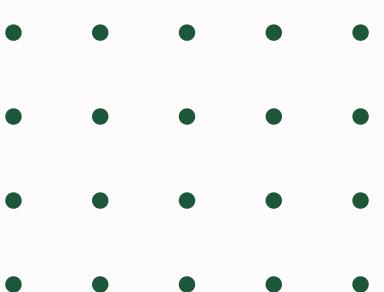


CMSC 190-2

# SP2 PRESENTATION

Keith Florence C. Martin  
Student, BS Computer Science  
ICS, CAS, UPLB

Adviser: Mylah Anacleto



SP TITLE

# **CavelS: A Culture Collection Information System for Cave Microorganisms in CALABARZON, Philippines**



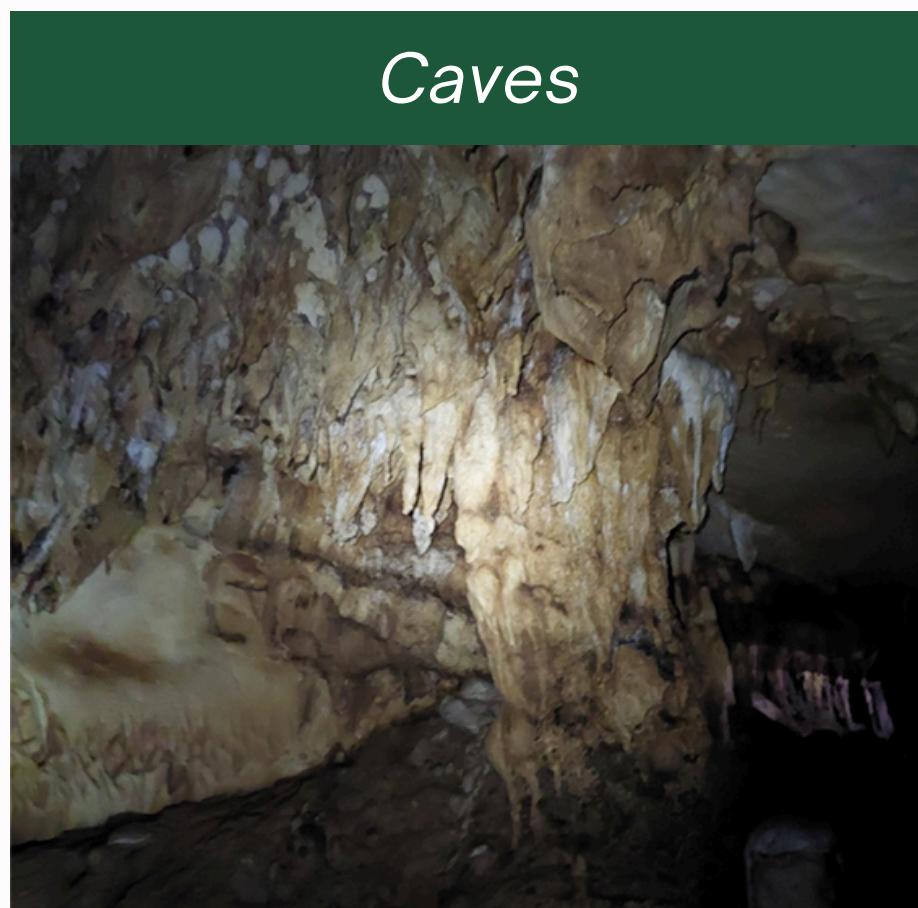
# Introduction



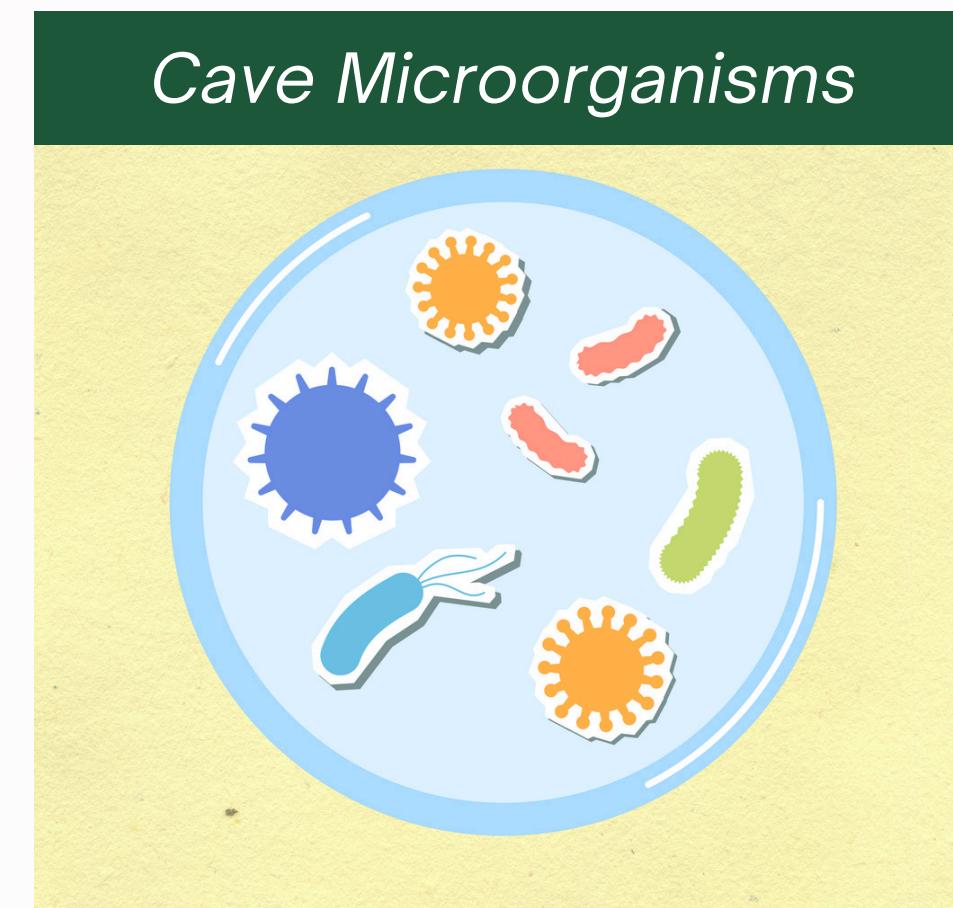
Caves

*Caves are valuable natural resources with high levels of biodiversity, which enables these natural formations to provide essential ecosystem functions.*

# Introduction

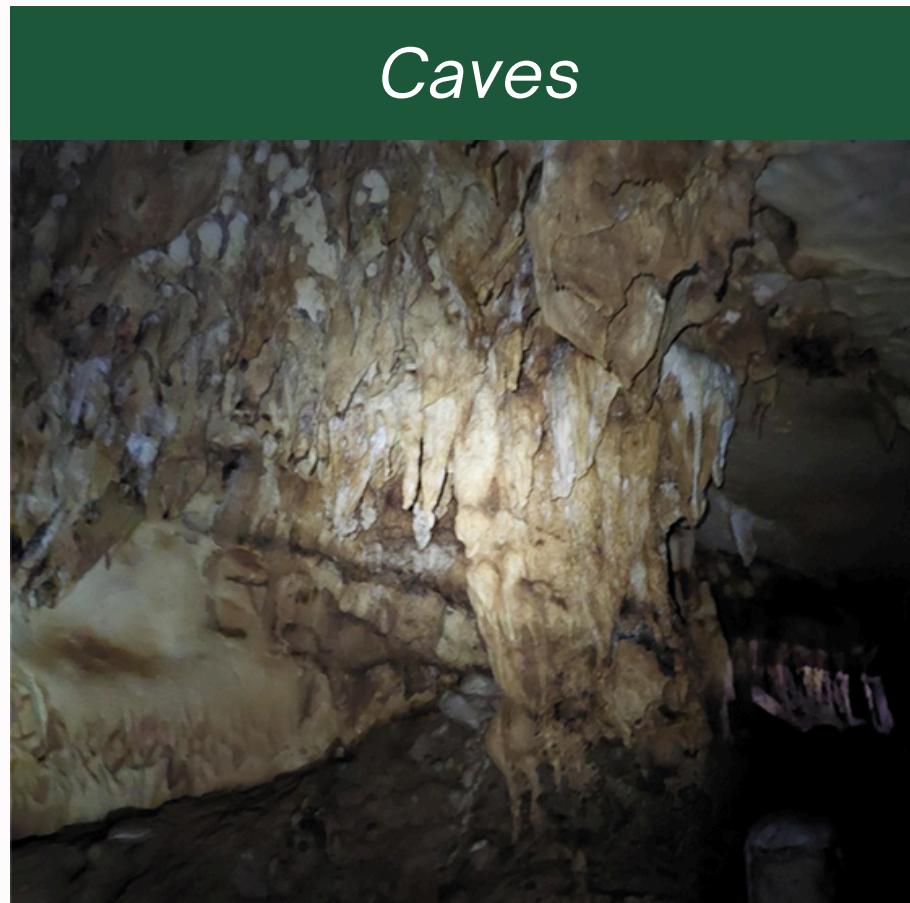


*Caves are valuable natural resources with high levels of biodiversity, which enables these natural formations to provide essential ecosystem functions.*



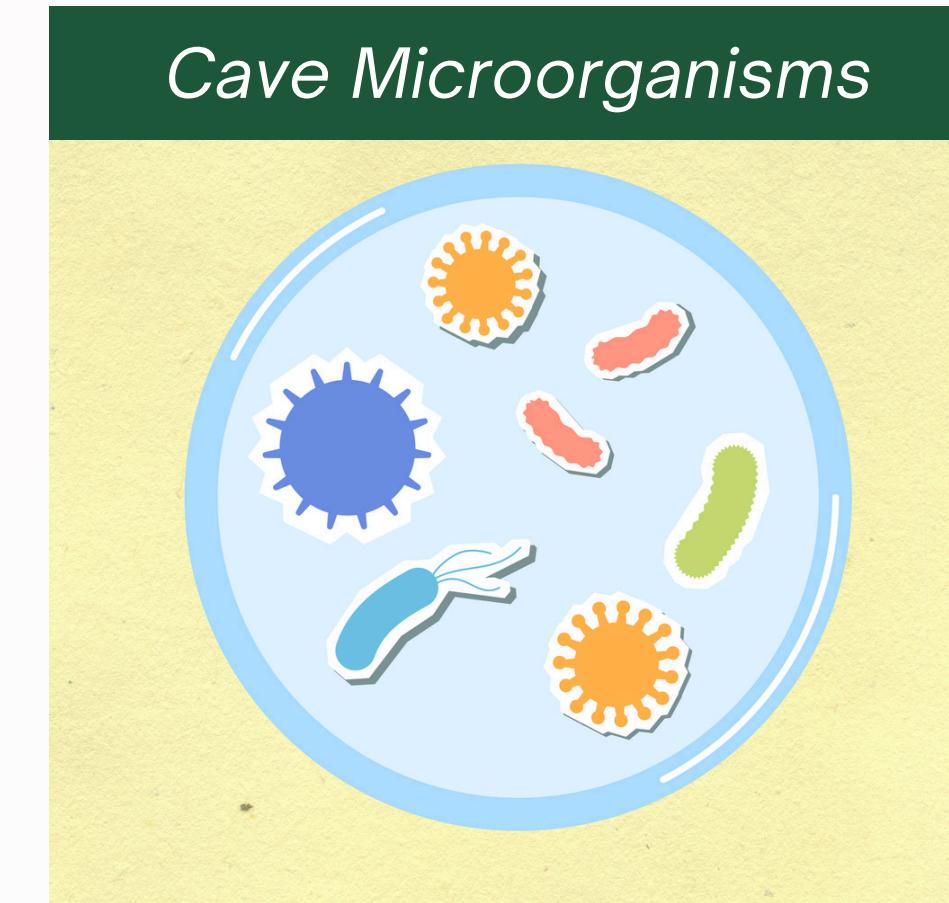
*Cave microorganisms play a crucial role in shaping their habitat's distinctive ecological dynamics.*

# Introduction



Caves

Caves are valuable natural resources with high levels of biodiversity, which enables these natural formations to provide essential ecosystem functions.



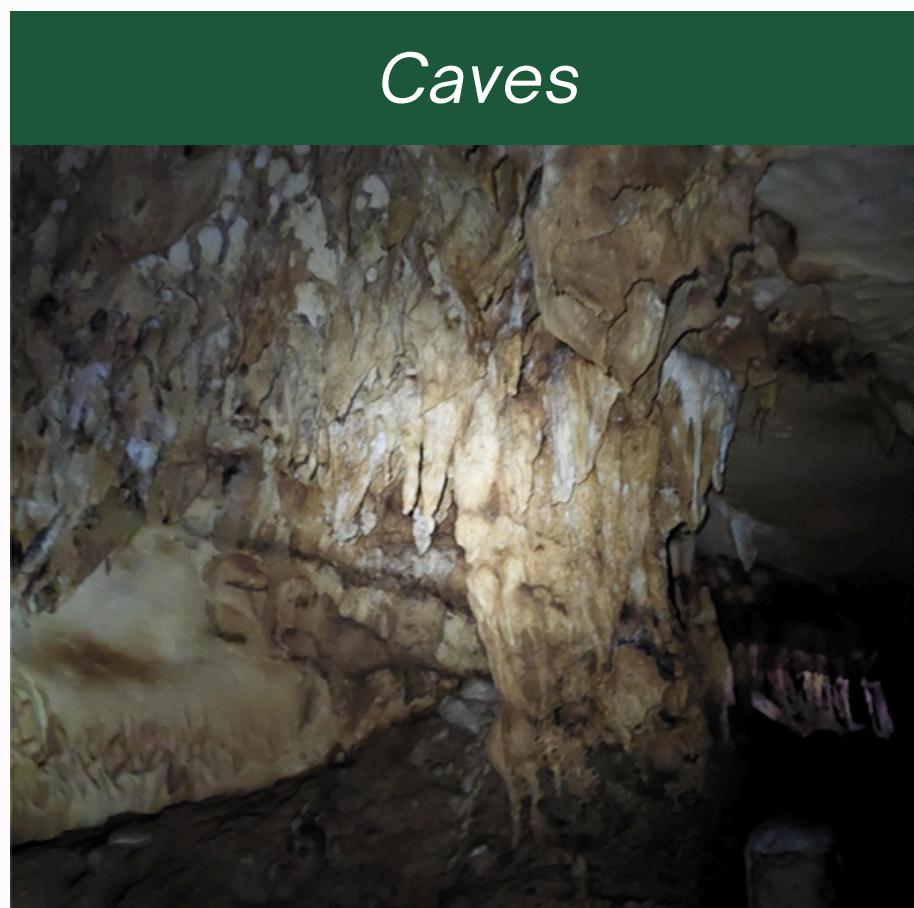
Cave microorganisms play a crucial role in shaping their habitat's distinctive ecological dynamics.

genetic makeup

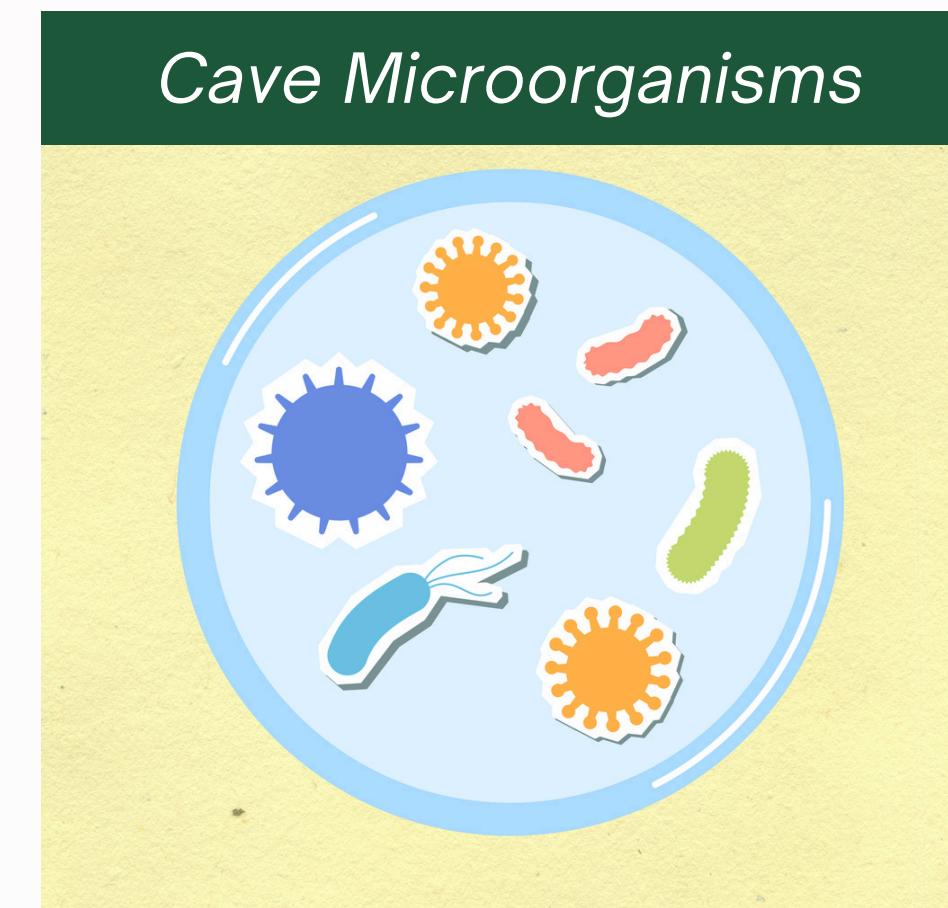
metabolic  
processes

interactions with  
other organisms

# Introduction



*Caves are valuable natural resources with high levels of biodiversity, which enables these natural formations to provide essential ecosystem functions.*



*Cave microorganisms play a crucial role in shaping their habitat's distinctive ecological dynamics.*



*Microbial culture collections help preserve knowledge on various cultures and advance microbial research.*

# Significance

*Target*



*Researchers at the Microbial Culture Collection, Museum of Natural History, University of the Philippines Los Banos (UPLB)*

# Significance

*Target*



*Researchers at the Microbial Culture Collection, Museum of Natural History, University of the Philippines Los Banos (UPLB)*

*CaveIS*



*Online information system containing their findings*

# Objectives



# Objectives

## Objective 01

Develop a secure and responsive web-based single-page application (SPA) using the selected technology stack



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Develop a secure and responsive web-based single-page application (SPA) using the selected technology stack

## Objective 02

Implement an information management system for data collected from caves



# Objectives

## Objective 01

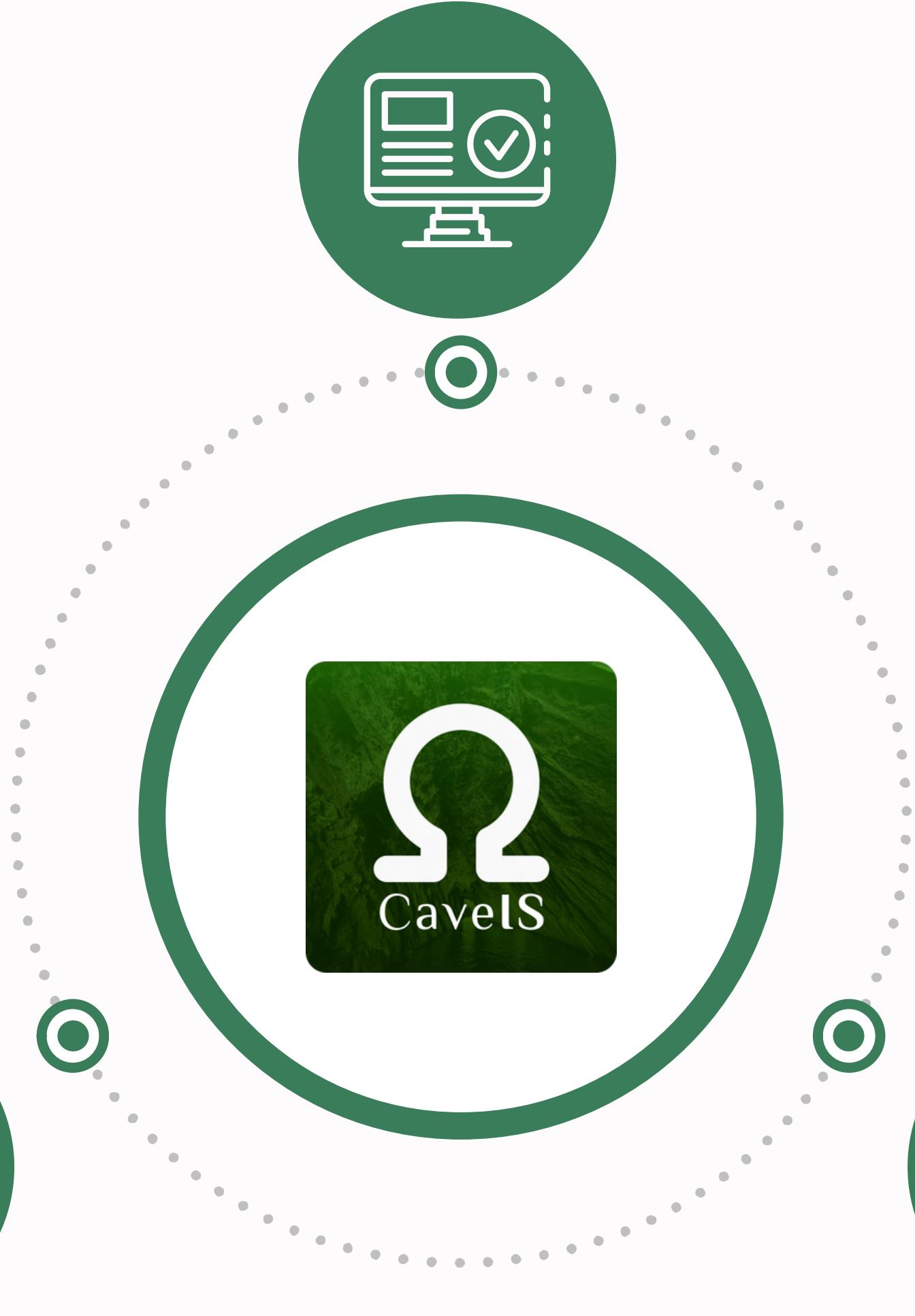
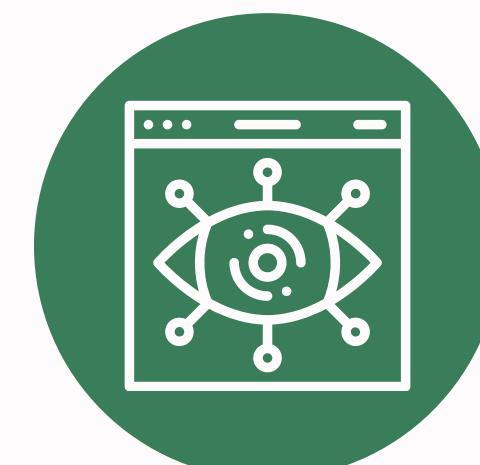
Develop a secure and responsive web-based single-page application (SPA) using the selected technology stack

## Objective 02

Implement an information management system for data collected from caves

## Objective 03

Provide a dashboard view to display summary information from the cave study

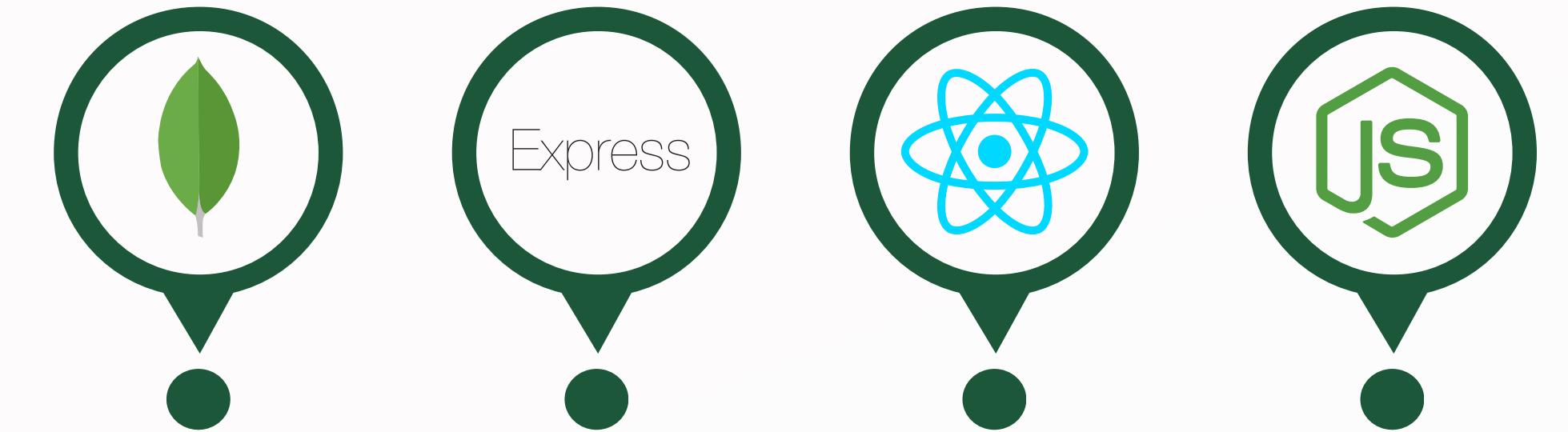


# Methodology

01

The development of the system utilized the following technology stack:

- MySQL for the database
- Express.js for back-end development
- React for front-end development
- NodeJS for server-side code execution



CaveLS  
A Culture Collection Information System  
for Cave Microorganisms

Accession No. Search for an isolate accession number...

CaveLS presents curated culture collection strains and information exclusively from CALABARZON caves, selected and studied by researchers at the Microbial Culture Collection, Museum of Natural History, University of the Philippines Los Baños.

Total Isolates: 128

Total Caves: 22

# Methodology

02

The web application's components were hosted across the following platforms:

- Aiven for the database
- Render for the backend
- Netlify for the frontend



The screenshot shows the Cavels homepage with a dark green background featuring a textured, rocky surface. At the top, there is a navigation bar with the logo 'ΩCavels' and links for 'Home', 'Isolates', and 'Taxonomic Tree'. On the right side of the header is a 'Sign In' button. The main title 'Cavels' is prominently displayed in large white letters, followed by the subtitle 'A Culture Collection Information System for Cave Microorganisms'. Below the title is a search bar with fields for 'Accession No.' and 'Search for an isolate accession number...' with a magnifying glass icon. At the bottom left, there is a descriptive text block about the curated culture collection from CALABARZON caves. To the right, there are two summary statistics: 'Total Isolates: 128' and 'Total Caves: 22'.

Cavels presents curated culture collection strains and information exclusively from CALABARZON caves, selected and studied by researchers at the Microbial Culture Collection, Museum of Natural History, University of the Philippines Los Baños.

Total Isolates  
128

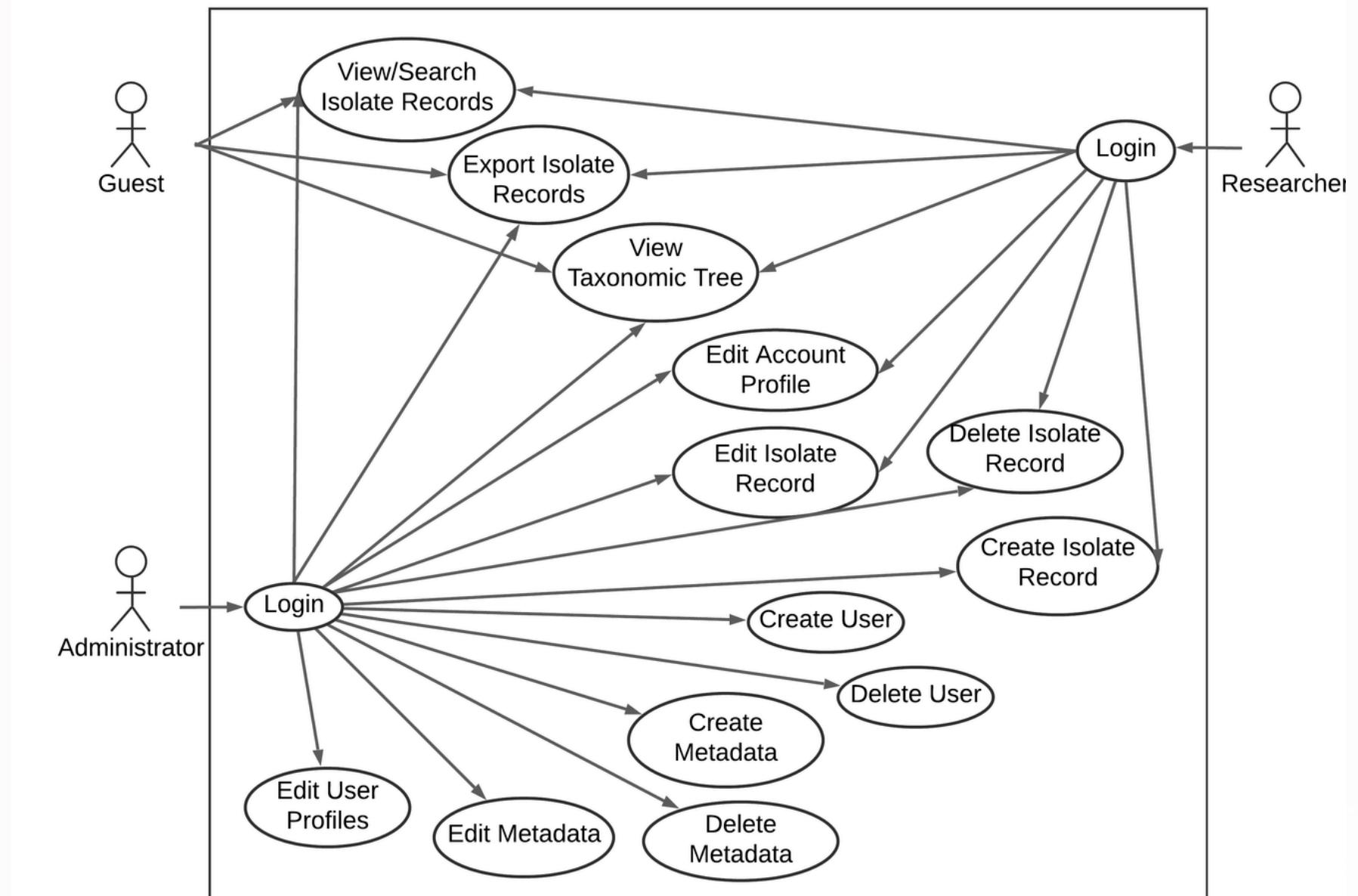
Total Caves  
22

# Methodology

## 03

The system employed a role-based access control mechanism, defining specific operations and management capabilities for three distinct user levels:

- Guest
- Researcher
- Administrator



# DEMONSTRATION



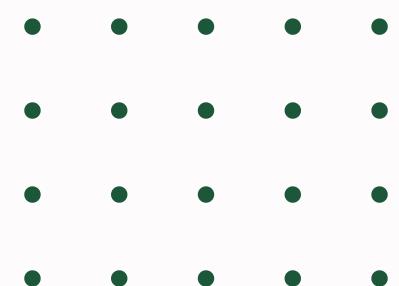
# Results

The testing pool consisted of 8 individuals, including BS Biology students from UPLB and members of the NICER Program: Center for Assessment of Cave Natural Resources (CAVE) in CALABARZON, affiliated with the Microbial Culture Collection, Museum of Natural History, UPLB.

Resp.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Individual Score
1	4	2	5	1	5	1	5	1	4	1	92.5
2	4	1	5	1	4	1	5	1	5	1	95
3	3	1	5	2	5	2	5	1	5	3	85
4	5	1	5	1	4	1	4	1	4	1	90
5	4	1	5	2	5	1	4	1	4	2	87.5
6	4	3	4	2	3	2	3	2	4	3	62.5
7	4	1	5	1	5	1	4	1	5	1	90
8	5	5	5	3	5	3	5	1	4	5	67.5
Mean											83.75

**83.75**

Average SUS



# CONCLUSION



## Objectives Satisfied

The study successfully developed a web application that serves as a culture collection information system for cave microorganisms, offering researchers and microbiologists a way to collate their findings on cave microorganism research.

# CONCLUSION



## Objectives Satisfied

The study successfully developed a web application that serves as a culture collection information system for cave microorganisms, offering researchers and microbiologists a way to collate their findings on cave microorganism research.



## Successful Test Results

Successful results from the SUS survey and positive feedback from the testers indicate that CavelS will prove to be useful for both researchers and students in the field of microbiology, facilitating more efficient data management and potentially aiding in the discovery and study of new cave-dwelling microorganisms locally.

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# SP PROPOSAL PRESENTATION

Presented by  
Keith Florence C. Martin