Fall 2025

Software Requirements Specification

TRULABEL

PRJ566NCC

Fall 2025

https://github.com/Ahj1n/PRJ566-TrueLabel

Executive Summary

Background

Growing awareness of ethical consumerism and the importance of supporting Canadian-made goods inspired this project. Many consumers are concerned about issues like animal testing, exploitative labor, and unsustainable practices but lack quick, reliable tools to check this information while shopping. Although company and product data exist across databases and APIs, this information is scattered, difficult to interpret, and often overshadowed by advertisements when searched online. TruLabel bridges this gap by centralizing, summarizing, and presenting this data in a consumer-friendly format.

Description

TruLabel will provide users with:

- Barcode/QR scanning to identify products instantly.
- Aggregated company background, ethical track record, and product origin.
- A simplified ethical rating score for at-a-glance decision making.
- Integration with APIs for up-to-date reporting and news coverage.
- A clean, user-friendly interface optimized for use in stores.

The app will operate on a **B2C model** with a one-time purchase or subscription option (first few daily scans free, then subscription for unlimited access).

Company Value Add

TruLabel positions itself as a unique solution by combining product scanning with ethical reporting. Unlike Google searches or niche platforms, TruLabel provides concise, cross-industry, and unbiased summaries backed by credible sources. This creates a competitive advantage by filling a gap in the growing ethical consumerism market while offering a scalable platform that can expand into global databases and industries.

End-User Value Add

For consumers, TruLabel offers:

- Quick, reliable ethical ratings at the point of purchase.
- Transparency about company practices and product origins.
- Confidence that their purchases align with their values.
- A streamlined experience compared to manually searching online.
- This results in more informed shopping decisions, increased trust in products, and stronger support for ethical and local businesses.

Scope

What is Included

- Mobile app (Android/iOS) with barcode/QR scanning capability.
- Backend database aggregating product and company data.
- Ethical rating algorithm with transparent methodology.
- API integrations with product/brand databases and news feeds.
- User interface optimized for in-store scanning and quick decision-making.

What is Not Included

- Direct online shopping or payment processing.
- Personalized health/product recommendations.
- Integration with wearable devices or IoT systems (initial phase).

Justification

The project addresses a strong demand for transparency and ethical consumerism. It leverages existing databases and APIs while offering innovation in how this information is presented. Given its unique approach and technical scope, TruLabel requires a multi-semester development effort to design, build, and refine the system.

Table of Contents

Section 1

1.1 Document Authors

- Aaron Klem, Project Manager
- Furqan Khurrum, Lead Developer
- Kai Williams, Backend/Database Specialist
- Marcos Ian Araujo, UI/UX Designer
- Franz Balite, Research & Quality Assurance

1.2 Document Revision History

WEEK	DATE	Revisions
1	Sept 18th 2025	• Executive Summary, 1.1, 1.2,1.3,1.4,1.5
2	Sept 21st 2025	• Section 2.1
3		• •
4		•
5		•
6		•
7		•
8		•
9		•
11		•
12		•
13		•
14		•

1.3 Document Purpose

The purpose of this document is to define and communicate the scope, objectives, and structure of the TruLabel mobile application project. It provides a clear reference for the development team, faculty advisors, and stakeholders, outlining the app's vision, requirements, and intended deliverables. This ensures shared understanding and alignment throughout the project lifecycle.

1.4 Audience

This document is intended for multiple audiences:

- **Project Team Members** – for task alignment, technical guidance, and collaboration.
- **Faculty Advisors and Evaluators** – for reviewing methodology, feasibility, and progress.
- **Potential Stakeholders/End Users** – to understand TruLabel's goals, scope, and consumer value.

By addressing these audiences, the document ensures effective communication, accountability, and alignment between all parties involved.

1.5 Group Agreement

Group – 04

TruLabel – Ethical Consumer Product Scanner

Project Time Frame

September 14th, 2025 – December 4th, 2027

Team Members

Aaron Klem – Project Manager
Furqan Khurrum – Lead Developer
Kai Williams – Backend/Database Specialist
Marcos Ian Araujo – UI/UX Designer
Franz Balite – Research & Quality Assurance

Team Functions & Roles

- Aaron Klem (Project Manager): Oversees coordination, deadlines, and deliverables.
- Furqan Khurrum (Lead Developer): Responsible for core application development and integration.
- Kai Williams (Backend/Database Specialist): Manages database, API integrations, and server logic.
- Marcos Ian Araujo (UI/UX Designer): Designs user-friendly, accessible mobile interfaces.
- Franz Balite (Research & QA): Gathers ethical data, validates sources, ensures app reliability.

Team Meetings

To stay aligned and maintain steady progress, we will hold two regular weekly meetings:

- **Task Planning** – Thursdays, 9:50 AM to 11:35 AM
  Discuss upcoming tasks, assign responsibilities, and set short-term goals.
- **Progress Check-In** – Wednesdays, 12:30 PM to 3:00 PM
  Review task progress, address blockers, and adjust priorities as needed.

These meetings will be brief and focused (15–30 minutes), with flexibility to adapt based on project needs.

Team Communication & Problem-Solving

We agree to maintain open, respectful, and timely communication. Any issues—technical, interpersonal, or scheduling-related—will be brought up promptly and addressed collaboratively.

Team Commitment

The undersigned members agree to work together on the project until the end of the PRJ666 next Semester. They recognize that as a team and individually they are equally responsible for the quality of all deliverables.

Name	Date	Signature
Aaron Klem	18th September 2025	**AK**
Marcos Ian Araujo	18th September 2025	
Kai williams	18th September 2025	
Franz Balite	18th September 2025	
Furqan Khurrum	18th September 2025	**FK**

Section 2

2.1 Project Proposal

2.1.1 Project Background

Consumers are increasingly conscious about ethical concerns in supply chains, such as animal testing, harmful ingredients, labor practices, and sustainability. In Canada, there is also a strong cultural push toward supporting locally made products. However, consumers lack a streamlined, reliable tool that quickly provides product origins, company practices, and ethical ratings at the point of purchase.

2.1.2 Problem Statement

- Problem: Shoppers often want to know if a company engages in ethical or sustainable practices, but current methods (e.g., Googling brands) are slow, ad-heavy, and unreliable.
- Opportunity: A mobile app that instantly provides brand histories, ethical ratings, and origin data by scanning a barcode or QR code.
- Who Experiences It: Everyday consumers shopping at grocery stores, retail outlets, or online.
- Why It Matters: Empowering users with unbiased, easily accessible information helps them make values-driven decisions while shopping.

2.1.2.1 Similar Products

Barcode Lookup

Api for a public database of products, pages contain manufacturer name, code, and some basic product information. Specialized for online stores and bulk look ups.

Scanbot SDK

An dev-kit that specializes in image recognition and implementation of phone-camera scanners. Has a Full GitHub of documentation and sells license keys.

Scandit

An SDK for developing apps that connect to private or public databases to show information. It itself does not categorize or manipulate the information; merely reads a valid code and makes a call to the linked database.

International Organization for Standardization (ISO)

International body responsible for managing several of the more common standards of Barcode. They do not provide any services to the public for scanning barcodes. They work with business to ensure products barcode's meet set standards.

Table A – Feature Comparison

Feature	TruLabel	Barcode Lookup	Scanbot SDK	Scandit	ISO
Scans Barcodes	✓	✓	✓	✓	X
Database of Product Data	✓	✓	✓	X	X
Conforms to Product Standard	✓	X	X	X	✓
Informs User of Product	✓	✓	✓	X	✓
Mobile App	✓	✓	✓	✓	X
Ethical Rating System	✓	X	X	X	X
Open Documentation	✓	X	✓	X	✓
Usable by Public	✓	X			

Section 2.1.2.2. Impacts

The problem of what to buy plagues every conscientious consumer. In today's vast global economic market it's easy to be overwhelmed. Supply chains criss-cross the world, keeping track of what goes where and who is selling what is full time job. The lesson of voting with the dollar; of forming an identity with the products one buys and where they spend their cash. In the digital age the call for boycotts and questions of quality, ethics, and WORD abound. Customers have questions and the information exists; albeit buried in technical digests and logistical reports.

> You are what you eat; but you support what you buy.

Currently other solutions fail to solve the problem for the consumer. They are focused on businesses for inventory tracking or for industrial applications. A couple offer services related; the ability to write reviews or to fetch via the code. However they often just scratch the surface on information; presenting landing pages that are empty or fail to have follow up information.

2.1.3 Product Vision

TruLabel will be a **B2C mobile application** that enables users to scan a product's barcode/QR code and instantly view:

- Manufacturer information
- Country of origin
- Ethical and sustainability ratings
- Links to credible sources and news updates

By providing an **at-a-glance ethical score** with deeper supporting data, TruLabel will make ethical consumerism simple, quick, and accessible.

2.2 Stakeholders and Users

2.2.1 Internal Stakeholders:

- **Development Team -** The five-member team responsible for designing, developing, testing, and maintaining the TruLabel application.
- **Project Manager (Aaron Klem)** - Oversees project coordination, timeline management, and stakeholder communication.
- **Lead Developer (Furqan Khurrum)** - Manages technical architecture decisions and core development processes.
- **Backend/Database Specialist (Kai Williams)** - Responsible for data infrastructure and API integrations.
- **UI/UX Designer (Marcos Ian Araujo)** - Ensures user-centered design and optimal user experience.

- **Research & QA Specialist (Franz Balite)** - Validates data sources, conducts testing, and ensures application reliability.
-

2.2.2 External Stakeholders:

- **Ethical Consumers/Primary Users** - Individuals who prioritize sustainable, ethical, and locally made products and want quick access to product information while shopping.
- **Casual Shoppers/Secondary Users** - General consumers who occasionally want to verify product origins or company practices.
- **Canadian Consumers** - Specific focus on users interested in supporting Canadian-made products and local businesses.
- **Retail Partners** - Potential future partners including grocery stores, retail chains, and online marketplaces.
- **Data Providers** - External APIs, databases, and news sources that supply product and company information.
- **Regulatory Bodies** - Organizations that may influence data accuracy requirements and consumer protection standards.
- **Investors/Funding Sources** - Potential future stakeholders interested in the B2C subscription model.
- **Competing Apps/Services** - Indirect stakeholders that may influence market positioning and feature development.

  Companies (Non-profits) such as
  Fairtrade list
  https://archive.ph/20120801093038/http://www.ekobai.org/search/profiles/1522/list-of-companies-with-fairtrade
  Standards & certs
  https://en.wikipedia.org/wiki/Sustainability_standards_and_certification
  fairtrade
  https://www.fairtrade.net/labelling_initiatives1.0.html
  Standards council of canada
  https://scc-ccn.ca/
  “Ethical” facing Companies
  Journals
- **Role name/Persona** - Description.
- ……..

Due 09/28

2.3 Project Scope

The TruLabel project aims to deliver a mobile application that empowers consumers to instantly evaluate the ethical and origin credentials of products in-store, while clearly defining the boundaries of

its first-phase deliverables to ensure development remains focused on building a reliable, consumer-friendly product that provides ethical transparency at the point of purchase.

2.3.1 included Features:

- **Mobile Application Development** - Native Android and iOS applications with barcode/QR code scanning capabilities
- **Product Recognition System** - Real-time barcode/QR scanning using device camera
- **Ethical Rating Algorithm** - Transparent methodology for scoring companies and products based on ethical criteria
- **Database Development** - Centralized database aggregating product information, company data, and ethical assessments
- **API Integration Layer** - Connections to external product databases, news feeds, and company information sources
- **User Interface Design** - Intuitive, mobile-optimized interface for in-store scanning and quick decision-making
- **Business Model Implementation** - B2C monetization with free daily scans and subscription options
- **Data Aggregation System** - Collection and synthesis of information from multiple credible sources

2.3.2 Technical Components

- Backend server infrastructure
- Database design and management
- Mobile app development (Android/iOS)
- API development and third-party integrations
- Basic user account management
- Rating algorithm development and testing

2.3.3 Out of Scope (Phase 1 Exclusions)

- **E-commerce Integration –** No direct online shopping, payment processing, or transaction handling
- **Personalized Recommendations –** No health-based or personalized product suggestions
- **Wearable Intergration -** No connection to smartwatches, fitness trackers, or other IoT devices
- **Social Features** - No user reviews, social sharing, or community features
- **Advanced Analytics** - No complex user behavior tracking or advanced analytics dashboard
- **Global Market Coverage** - Initial focus on Canadian/North American products and companies
- **Real-time Chat Support** - No customer service chat or support ticket system
- **Inventory Management** - No stock tracking or availability checking
- **Price Comparison** - No pricing information or cost analysis features

Due 09/28

2.4 System Risks

specific bullet points for feature risks

Lack of data

Lack of partnership

Lack of adoption

Discreditation by companies

Signal/roaming issues; offline data/online

Example

Lack of Data – TruLabel depends on APIs and public databases, but not every product or company may have available information. A scanned product might return incomplete results, frustrating users. To reduce this, TruLabel must prioritize integration with the largest databases first and display disclaimers or fallback messages when data is missing.

Lack of Partnership – Without cooperation from retailers or product certifiers, TruLabel may struggle to access reliable or detailed product records. This limits coverage and could create gaps in the ethical rating system. Partnerships will need to be actively sought through pilot programs or business agreements, especially with Canadian retailers for early adoption.

Lack of Adoption – Users may hesitate to download and consistently use the app if they don't see clear value, or if they perceive it as "extra effort" while shopping. Without user adoption, the app risks stagnation despite working features. Strong marketing, seamless UI/UX, and offering free daily scans will be essential to drive adoption.

Discreditation by Companies – Brands that receive low ethical ratings might challenge or discredit TruLabel, accusing it of bias or misinformation. This creates reputational and legal risks. In Canada, companies could pursue action under **defamation law** (libel) if they believe statements harm their reputation, or under the **Competition Act** if claims are considered false or misleading representations. The **Consumer Packaging and Labelling Act** also sets strict rules around product-related information being accurate and not deceptive. To mitigate this, TruLabel must publish transparent scoring methods, cite credible third-party sources for all claims, and allow users to drill down into the evidence behind ratings. Additionally, disclaimers clarifying that TruLabel aggregates and summarizes existing data—not generating original investigations—will help reduce liability.

Signal/Roaming Issues; Offline Data/Online – Barcode scanning in stores with poor signal or for users with roaming restrictions could prevent real-time lookups. Without offline support, the app risks being unusable in those contexts. TruLabel can mitigate this by caching previously scanned products and offering partial offline functionality until connectivity is restored.

2.5 Operating Environment

User story

“Where the product will be used by a client “

How it will be used; its requirements (extensions, app, camera)

Trulabel will be used by customers in retail settings such as supermarkets and department stores. Scanning the barcode with their smartphone camera will give

2.5.1 Target Platforms

- **Android** – Minimum Android 8.0+ (API level 26), optimized for Android 12+
- **IOS –** Minimum iOS 13.0, optimized for iOS 15+
- **Device requirement:** smartphones with rear-facing autofocus camera.

2.5.2 Hardware Requirements

- **Minimum:** 5MP autofocus camera, 3GB RAM (Android) / 2GB RAM (iOS), 100MB storage, quad-core CPU, 3G internet.
- **Recommended:** 8MP+ camera with flash, 4GB+ RAM, 1GB+ free storage, 4G/5G connectivity.

2.5.3 Software Dependencies

- Barcode Libraries
- API Services
- News Intergration
- Cloud hosting
- Database: PostgreSQL or MongoDB
- Analytics

2.6 Functional Requirements

2.7 Nonfunctional Requirements

2.8 UI/UX Interface Mock-ups

Section 3

3.1 Data Flow Diagrams

3.2 User Stories and related Use Case Scenarios

3.3 Activity Diagrams

3.4 Business Rules

Business Rule #	Description	Activity Diagram	Related UCS	UI Mock-up
BR1		AD1	UC1	UI 2.7.2
BR2		AD2	UC2	UI 2.7.3
BR3		AD3	UC3	UI 2.7.4
BR4		AD3	UC3	UI 2.7.4
BR5		AD5	UC4	UI 2.7.6
BR6		AD6	UC5	UI 2.7.6
BR7		AD7	UC6	UI 2.7.7
BR8		AD8	UC7	UI 2.7.8
BR9		AD8	UC7	UI 2.7.8
BR10		AD8	UC7	UI 2.7.8
BR11		AD8	UC7	UI 2.7.8
BR12		AD8	UC7	UI 2.7.8
BR13		AD9	UC8	UI 2.7.9
BR14		AD9	UC8	UI 2.7.9
BR15		AD9	UC8	UI 2.7.9
BR16		AD9	UC8	UI 2.7.9
BR17		AD10	AD9	UI 2.7.9
BR18		AD10	AD9	UI 2.7.9
BR19		AD10	AD9	UI 2.7.9
BR20		AD11	UC10	UI 2.7.10
BR21		AD11	UC10	UI 2.7.11
BR22		AD11	UC10	UI 2.7.11
BR23		AD12	UC11	UI 2.7.10
BR24		AD13	UC12	UI 2.7.12

Section 4 – Domain Class

Section 5 – Database

Section 6 – Project Management

6.1 Work Breakdown Structure

6.2 Milestones & Acceptance Criteria

Section 7 – Product Backlog & Implementation Schedule

Section 8 – Client/Faculty Sign-off

References

BarcodeLookup
Example

ScanbotSDK

Scandit

https://www.scandit.com/upc-lookup/

Iso open data

https://www.iso.org/open-data.html

fairtrade
https://www.fairtrade.net/labelling_initiatives1.0.html
Standards council of canada
https://scc-ccn.ca/

Examples

Project Scope Management Example

The project, initiated in collaboration with the SickKids Foundation, aims to develop a mobile application designed to facilitate event management and donor engagement. The application is expected to provide an intuitive platform for the SickKids Foundation to organize fundraising events, track donor participation, and streamline donation processes.

The primary objectives of the project include:

Enhancing Donor Engagement: The application will provide an interactive experience for donors and event attendees, ensuring seamless communication as well as engagement opportunities.

Optimizing Event Management: The platform will include features for event scheduling, ticketing, and attendee management, making it easier for the SickKids Foundation to organize and track events.

Facilitating Secure and Transparent Donations: The application will integrate secure payment processing solutions, ensuring compliance with industry standards for financial transactions.

Ensuring Accessibility and Scalability: The application will be designed to accommodate a growing user base while ensuring ease of access for users across various devices and platforms.

Project Feasibility

To determine project feasibility we considered a variety of approaches to help us form a plan. As we are developing this application for the SickKids foundation our goals are not consistent returns or large monetary shares but rather finding the most cost effective approach to the business problem. With this in mind we decided that a weighted scoring model would be most effective for helping us visualize and assess the project.

Risks example from Project management

ID	Description
R1	Issues integrating third-party services (e.g., payment authentication or APIs).
R2	Development delays due to underestimated tasks or resource availability.
R3	Donors and event attendees may not engage with the app as expected.
R4	Delay in getting approval from app stores certification (Apple/Google).
R5	A fundamental flaw erases most development progress.