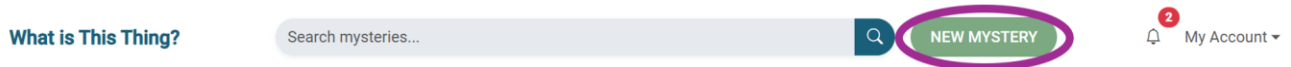
```
git clone https://github.com/mustafa-bektas/SWE573.git
```
- Go to the root repository folder and run:

```
docker-compose up --build
```
- Wait for all the packages to be installed and deployed
- After everything finishes, visit <http://localhost:4200/> to use the application. It will still be connected to the same database on the cloud, so you don't need to run the database locally.

7. User Manual

7.1 Creating a Post

- After logging in, click the NEW MYSTERY button.



- After filling the post details, click the “+ Add Mystery Object” button.

A screenshot of the 'Create New Post' form. The form has a title field with the placeholder 'Enter the post title', a content field with 'Write your content here', and a tags field with 'Search for tags (min 3 letters)'. Blue arrows point to each of these three input fields. At the bottom right of the form is a button labeled '+ Add Mystery Object', which is circled in purple. At the very bottom of the form is a large dark blue button labeled 'CREATE POST'.

- Fill all necessary details about the mystery object and press “Save”

Add Mystery Object


Description		Written Text
<input type="text" value="Enter a description"/>		<input type="text" value="Enter written text"/>
Color	Shape	Hardness
<input type="text" value="Color"/>	<input type="text" value="Shape"/>	<input type="text" value="Hardness"/>
Description of Parts		Location
<input type="text" value="Parts description"/>		<input type="text" value="Location"/>
Time Period	Smell	Taste
<input type="text" value="Time Period"/>	<input type="text" value="Smell"/>	<input type="text" value="Taste"/>
Texture		Value
<input type="text" value="Texture"/>		<input type="text" value="Value"/>
Origin of Acquisition		Pattern
<input type="text" value="Origin of Acquisition"/>		<input type="text" value="Pattern"/>
Brand	Print	Functionality
<input type="text" value="Brand"/>	<input type="text" value="Print"/>	<input type="text" value="Functionality"/>
Image Licenses		Markings
<input type="text" value="Image Licenses"/>		<input type="text" value="Markings"/>
<input type="checkbox"/> Handmade	<input type="checkbox"/> One of a Kind	
Condition	Upload Image	
<input style="border: 1px solid #ccc;" type="text" value="New"/>	<div><input type="button" value="Choose File"/> <input type="button" value="No file chosen"/></div>	
Size X (cm)	Size Y (cm)	Size Z (cm)
<input type="text" value="Size X"/>	<input type="text" value="Size Y"/>	<input type="text" value="Size Z"/>
Weight (grams)		
<input type="text" value="Weight"/>		

- Preview the added mystery object below. Click “+ Edit Mystery Object” for any modifications. If ready, press “Create Post” to create the post.

[+ Edit Mystery Object](#)

CREATE POST

Mystery Object Details



Description: Some description

Written Text: Some written text

Color: Some color

Shape: Some shape

Description of Parts: Some description of parts

Texture: Some texture

Value: 100

Origin of Acquisition: Origin

Pattern: Some pattern

Brand: Some brand

Handmade: true

One of a Kind: false

Size: 65, 185, 25

Weight: 8000

Location: Some location

Hardness: Some hardness

Time Period: Some time period

Smell: Some smell

Taste: Some taste

Print: Some print

Functionality: Some functionality

Image Licenses: Image Licenses


Markings: Some markings

Item Condition: NEW

- You will be redirected to the home page. See the created post in here.

Uncover Hidden Mysteries

Do you have any mystery items that you can't identify? Share them with the community and help solve mysteries together!




What is this card for?

unintelligible text game card ring

gold ring card

Explore Mystery →




What is this thing?

human shape metal statue

aluminum

Explore Mystery →




Anyone know what these are used for?

gold coin big mac mcdonalds

coin

Explore Mystery →




What is this abomination

drinking fungus horrible

moist

Explore Mystery →




What is This Mysterious Metal Object?

metal shiny cylindrical press

tool


Explore Mystery →



I found these poker chips, anyone know where they are from?

poker casino token

Explore Mystery →



Who is this man?

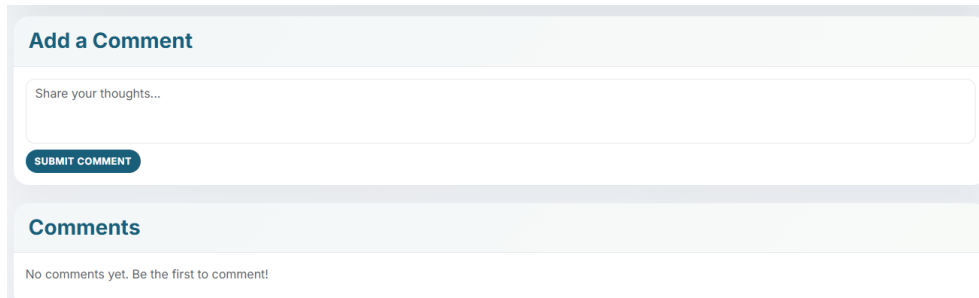
legendary figure association football

Galatasaray S.K.

Explore Mystery →

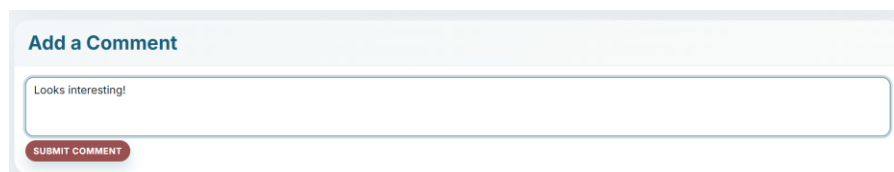
7.2 Creating a Comment / Reply

- Go to any post page and locate the comment section at the bottom.



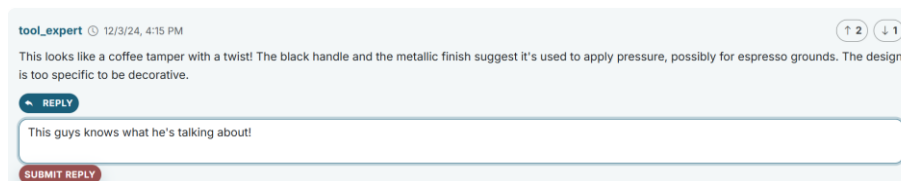
The screenshot shows a light blue box with the title "Add a Comment" in bold. Below the title is a text input field with the placeholder text "Share your thoughts...". Underneath the input field is a dark blue button with the text "SUBMIT COMMENT" in white. Below this box is another light blue box with the title "Comments". Inside the "Comments" box, it says "No comments yet. Be the first to comment!"

- Use the “Add a Comment” box to create a comment and click “Submit Comment” to submit.



This screenshot shows the "Add a Comment" section where the text input field now contains the comment "Looks interesting!". The "SUBMIT COMMENT" button remains visible below the input field.

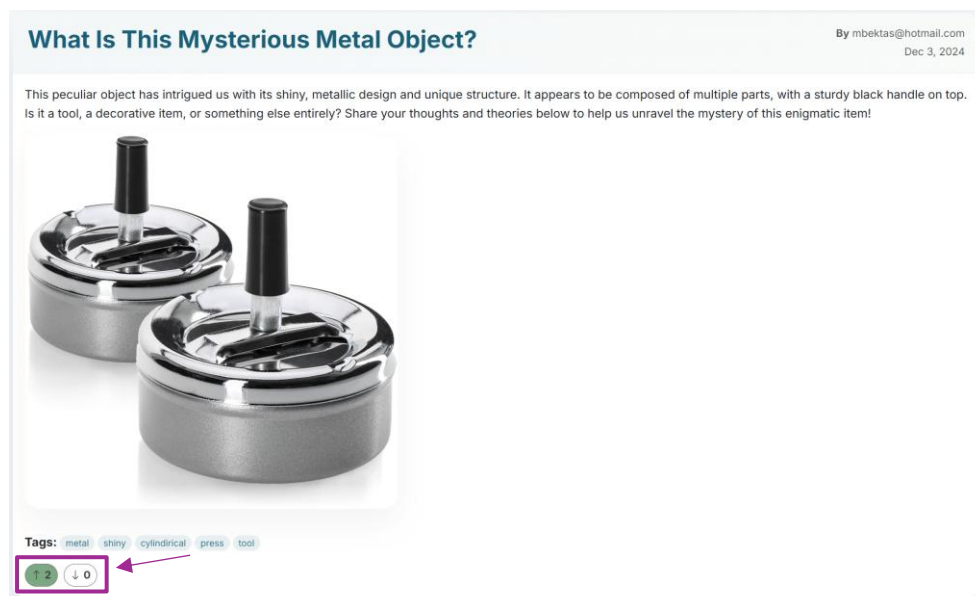
- To reply to a comment, locate the desired comment and click the “Reply” button. After that, enter your reply to the text box that appears and click “Submit Reply”



The screenshot shows a comment from a user named "tool_expert" dated 12/3/24, 4:15 PM. The comment text is: "This looks like a coffee tamper with a twist! The black handle and the metallic finish suggest it's used to apply pressure, possibly for espresso grounds. The design is too specific to be decorative." Below the comment is a "REPLY" button. Underneath the button is a text input field containing the reply: "This guys knows what he's talking about!". At the bottom of the reply section is a "SUBMIT REPLY" button.

7.3 Upvoting / Downvoting

- To upvote or downvote a post, click on the respective button just below the post tags in the post details page.



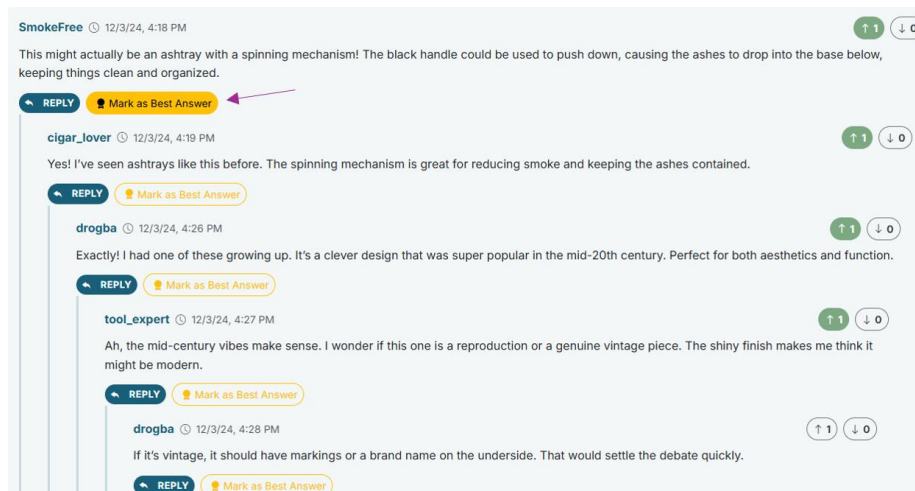
The screenshot shows a post titled "What Is This Mysterious Metal Object?" by "mbektas@hotmail.com" dated "Dec 3, 2024". The post text describes a "peculiar object" and asks for user theories. Below the text is an image of two cylindrical metal objects with black handles. Under the image are tags: "metal", "shiny", "cylindrical", "press", "tool". At the bottom left, there are two buttons: an upvote button (a green circle with a white up arrow and the number "2") and a downvote button (a white circle with a grey down arrow and the number "0"). A purple box highlights these two buttons, and a purple arrow points to the downvote button.

- To upvote or downvote a comment, click on the respective button just next to the comment.



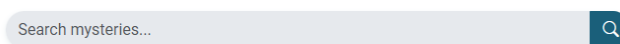
7.4 Marking the Best Answer

- As a post author, click on the “Mark as Best Answer” button to mark a comment as the best answer of a post. The best answer will always appear on top.

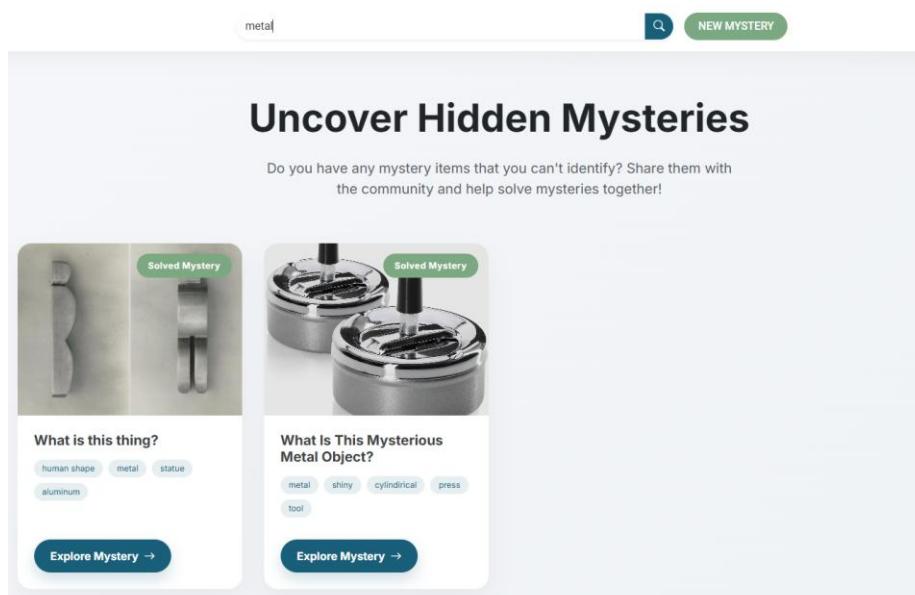


7.5 Searching

- Use the search bar to search keywords in post titles, descriptions or tags.



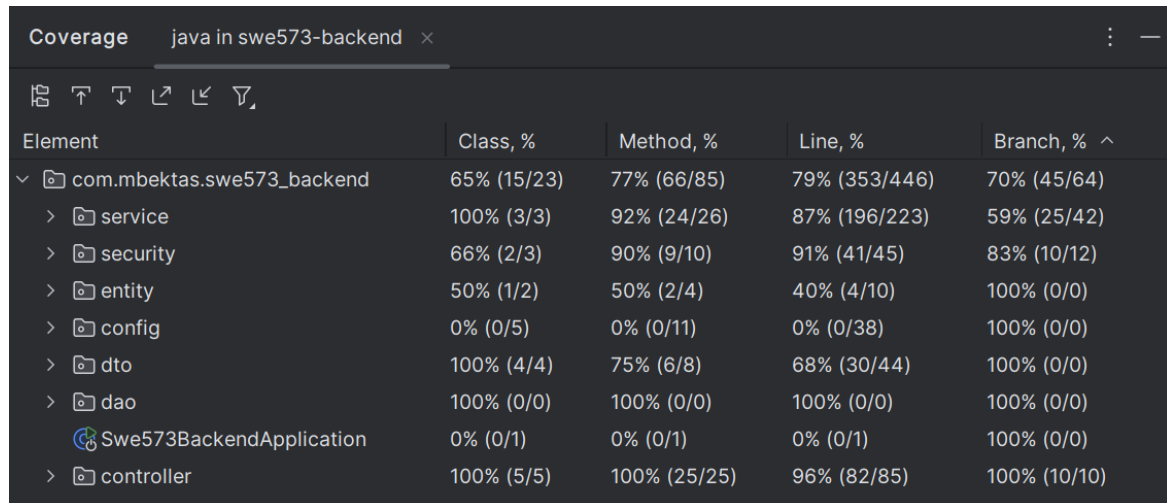
- Search results will show up sorted by recency.



8. Test Results

8.1 Unit Tests

A total of 59 unit tests were performed for the backend services. All of these tests pass when run, and overall they have 70% branch coverage.



The screenshot shows a code coverage tool interface with a table of results for 'java in swe573-backend'. The table has five columns: Element, Class, %, Method, %, Line, %, and Branch, %. The data is as follows:

Element	Class, %	Method, %	Line, %	Branch, %
com.mбекtas.swe573_backend	65% (15/23)	77% (66/85)	79% (353/446)	70% (45/64)
> service	100% (3/3)	92% (24/26)	87% (196/223)	59% (25/42)
> security	66% (2/3)	90% (9/10)	91% (41/45)	83% (10/12)
> entity	50% (1/2)	50% (2/4)	40% (4/10)	100% (0/0)
> config	0% (0/5)	0% (0/11)	0% (0/38)	100% (0/0)
> dto	100% (4/4)	75% (6/8)	68% (30/44)	100% (0/0)
> dao	100% (0/0)	100% (0/0)	100% (0/0)	100% (0/0)
> Swe573BackendApplication	0% (0/1)	0% (0/1)	0% (0/1)	100% (0/0)
> controller	100% (5/5)	100% (25/25)	96% (82/85)	100% (10/10)

Figure 8.1 – Class, method, line and branch coverage of the unit tests

A report showing the results of the unit tests can be found in the project repository at:


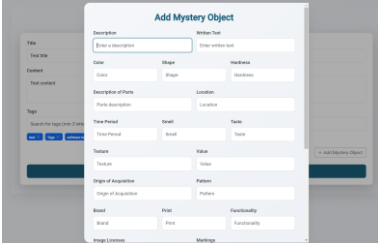

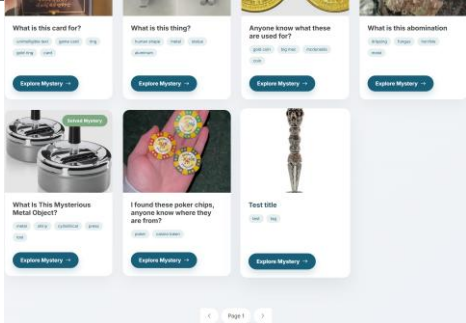
swe573-backend/Test Results - java_in_swe573-backend.html

GitHub doesn't render .html files in the browser but downloading this file and opening it in a browser will show all the test results.

8.2 User Acceptance Tests


Post Creation (PASSED)

Background: User is logged in as a user and is on the main page.

Step	Expected Result	Actual Result	Status
Click the “NEW MYSTERY” button	Create New Post page appears with input boxes for Title, Content and Tags. Also, a button named “+ Add Mystery Object” should appear.		Passed
Enter Title, Content and Tags. Then click the “+ Add Mystery Object” button.	A modal named “Add Mystery Object” should appear with all mystery object attribute fields.		Passed
Enter Mystery Object details and click “Save”	The modal should disappear, and a post preview should be shown below the post creation box.		Passed
Click the “Create Post” button	User should be redirected to the main page and the new mystery should appear there.		Passed

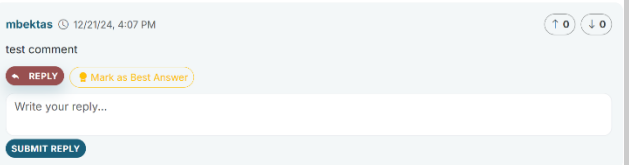
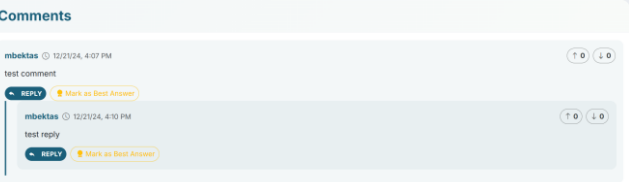
Adding a Comment (PASSED)

Background: User should be logged in and should be in a post details page.

Step	Expected Result	Actual Result	Status
Enter the comment to the “Add a comment” text box and click “Submit Comment”	Comment should be saved and shown in the Comments section.		Passed


Adding a Reply (PASSED)

Background: User should be logged in and should be in a post details page.

Step	Expected Result	Actual Result	Status
Click on the “Reply” button under a comment	A text box for entering the reply should be shown.		Passed
Enter a reply and click “Submit Reply”	Reply should be saved and shown under the parent comment.		Passed

Upvoting a Post (PASSED)

Background: User should be logged in and should be in a post details page.

Step	Expected Result	Actual Result	Status
Click the upvote just below the tags of the post.	The upvote button should be greyed out while the upvote is saving, then should be green once upvote is saved and upvote count should increase by 1.		Passed


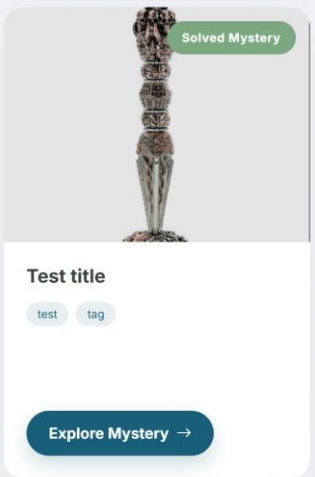
Upvoting a Comment (PASSED)

Background: User should be logged in and should be in a post details page.

Step	Expected Result	Actual Result	Status
Click the upvote just next to the comment	The upvote button should be greyed out while the upvote is saving, then should be green once upvote is saved and upvote count should increase by 1.		Passed

Marking the Best Answer (PASSED)

Background: User should be logged in and should be in a post details page of one of their posts (as post author).

Step	Expected Result	Actual Result	Status
Click “Mark as Best Answer” just below the desired comment.	The comment should be marked as the best answer with a badge.		Passed
Go to the main page	The post should be marked with “Solved Mystery”		Passed

9. Credentials and Posts for Testing

Posts named “I found these poker chips, anyone know where they are from?” and “What Is This Mysterious Metal Object?” can be tested with their authors:

Author for “I found these poker chips, anyone know where they are from?”:

Email: mb101@gmail.com

Password: 123456

Author for “What Is This Mysterious Metal Object?”:

Email: mustafabektas@hotmail.com

Password: 123456

Other posts and users were used for debugging and testing during the development of the application, but left there for a more populated home page.

Of course, users are welcome to create their own accounts and test the application.