TEAM #4

ISSP COMP 4800
Statement of Work

BC Center for Aquatic Health Sciences

Huynh Nhan Ngo A01214986
Nick Luong - A00972523
Hyerim Shin A01085855
HyunBae Choi A01256445
Maximilian Anderson-Baier A01070399

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1. Document Version

Version	Description	Date	Author(s)
1	*Created*	*20/09/2022*	Huynh Nhan Ngo Nick Luong Hyerim Shin

			HyunBae Choi Maximilian Anderson-Baier

2. Team Contact Information

Nick Luong
Student Number: A00972523
602 – 13615 Fraser Hwy
Vancouver, BC, Canada, V3T 0P7

Hyerim Shin
Student Number: A01085855
903-4458 Beresford Street,
Vancouver, BC, Canada, V5H 0J1

HyunBae Choi
Student Number: A01256445
46 – 2978 Walton Ave,
Coquitlam, BC, Canada, V3B 6V6

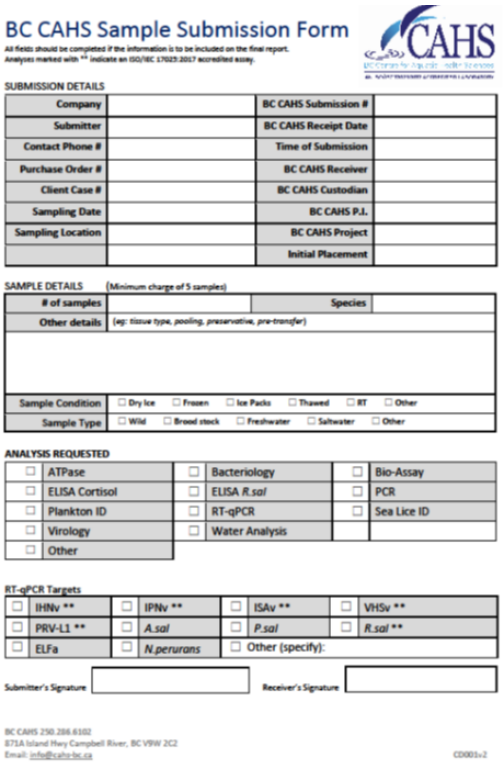
Maximilian Anderson-Baier
Student Number: A01070399
1755 Kitchener Street,
Vancouver, BC, Canada, V5L 2W4

Huynh Nhan Ngo
Student Number: A01214986
801-2220 Kingsway,
Vancouver, BC, Canada, V5N 0G4

3. Description

BC CAHS is looking to digitialize their sample registration process. Currently, BC CAHS accepts all sample submissions through a physical form (Figure 1). This form is then manually transposed into an excel sheet, which houses all information about the submitted sample and lab results. BC CAHS aims to replace this excel based system with a database that can be filtered, effectively searched through and edited. Through-out this term, our team's focus will be on designing a centralized database that can be used by BC CAHS lab workers. Our emphasis will

be on implementing this database, and a front-end component which allows CAHS staff to filter, search and edit existing database elements.



BC CAHS Sample Submission Form

All fields should be completed if the information is to be included on the final report.
Analyses marked with ** indicate an ISO/IEC 17025:2017 accredited assay.

SUBMISSION DETAILS

Company		BC CAHS Submission #	
Submitter		BC CAHS Receipt Date	
Contact Phone #		Time of Submission	
Purchase Order #		BC CAHS Receiver	
Client Case #		BC CAHS Custodian	
Sampling Date		BC CAHS P.I.	
Sampling Location		BC CAHS Project	
		Initial Placement	

SAMPLE DETAILS (Minimum charge of 5 samples)

# of samples		Species	
Other details	(eg: tissue type, pooling, preservative, pre-transfer)		
Sample Condition	☐ Dry Ice ☐ Frozen ☐ Ice Packs ☐ Thawed ☐ RT ☐ Other		
Sample Type	☐ Wild ☐ Brood stock ☐ Freshwater ☐ Saltwater ☐ Other		

ANALYSIS REQUESTED

☐	ATPase	☐	Bacteriology	☐	Bio-Assay
☐	ELISA Cortisol	☐	ELISA *R.sal*	☐	PCR
☐	Plankton ID	☐	RT-qPCR	☐	Sea Lice ID
☐	Virology	☐	Water Analysis		
☐	Other				

RT-qPCR Targets

☐	IHNv **	☐	IPNv **	☐	ISAv **	☐	VHSv **
☐	PRV-L1 **	☐	*A.sal*	☐	*P.sal*	☐	*R.sal* **
☐	ELFa	☐	*N.perurans*	☐	Other (specify):		

Submitter's Signature | Receiver's Signature

BC CAHS 250.286.6102
871A Island Hwy Campbell River, BC V9W 2C2
Email: info@cahs-bc.ca

CD001v2

Figure 1: Current Sample Submission Form

4. *Proposed Solution*

The CAHS team has asked us to digitize and optimize their current sample registration and tracking processes. After preliminary discussions about their needs, our team proposes to implement a relational database hosted on their internal servers for quick and reliable data access, updating, and querying. We also plan to build a simple frontend for their team to interact and input their required form data to send to the database.

Our proposed solution will have a fully implemented relational database connected to a simple frontend for the CAHS team to input data. Our system will also allow the team to do some simple queries to search and filter current/past records.

5. *Stakeholders*

- Ahmed Siah - ahmed.siah@cahs-bc.ca
    - Director - The head of the CAHS team
- Shelby Reimer - shelby.reimer@cahs-bc.ca
    - Research Assistant - Our main point of contact as she has direct experience with the current system in place

6. *Proposed Technology*

Frontend: ReactJS
Backend: Express
Database: PostgreSQL
Servers/Hosting: Canada Compute Arbutus

7. *Assumptions*

7.1. Non-Technical Assumptions

- The submission form information will be manually inputted.
- The application should not be publicly accessed, it is for internal usage only.
- The information should be confidential and only visible to employees.

7.2. Technical Assumptions

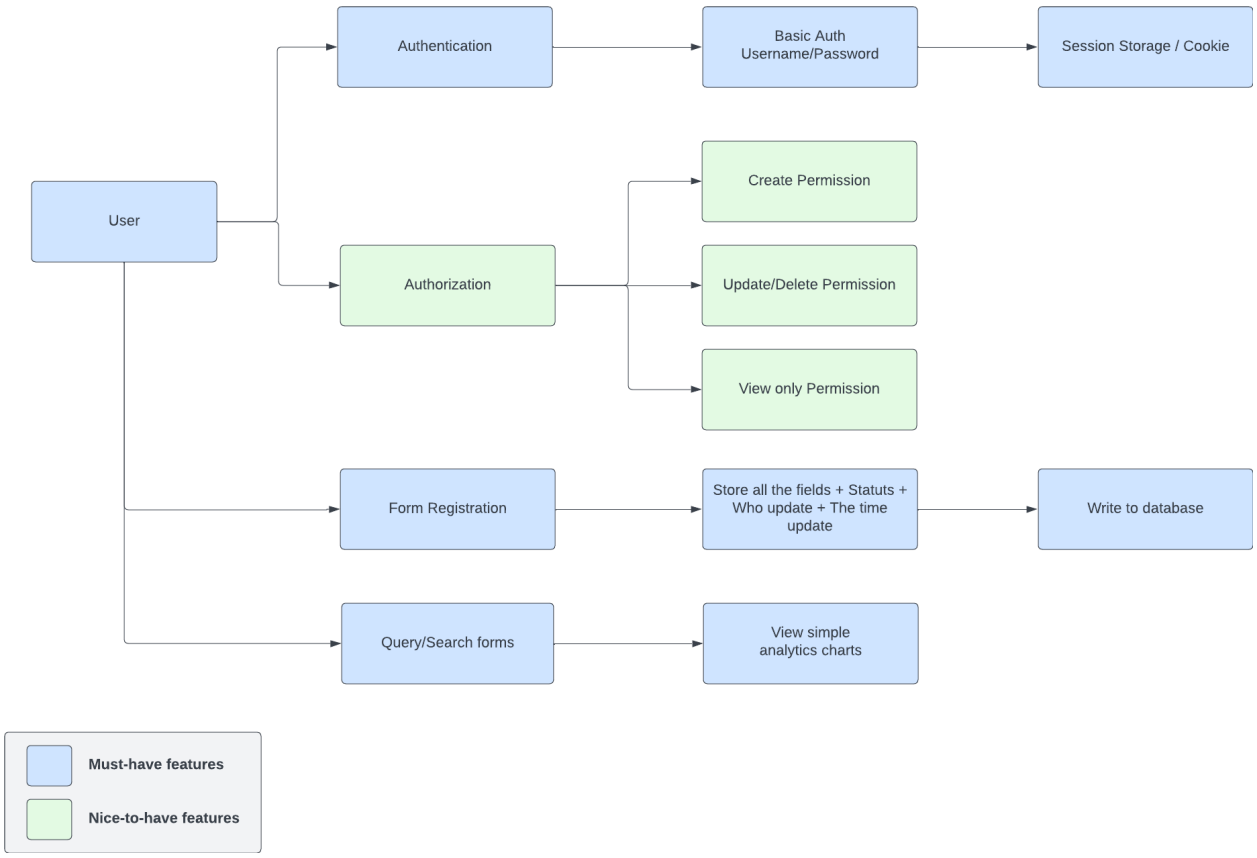
- The application will be developed from scratch.
- There is no server provided at the start, all database servers will be hosted at a local machine for each individual developer.

8. *Deliverables*

Deliverable	**Description**
Code	A zip file of all the source code or github repository that owned by the stakeholder
Documentation	A concise documentation that states the high level information of how the system work

9. *Requirements*

- After receiving a submission form from their client, the client wants to be able to fill in all the information related to the submission form including all the fields, status, as well as the timestamp of each event.
- The entered form entries can be updated (field values or status), including who updated the status, and the updated timestamp should be stored as well.
- Client also requests a basic dashboard that shows all the entered form submissions, and the ability to filter/search for a specific form for analytics purposes.
- On the dashboard screen, it should show some basic analytical numbers like: number of forms that are at a specific status, or how many form submissions that have not yet been processed for a while.



10. Lower Priority Features

- Implement detailed graphical representation of data, as this may not fall within the scope of this project term.
- Deploy the application Compute Canada Arbutus (internal servers).

11. Out of Scope

The CAHS team would eventually like to implement a mobile version of the program as well as move everything into a cloud-based architecture to make everything easily accessible to all staff currently working in the research lab.

They would also like a dashboard reporting with in-depth visualizations. However, our team may not get to those features and may be a nice-to-have if possible.

12. Existing System

The current sample submission form uses a method in which CAHS receives documents written by clients and enters them directly into a spreadsheet. All information from the submission form gets manually entered into the spreadsheet. And the separate spreadsheet where diagnostic status details are inputted (including dates and initials of staff).

13.Diagrams

13.1. Client Diagrams

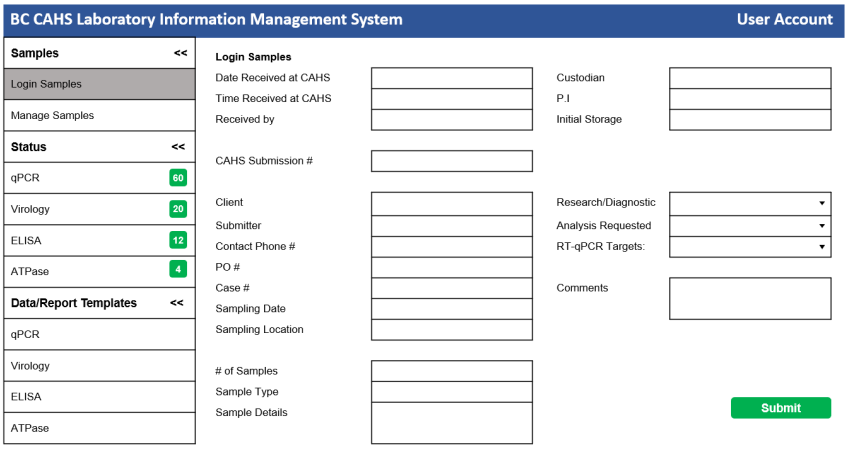


Figure 2: BC CAHS Mock-Up of UI

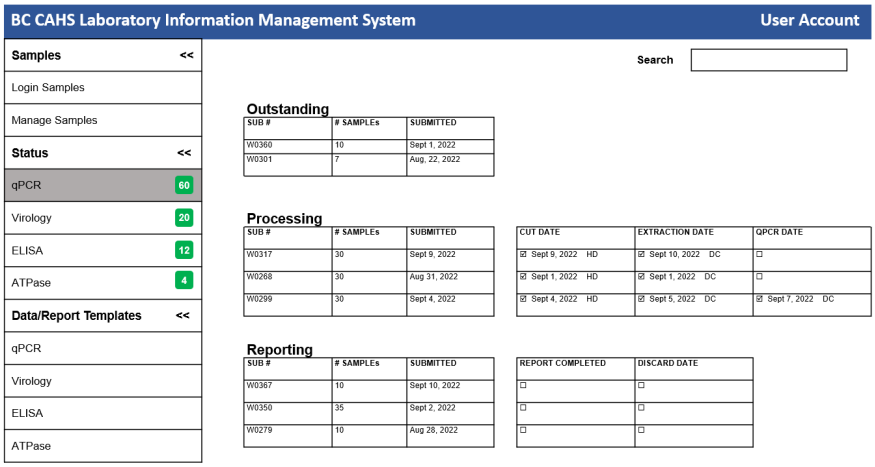


Figure 3: BC CAHS Mock-Up of UI

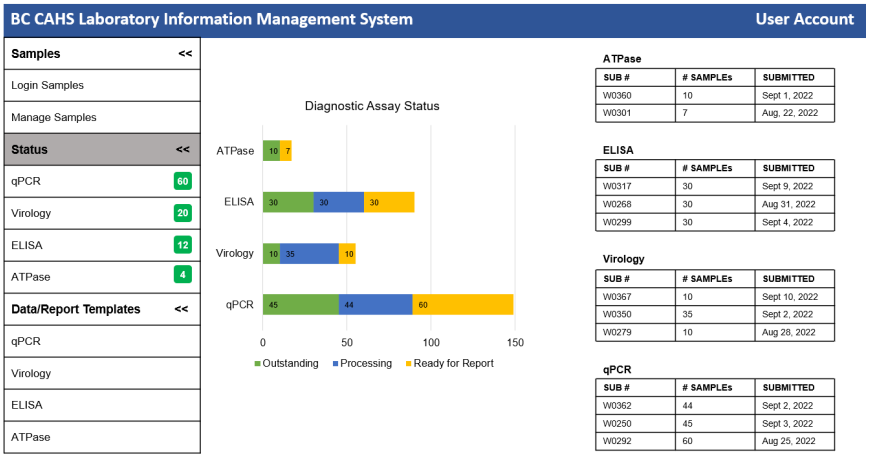
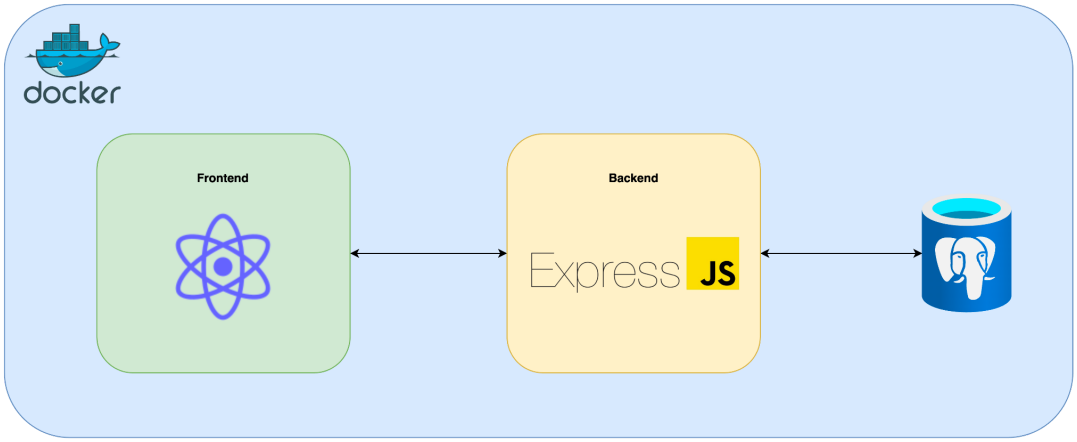


Figure 4: BC CAHS Mock-Up of UI

13.2. Team Diagrams




CAHS LIMS
Laboratory Information Management System
Username
Password
Confirm Password
Sign Up
Already had an account? Log in


BC CAHS Laboratory Information Management System
Hello Shelby
Sample
Login Samples
Manage Samples
Status
qPCR 60
Virology 20
ELISA 12
ATPase 4
Data/Report Templates
qPCR
Virology
ELISA
ATPase
Sample
Login Samples
Date Received at CAHS
Time Received at CAHS
Received by
CAHS Submission #
Client
Submitter
Contact Phone #
PO #
Case #
Sampling Date
# of Samples
Sample Type
Sample Details
Custodian
P.I
Initial Storage
Research/Diagnostic
Analysis Requested
RT-qPCR Targets
Comments
Submit

14. High-Level Schedule

In the 12 weeks, the BCIT team will spend the time to research, plan, design a prototype, and finally implement the software. Each week the BCIT team will update the CAHS team on their current progress and what will be next on the BCIT team's agenda.

A weekly meeting is scheduled every Friday at 1:00pm to discuss in detail any updates from the BCIT team as well as further requests from the CAHS team.

15. High-Level Work Breakdown Structure (WBS)

Owner	**Description**	**Completion Date**
BCIT Team	Research serverless database systems Design the high-level architecture prototype	Sept 30th, 2022
BCIT Team	Design UI/UX	October 31st, 2022

BCIT Team	Develop the technical requirement including Frontend and Backend	November 30th, 2022
BCIT Team	Testing and demo	December 2nd, 2022

16. Ethical Impact

The BC CAHS strives to provide unbiased, third party information for the public, regulators and stakeholders to make informed decisions regarding key issues relating to aquatic health. As developers, we will be handling potentially sensitive client data. We must ensure that this data is secure and confidential. Furthermore, our product will be trusted to be functional, and accurate to ensure that the work of BC CAHS maintains its integrity.