

**CMSC 190 – SPECIAL PROBLEM**

# **Implementation of Systematic Access to Isolation Sources of Microbes in a Culture Collection System**

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# Overview

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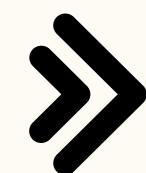
- Introduction
- Materials and Methods
- Results and Discussion
- Conclusion and Future Work
- Project Demonstration

# Introduction

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# Objectives

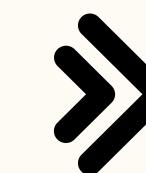
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To provide systematic access to the origin and environmental information of microbial strains through a search feature focused on isolation sources;



To design a location-based database for the storage of microbial data and metadata; and



To utilize internationally accepted controlled vocabularies such as Microbial Isolation Source Ontology (MISO) to categorize data in the database.

# **Materials and Methods**

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# **Results and Discussion**

# Development Tools

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MongoDB

Express

React

NodeJS

# System Features

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## Isolation Sources Modules

- Isolation Source Table

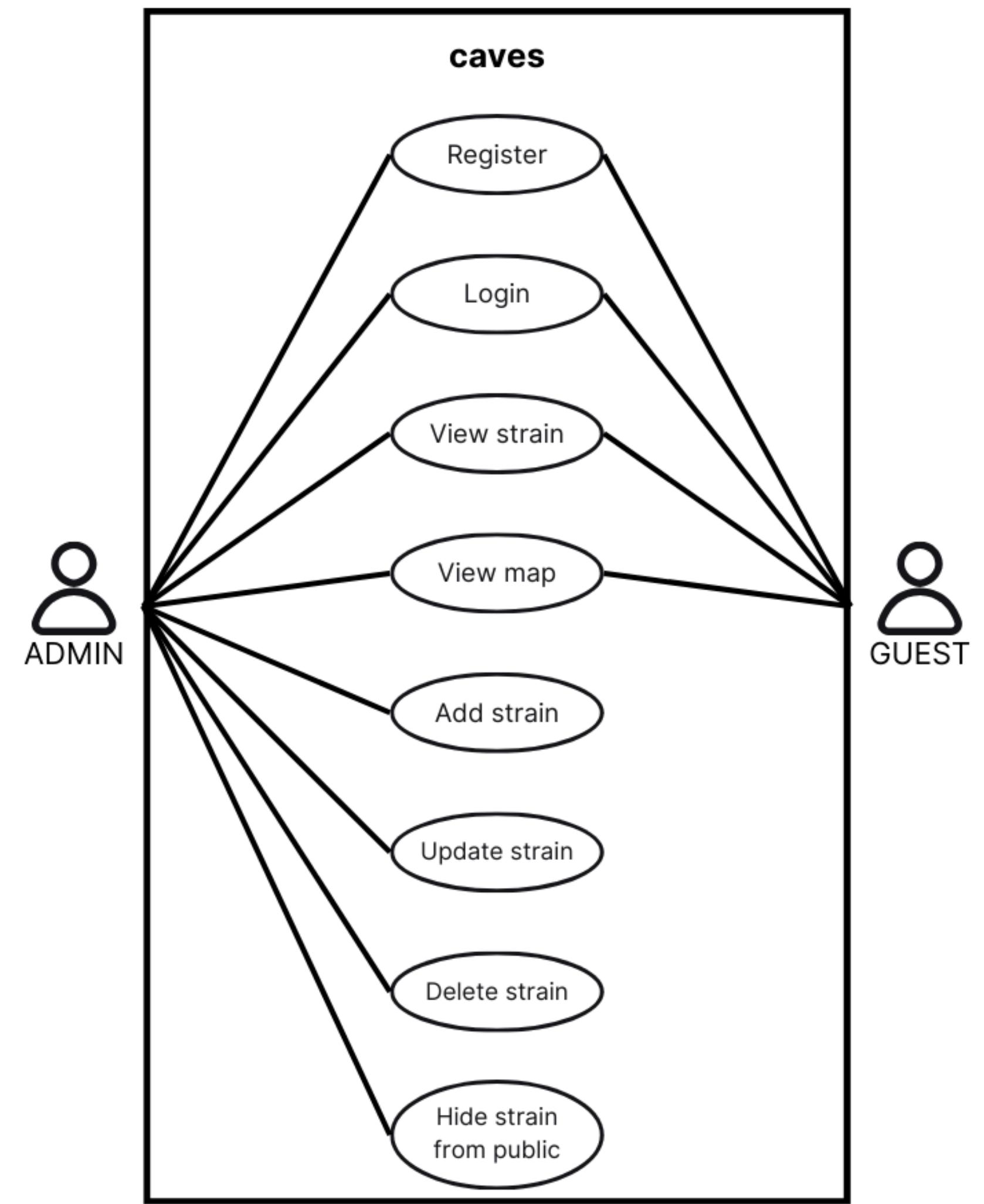
- Isolation Source Map

- Isolation Source Statistics

## User Levels

- Admin User

- Guest User



# Data Population

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- NICER CAVES Project 4 provided the data that populated the web application.
- Additional demo data to be displayed on public or guest view were from BacDive

# Web application

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- The web application is currently hosted on free web hosting platforms, with both the backend and frontend accessible at Netlify (<https://isolationsources-caves.netlify.app/>).

# System Testing

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- The system testing was conducted remotely by providing the testers with the link, user guide, and evaluation form via Google Forms.
- The evaluation form utilized John Brooke's System Usability Scale (SUS).
- The web application underwent testing by 8 respondents, comprising of NICER CAVES members and UPLB BS Biology undergraduates and graduates.

	ODD ITEMS	EVEN ITEMS	SCORE	GRADE
TESTER 1	22	5	92.5	A
TESTER 2	17	10	67.5	C
TESTER 3	21	7	85	A
TESTER 4	25	9	90	A
TESTER 5	24	10	85	A
TESTER 6	20	8	80	B
TESTER 7	19	9	75	B
TESTER 8	21	8	82.5	A
<b>MEAN SCORE:</b>			82.1875	<b>A</b>

# System Testing

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- The web application obtained a score of 82.1875, qualifying for an A grade, indicating an acceptable score and excellent usability.

# System Testing

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- The web application has a modern and fresh look that differs from traditional online metadatabases.
- Include authors and citations, as well as simple descriptions and discussions on the statistical results of the data

# Conclusion

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- The Caves Isolation source web application was successfully developed using the MERN stack and is currently deployed on Netlify.
- The application provides a database on the isolation source information of the microbial collected from bats and caves in CALABARZON. It emphasizes the usage of MISO categories and an interactive map to give strain isolation source information

# Conclusion

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- The application received an above-average SUS score of 82.1875.
- Overall, the web application has accomplished its objectives of developing an isolation source focus database.

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