

**Document Revision History**

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**1. Introduction**

**1.1 Purpose**

This document provides a detailed analysis of the software requirements for *TechBarter*, a sustainable online marketplace designed for buying, selling, and recycling electronic devices. The document outlines functional and non-functional requirements to ensure clarity in development, addressing what the system will achieve for its target users and stakeholders.

**1.2 Scope**

The *TechBarter* platform aims to create a robust marketplace for tech enthusiasts focused on sustainability. It will allow users to list, purchase, and recycle electronic devices while fostering a community dedicated to eco-friendly practices. The scope covers:

- Development of an online marketplace for tech products
- Creation of a community hub and recycling program
- Implementation of visual sales analytics

**Out of Scope:**

- Mobile application development (initially limited to web platform)
  - Features outside of tech product transactions
  - International transactions and multi-currency support (limited to local markets)
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## **2. System Overview**

### **2.1 Project Perspective**

*TechBarter* is a new, self-contained system that combines an online marketplace with sustainability-focused initiatives, tailored for the needs of environmentally-conscious tech enthusiasts. It is built to support users within the local market, with the goal of fostering a sustainable tech community.

### **2.2 System Context**

The *TechBarter* platform is part of a larger eco-friendly initiative, emphasizing recycling and responsible consumption within the technology sector. By partnering with third-party recycling organizations and integrating analytical insights, *TechBarter* directly supports environmental sustainability goals while also providing a secure and engaging platform for transactions.

### **2.3 General Constraints**

- Compliance with e-commerce and recycling regulations.
- Platform availability on web browsers only (initially no mobile app).
- Integration with secure third-party payment processors.

### **2.4 Assumptions and Dependencies**

- Users will have reliable internet access.
  - Basic tech knowledge is assumed for platform navigation.
  - Integration of third-party services, including payment and data analytics.
  - Compliance with local recycling laws and regulations.
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## **3. Functional Requirements**

### **3.1 Features**

### Feature 1: User Registration and Authentication

- **Introduction:** Allows users to register and securely log into the platform.
- **Inputs:** User credentials (username, email, password).
- **Processing:** Authentication and authorization using secure protocols.
- **Outputs:** Access to user account and profile.

### Feature 2: Product Listing and Transaction Management

- **Introduction:** Users can list tech items for sale, purchase items, and complete transactions.
- **Inputs:** Product information (title, description, price, images), buyer details.
- **Processing:** Listing display, secure transaction processing.
- **Outputs:** Successful transaction records, order confirmation for buyers and sellers.

### Feature 3: Visual Sales Analytics

- **Introduction:** Provides visual reports on sales data to sellers.
- **Inputs:** Sales data and transaction records.
- **Processing:** Data analysis and visualization.
- **Outputs:** Interactive reports for sales performance tracking.

### Feature 4: Recycling Program Integration

- **Introduction:** Allows users to recycle electronics through third-party partnerships.
- **Inputs:** User's recycling request.
- **Processing:** Request submission and coordination with recycling partners.
- **Outputs:** Confirmation of recycling process initiation.

### Feature 5: Community Hub

- **Introduction:** Forum for users to discuss and engage on sustainability and tech topics.
- **Inputs:** User posts, comments.
- **Processing:** Community engagement moderation.
- **Outputs:** Interactive community space with user-generated content.

## 3.2 Use Cases

### Use Case 1: Register and Log In

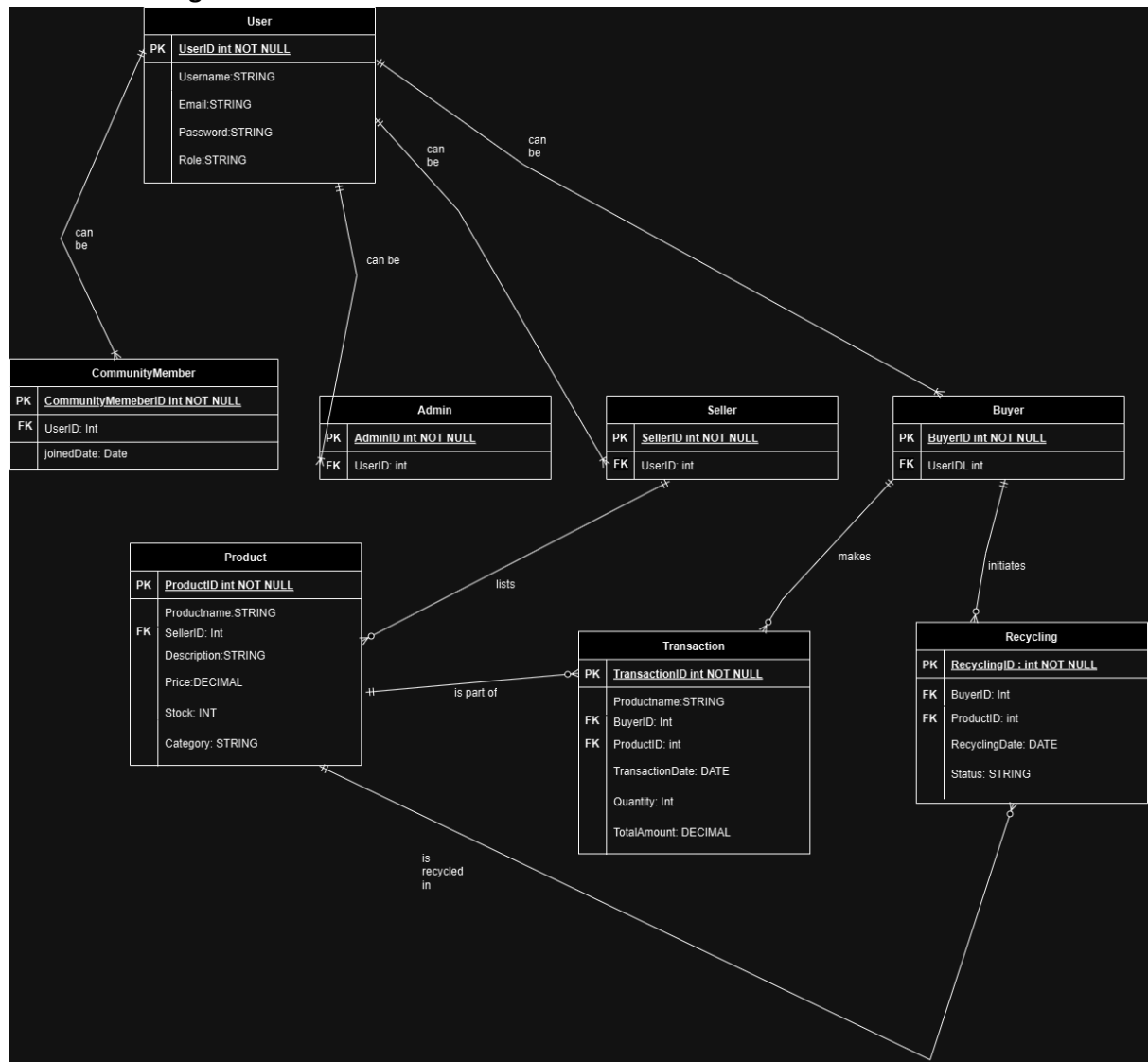
- **Actors:** New User, Returning User
- **Description:** User creates an account or logs into an existing one.
- **Preconditions:** Access to the platform's registration and login pages.
- **Postconditions:** User gains access to the account dashboard.

## Use Case 2: Post a Product Listing

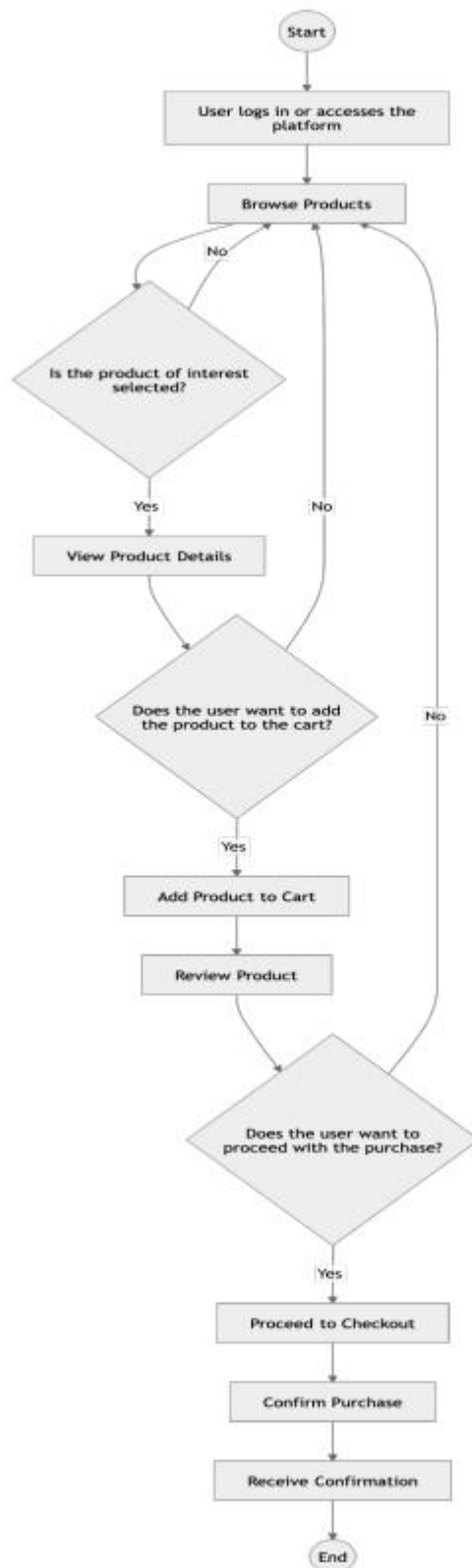
- **Actors:** Registered User (Seller)
- **Description:** User posts a tech item for sale on the platform.
- **Preconditions:** User is logged in and navigates to the product listing page.
- **Postconditions:** New product listing appears on the marketplace.

## 3.3 Data Modeling and Analysis

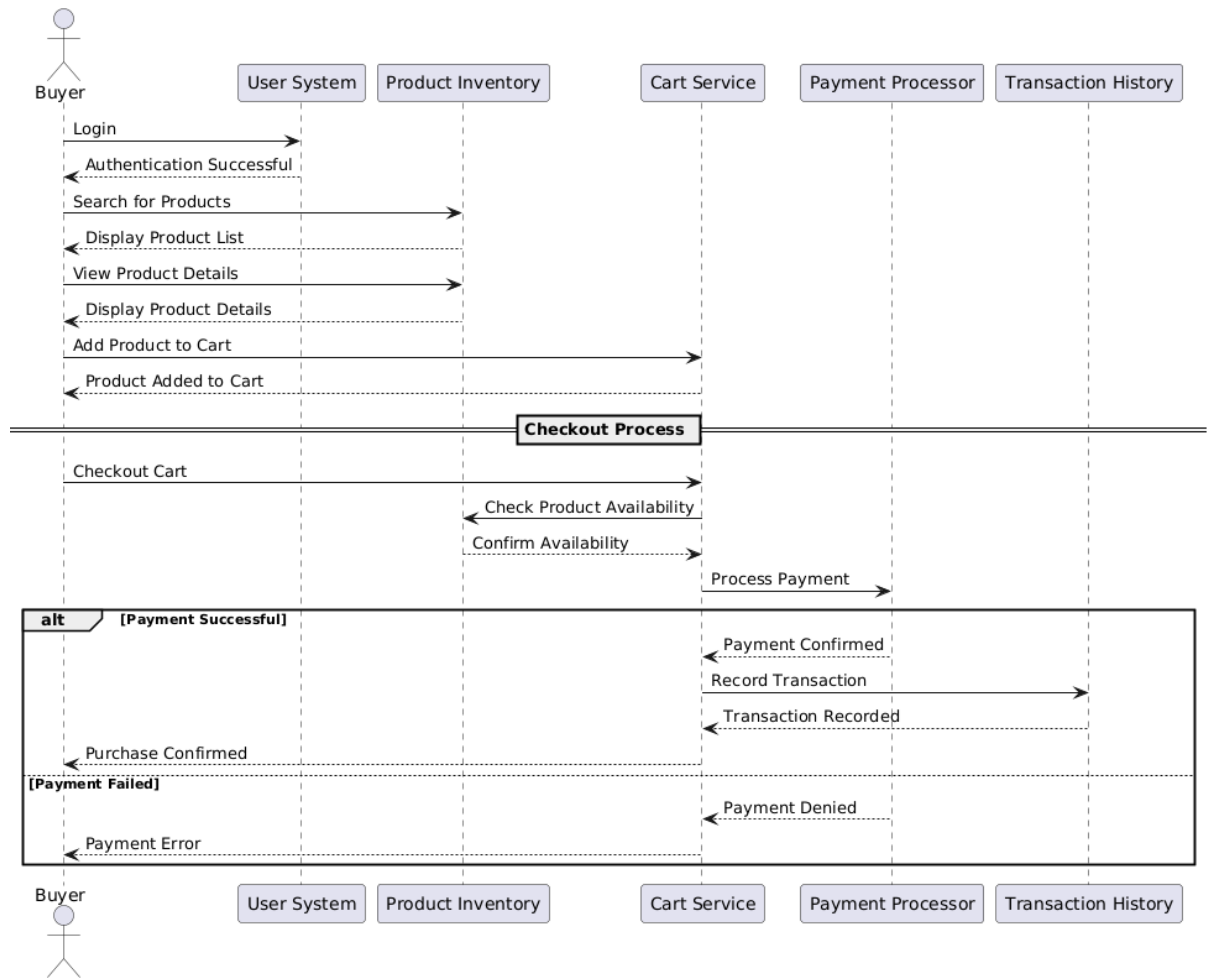
- **Data Model Diagram:**



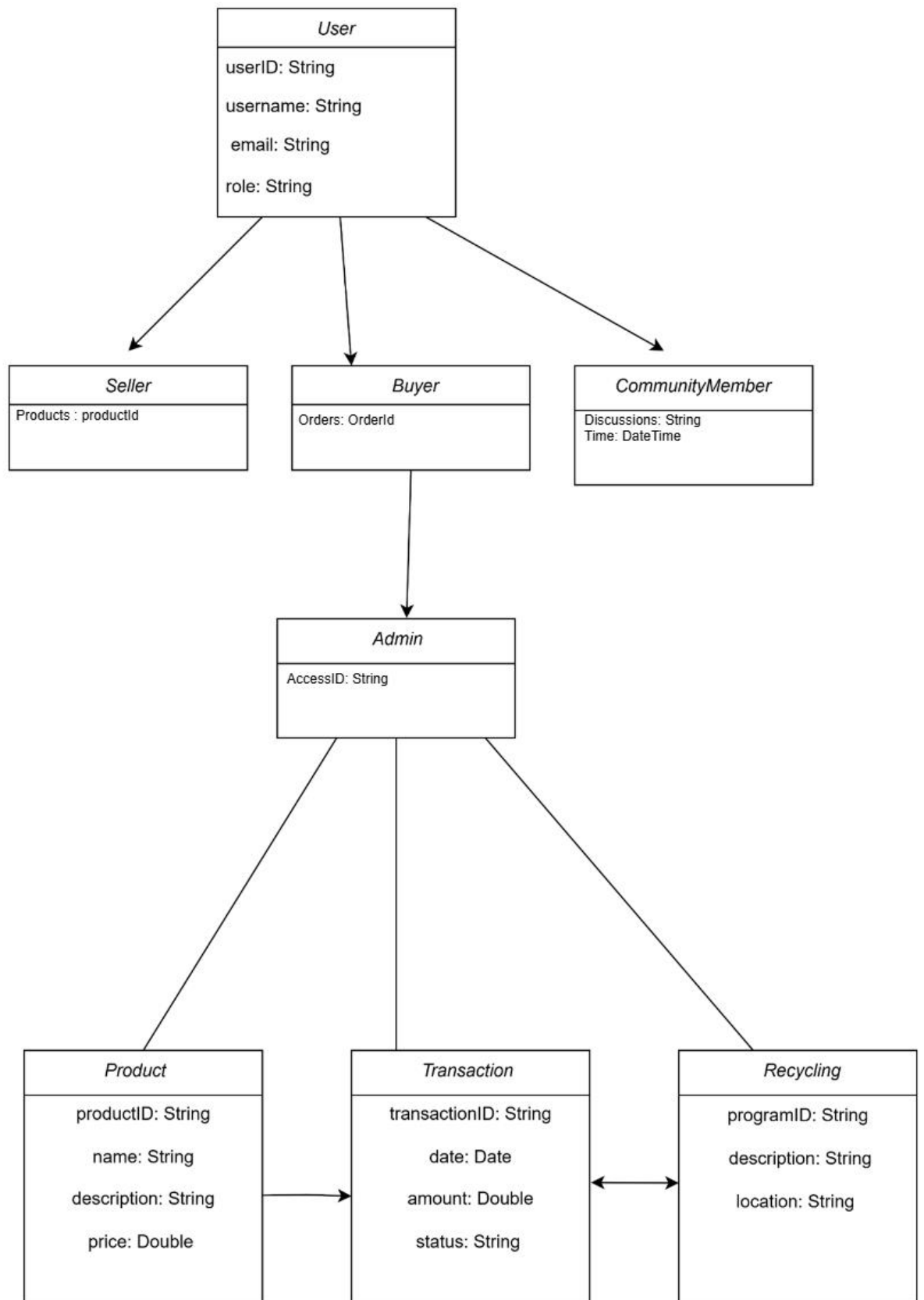
- **Activity Diagrams:**
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- Sequence Diagrams:

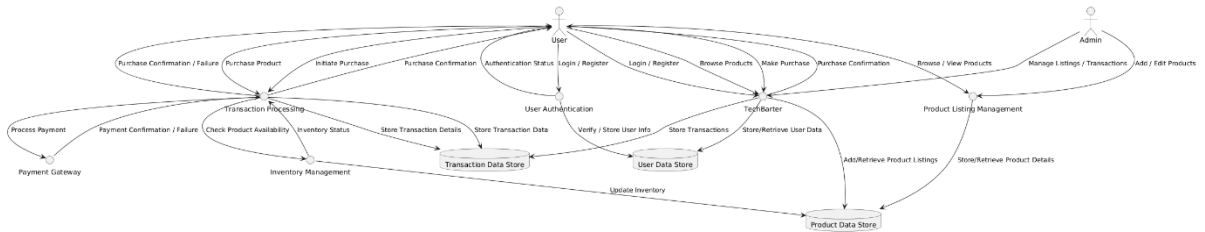


- **UML Class Diagram:**



### 3.4 Process Modeling

- **Data Flow Diagram:**



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#### 4. Non-Functional Requirements

- **Performance:** 95% of transactions should complete in less than 2 seconds.
- **Reliability:** System uptime should exceed 99%.
- **Availability:** Platform should be accessible 24/7, with minimal downtime for maintenance.
- **Security:** All transactions should be encrypted and secure.
- **Maintainability:** System should support easy updates and maintenance.
- **Portability:** Accessible across common web browsers.

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#### 5. Logical Database Requirements

- **Data Formats:** User data, product listings, transactions, and community posts.
- **Storage Capabilities:** Sufficient storage for user profiles, listings, transaction records.
- **Data Integrity:** Ensure accurate transaction data and user records.

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#### 6. Other Requirements

No additional requirements specified.

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#### 7. Approval

The signatures below indicate their approval of the contents of this document.

PROJECT ROLE	NAME	SIGNATURE	DATE SIGNED
Leader	Nishita Sachdev	N.S	2024-11-08
Member	Hardik Kumar	H.K	2024-11-08
Member	Ashish Rajan Sherry	A.R.S	2024-11-08
Member	Sandra Antony	S.A	2024-11-08
Member	Tanmay Panchal	T.P	2024-11-08



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This structured document follows the provided template and reflects the detailed requirements, functional specifications, and project objectives for *TechBarter*. If you'd like any specific sections expanded or additional use cases, data models, or diagrams created, let me know!