Stage 1 Report: Idea Development (Individual Project)

1. Project Presentation and Collaboration

- **Participant Name:** Anne-Cécile Colléter
- **Role:** Full-stack Developer and Project Manager
- **Tools:**
  - **Project Management:** Trello (task tracking)
  - **Communication:** Gmail
  - **Version Control:** GitHub
  - **Development:** VSCode
- **Work Standards:**
  - **Daily Trello updates**
  - **Daily Git commits**
  - **External Collaboration:**
    - **Client:** Fish farm SARL Truites de la Vallée
    - **Communication Methods:** Bi-weekly meetings via Google Meet, email, and phone
    - **Exchange Frequency:** 1 meeting every 2 weeks + daily updates on shared Trello

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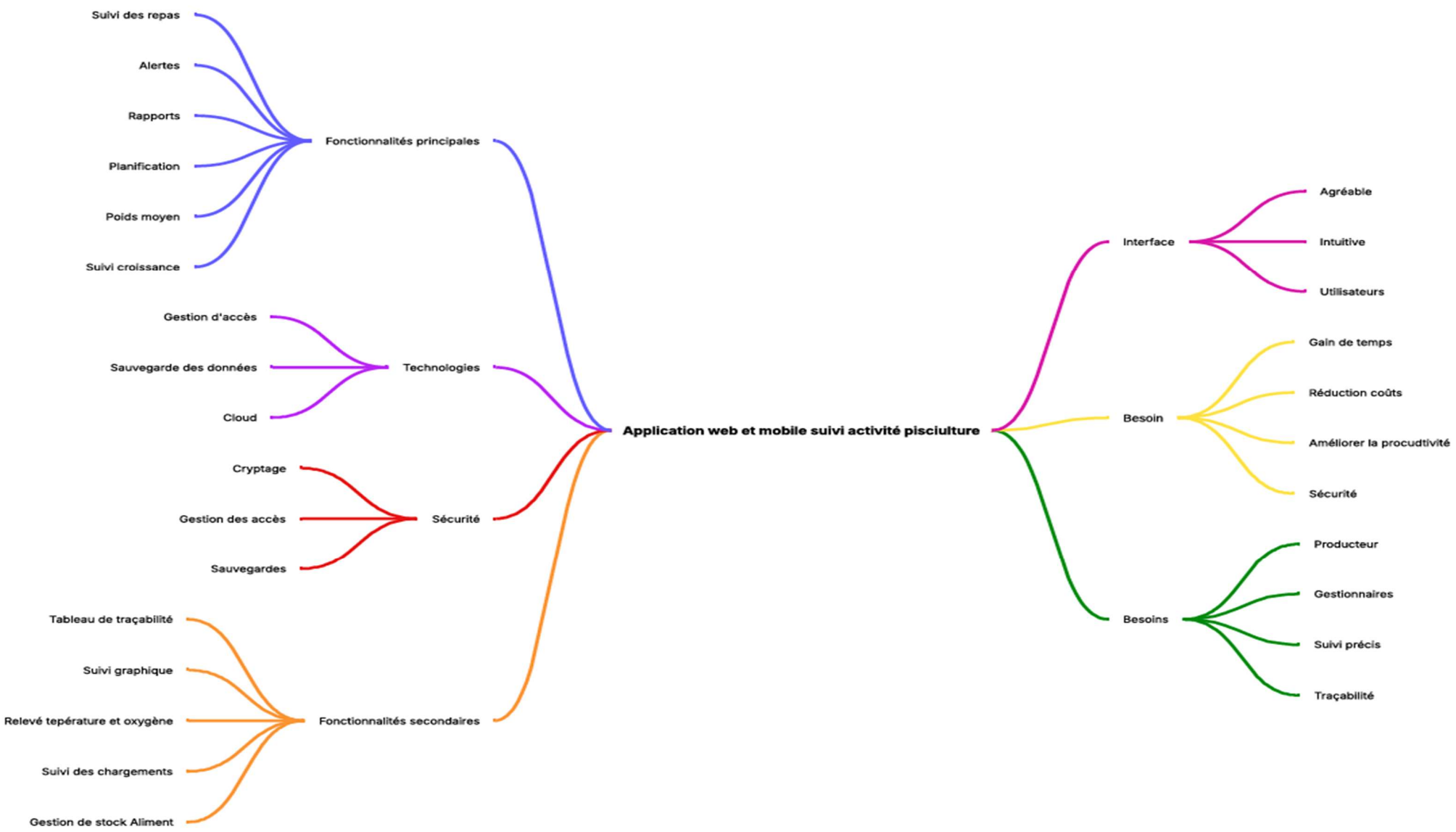
2. Research and Brainstorming

Content:

- **Core Idea:** Develop a web application to manage fish farming operations, including production sites, ponds, feed types, meals, fish batches, transfers between ponds, growth tracking, and feed/fish stock monitoring.

Methods Used:

- Mind Mapping Visualized connections between key features (sites, ponds, stock management).:



- SCAMPER

SCAMPER	Idea/Question	Project Application
S	What can be replaced?	Replace manual notifications with automated mobile alerts.
C	Can elements be combined?	Combine feeding tracking with water quality/oxygen monitoring in the same app.
A	Can an idea from another context be adapted?	Adapt agricultural production tracking systems for fish feeding management.
M	What can be modified/simplified?	Redesign the interface to reduce clicks for recording feedings.
P	Can a feature be repurposed?	Use the feed tracking module to enhance fish batch traceability.
E	What can be eliminated?	Eliminate repetitive manual data entry by automating feeding schedules based on temperature.
R	Can the order/logic be reversed?	Reverse the process: App auto-generates feeding schedules; users validate.

- “How Might We” Questions:

	Identified Challenge	HMW Question	Solution Ideas
	Manual fish stock tracking	How might we digitize fish stock tracking to reduce errors?	Mobile app for entries/exits, QR codes on ponds, IoT sensors for fish count/size.
	Feeding management	How might we optimize feeding tracking digitally?	Automated feeding schedules, missed-feeding alerts, consumption tracking per pond.
	Sales and delivery management	How might we streamline sales/deliveries with a digital tool?	Order dashboard, real-time delivery tracking, customer notifications, auto-generated invoices.
	Time-consuming administrative tasks	How might we automate administrative tasks to save time?	Auto-generated reports, centralized document storage, reminders for legal deadlines.
	Production performance analysis	How might we easily visualize/analyze production data?	Interactive dashboard with growth charts, survival rates, feed consumption, financial yield.
	Team communication	How might we centralize information/exchanges for all staff?	Internal messaging, action alerts, shared calendar for tasks/appointments.
	Anomaly detection	How might we quickly detect production issues?	Real-time sensor alerts (temperature, oxygen, pH), smartphone/SMS notifications.
	Tool adoption by staff	How might we facilitate digital tool adoption?	Intuitive interface, embedded tutorials, online support, gamification for best practices.

Explored Ideas:

1. **Idea A: Digital Paper Log for Feeding**
    - Strengths: Simple, quick to implement.
    - Weaknesses: Low innovation, risk of manual errors.
    - Rejection Reason: Limited remote tracking capabilities.
2. **Idea B: Web and Mobile App for Feeding/Stock Tracking *(Selected)***
    - Strengths: Real-time tracking, automated alerts, comprehensive history.
    - Weaknesses: Longer development time.
    - Acceptance Reason: High value for the client; improves traceability.
3. **Idea C: Automated IoT Feeding System**
    - Strengths: Full automation, reduces human error.
    - Weaknesses: High cost, technical complexity.
    - Rejection Reason: Too complex for MVP; limited budget.

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3. Idea Evaluation

- **Evaluation Critria :** Technical feasibility, client impact, cost, ease of use.

Idea	Feasibility	Impact	Cost	Simplicity	Total Score
A	4/5	2/5	5/5	4/5	15/20
B	**4/5**	**5/5**	4/5	4/5	**17/20**
C	2/5	5/5	2/5	2/5	11/20

- **Risks and Constraints:**
    - Idea A: Low innovation, human error risks.
    - Idea B: Longer development, requires regular client feedback.
    - Idea C: High cost and technical complexity.

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4. Decision and Selected MVP

Chosen MVP: Web and mobile application for feeding and stock tracking. **Problem Solved:** Fish farmers waste time with paper notes for stock, feed, transfers, and meals.

Target Users: Managers and employees of small/medium fish farms (1–2 sites, 5–20 ponds).

Key Features:

- **User Management:** Admin and employee roles.
- **Sites/Ponds:** CRUD for sites and ponds (names, types).
- **Feed:** CRUD for feed types (name, quantity, expiration date).
- **Meals:** Log meals (site, pond, feed type, quantity, date).
- **Batches:** Create batches (origin, quantity, date, initial pond).
- **Transfers:** Transfer batches between ponds (with history).
- **Feed Stock:** Track feed inventory (low-stock alerts).
- **Fish Stock:** Monitor fish stock per pond.

Expected Outcomes: Improved traceability, simplified tracking, reduced errors.

Selection Rationale: Balances feasibility and impact; innovative solution for the client.

Challenges and Opportunities:

- **Challenge:** Ensure data synchronization between web and mobile apps. *Solution:* Use Django REST Framework for a shared API; offline-local cache for mobile.
- **Opportunity:** Add predictive analytics/recommendations post-MVP.

Technologies:

- **Back-end:** Django + PostgreSQL (robust for complex relationships; built-in admin).
- **Front-end:** Bootstrap + JavaScript.
- **Hosting:** Heroku or Railway.

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5. Process Documentation

Decision Summary: After brainstorming and evaluation, the web/mobile app (Idea B) was selected for its high value and alignment with client needs.

All Ideas Considered: See Section 2 (“Explored Ideas”).

References:

- SCAMPER Framework: MindTools
- Mind Mapping Guide: MindMapping.com