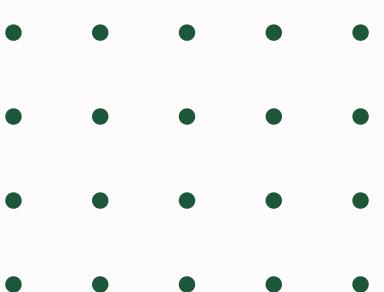


CMSC 190-2

SP2 PRESENTATION

Keith Florence C. Martin
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ICS, CAS, UPLB

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SP TITLE

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



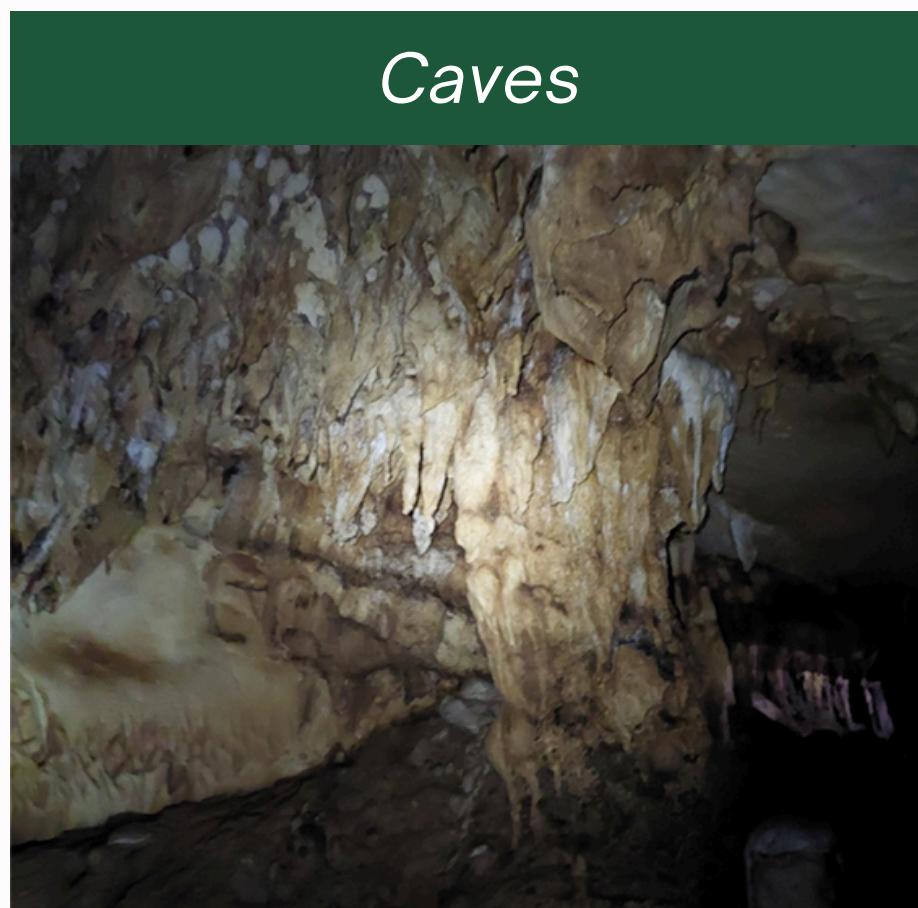
Introduction



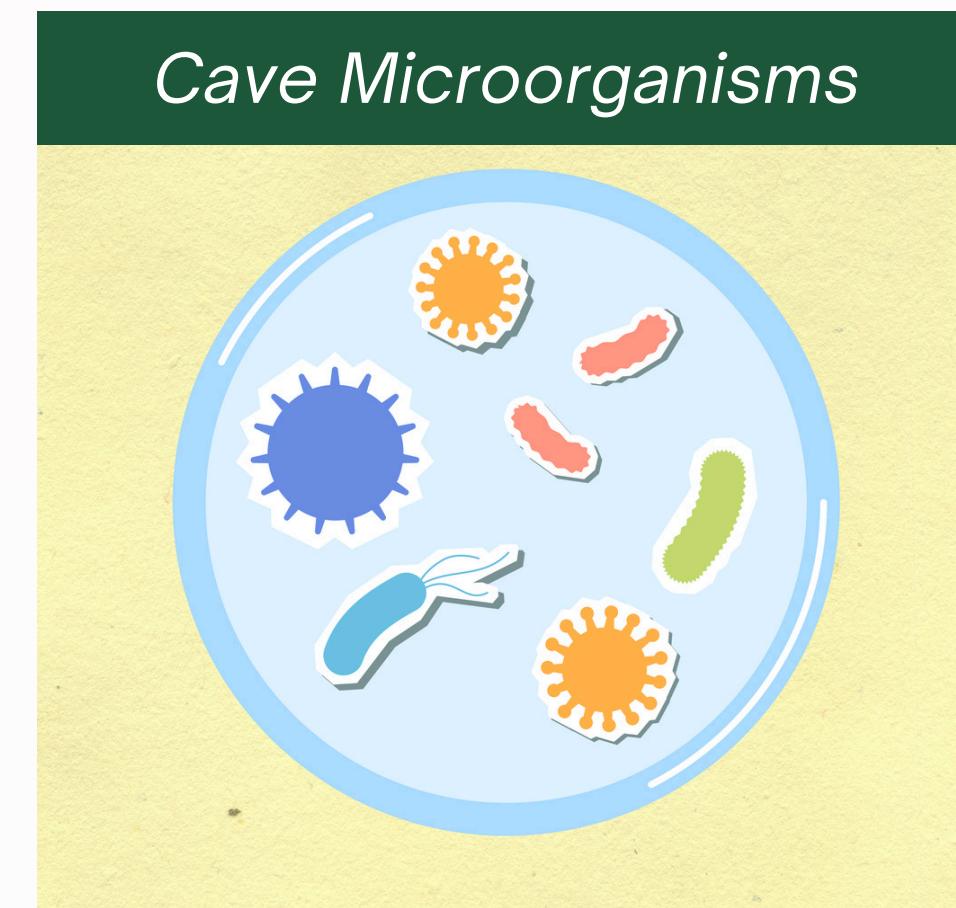
Caves

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

Introduction

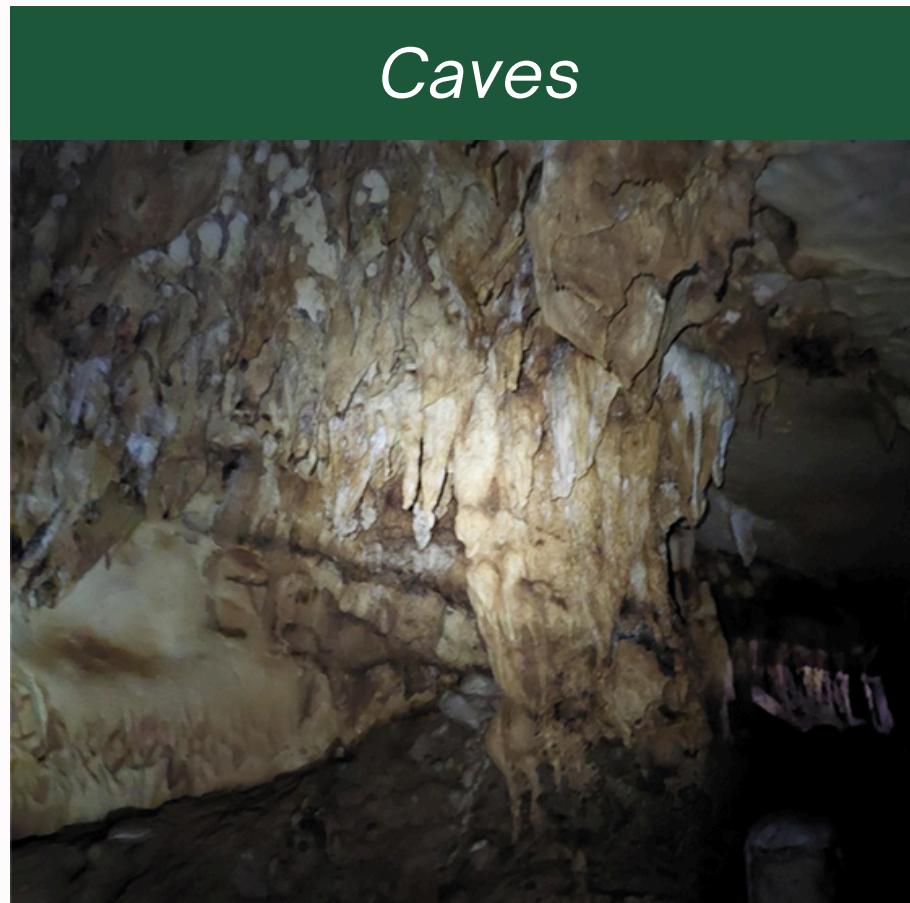


Caves are valuable natural resources with high levels of biodiversity, which enables these natural formations to provide essential ecosystem functions.



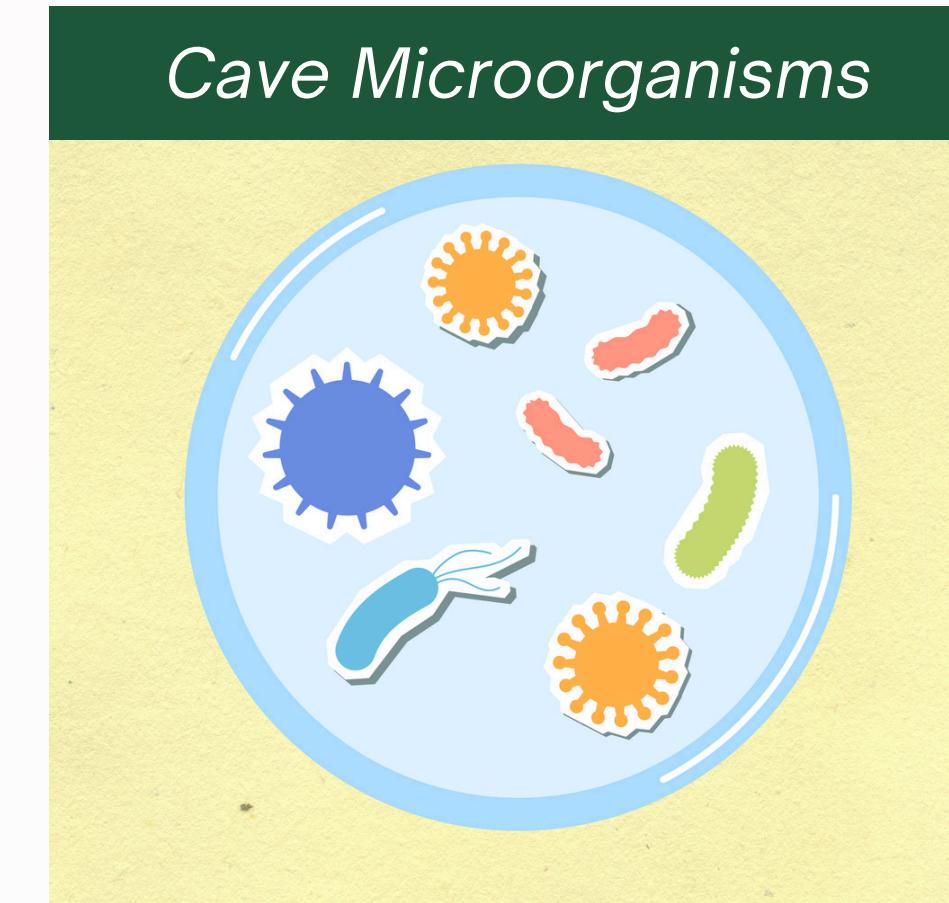
Cave microorganisms play a crucial role in shaping their habitat's distinctive ecological dynamics.

Introduction



Caves

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



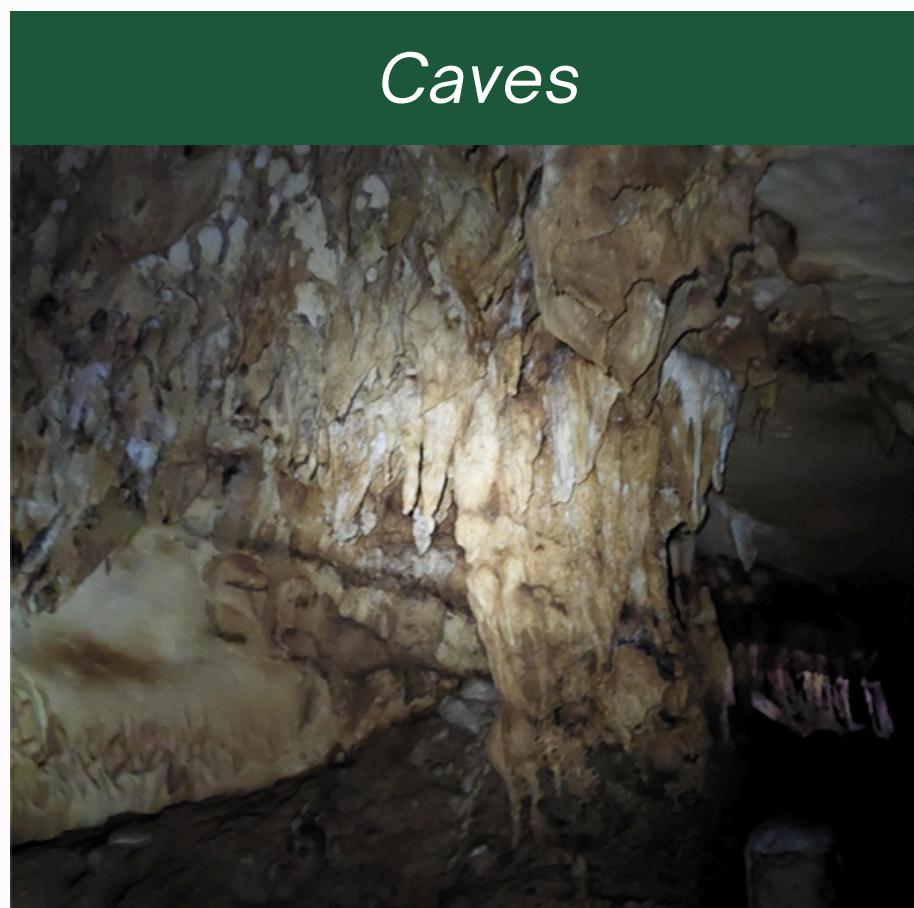
Cave microorganisms play a crucial role in shaping their habitat's distinctive ecological dynamics.

genetic makeup

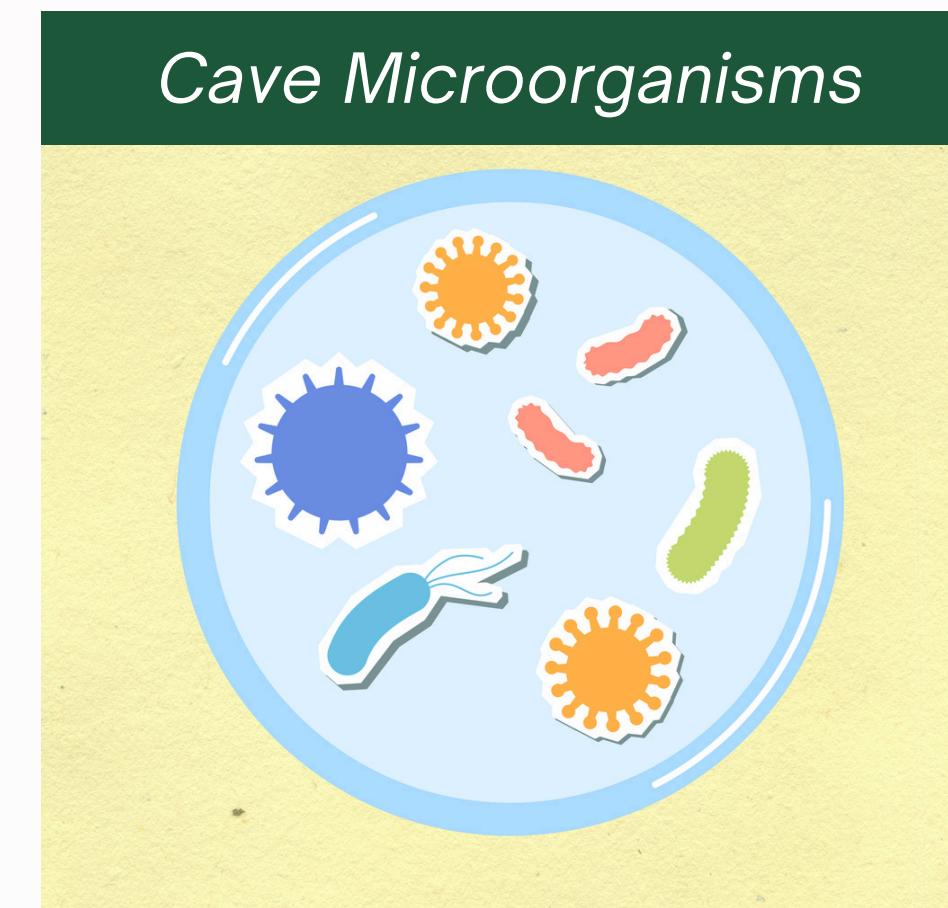
metabolic
processes

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

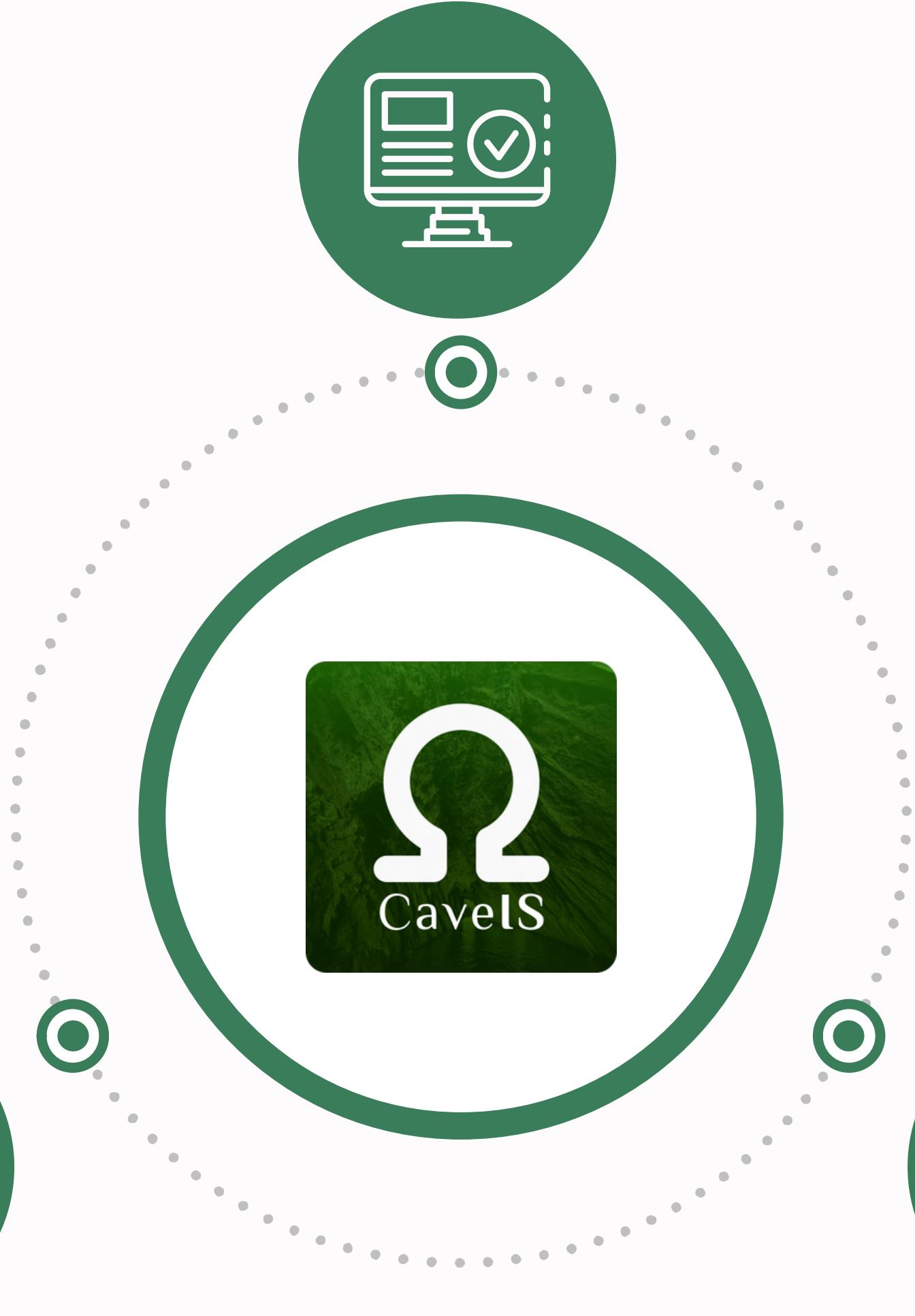
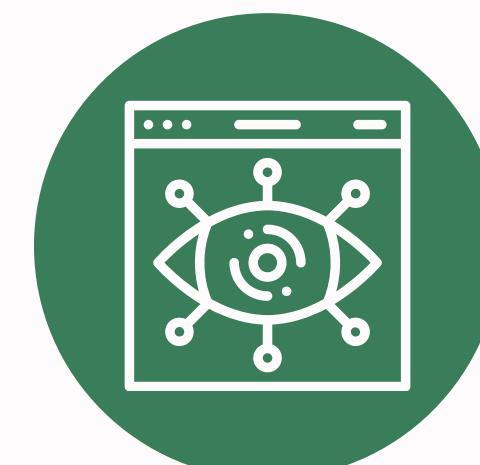
Develop a secure and responsive web-based single-page application (SPA) using the selected technology stack

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

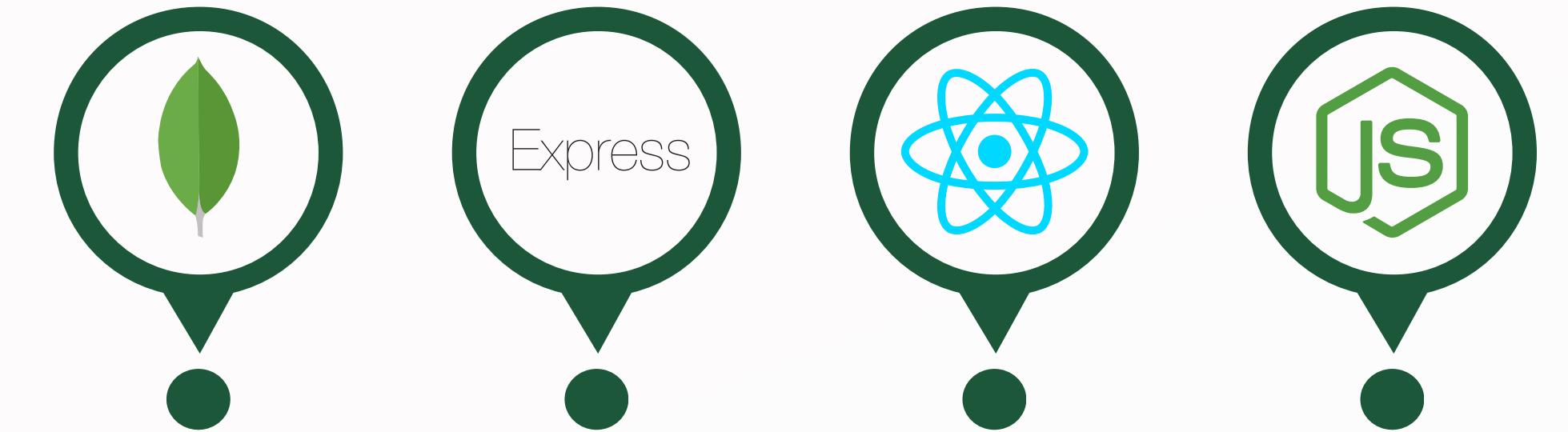


Methodology

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

Total Isolates	Total Caves
128	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.

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

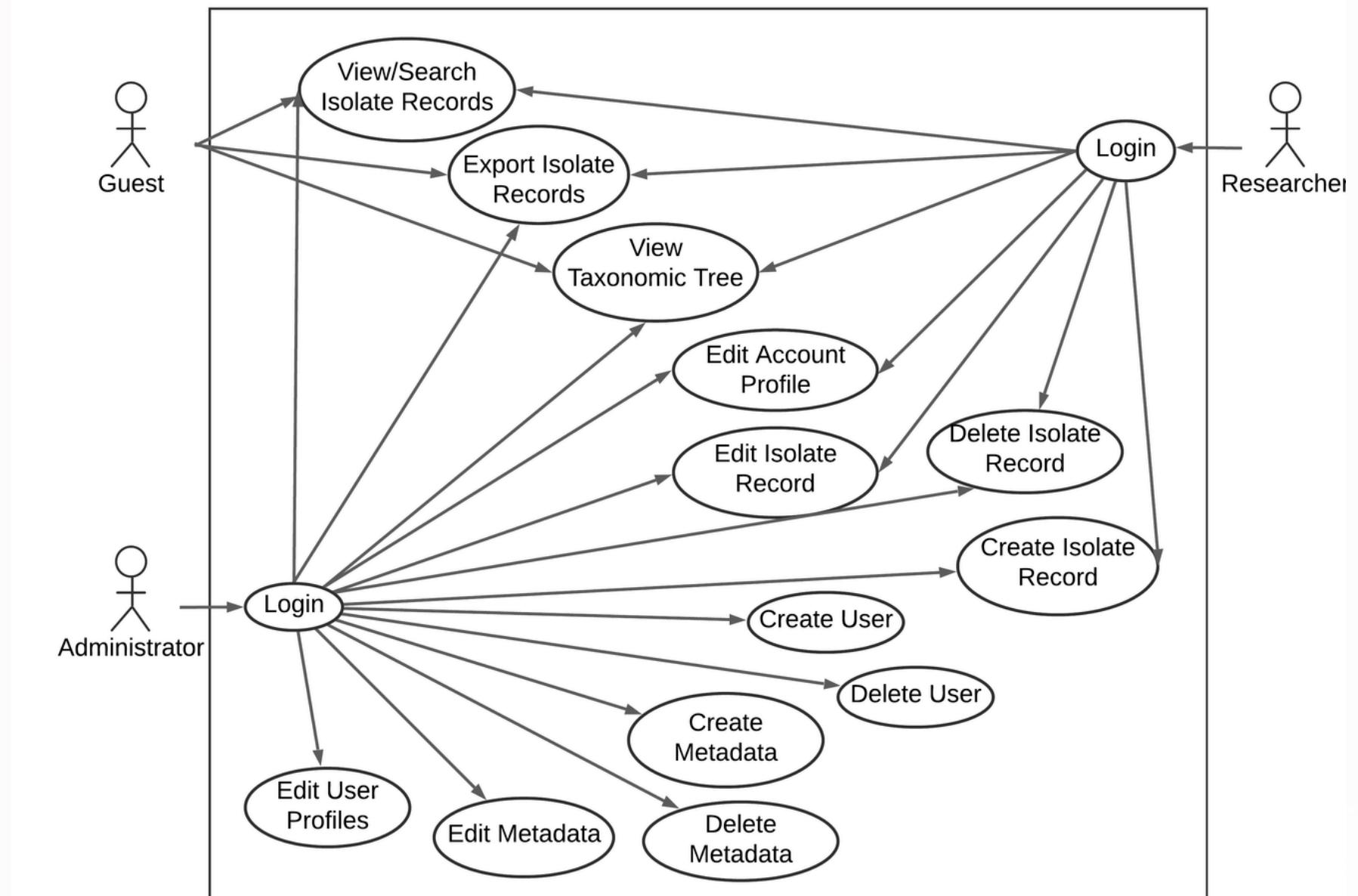
Total Caves
22

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

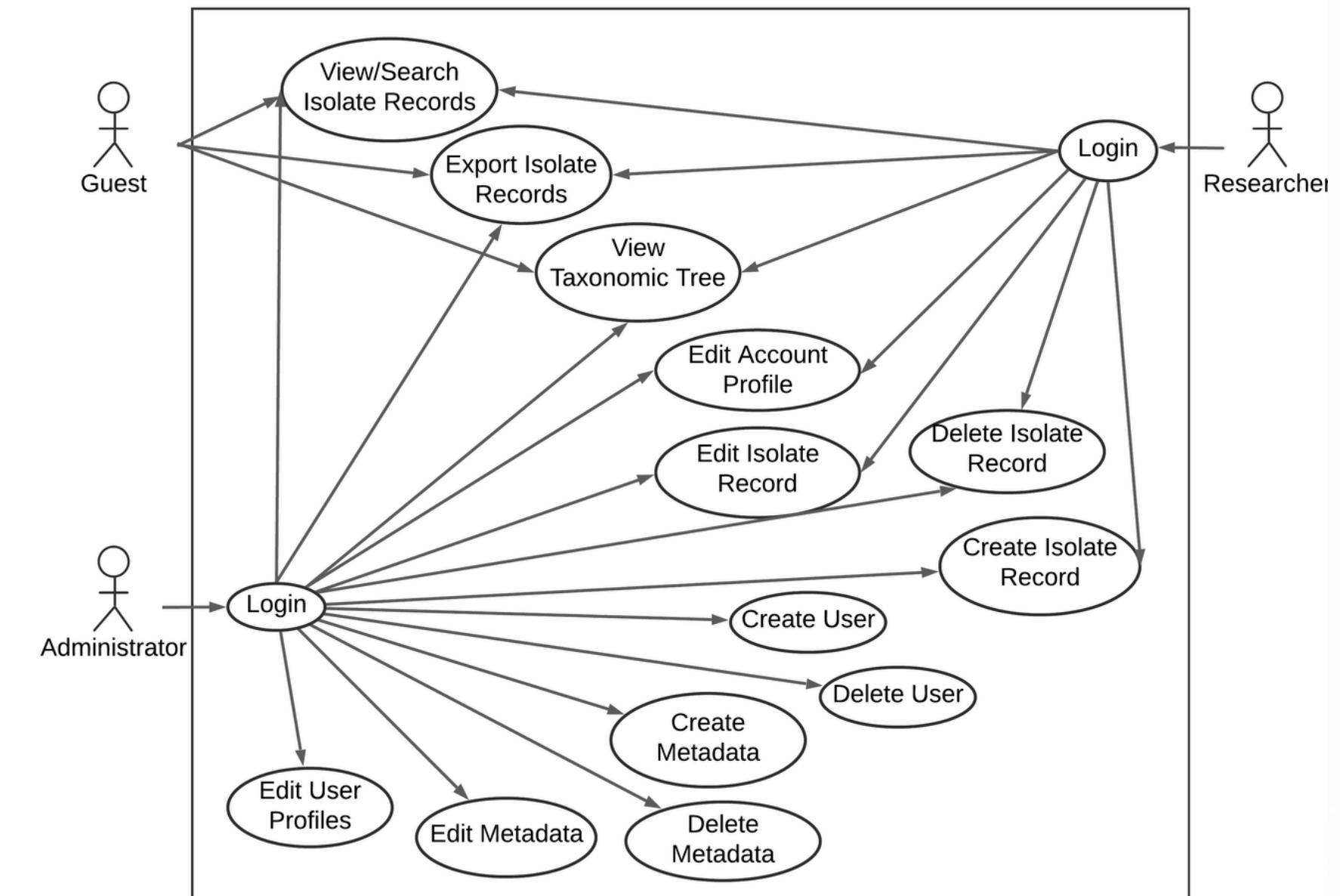


Methodology

04

The features of the application are grouped into three parts:

- User Authentication and Management
- Isolate Management and Exploration
- Isolate Metadata Management



DEMONSTRATION



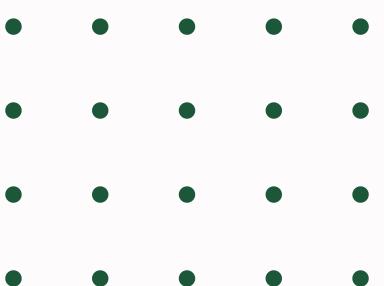
Results

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.

CMSC 190-1

SP PROPOSAL PRESENTATION

Presented by
Keith Florence C. Martin