## 3. Project Plan

### Understanding the Project

 **Objective:** Develop a robust and scalable billing system for retail environments.

The system will manage customer registrations, item inventories, generate PDF bills, and ensure secure transactions.

 **Stakeholders:** Retail store owners, cashiers, customers, system administrators, and the development team.

###  Project Goals:

* Streamline the billing process.
* Enhance inventory and transaction management.
* Provide secure, real-time updates on customer data and inventory.
* Ensure scalable and multi-user access with robust authentication.

 **Scope:** Includes customer management, item management, real-time inventory tracking, billing, report generation, and secure data handling with encryption.

### Tools Used for this Project

* Java Swing: For front-end GUI.
* SQL (MySQL): Backend for managing customer and inventory data.
* PDF Libraries: For generating bills.
* Agile Tools: JIRA or Trello for sprint planning and task tracking.  Git: Version control system.

###  Develop:

* Custom modules for customer, item, billing, and reporting functionalities.
* Real-time inventory updates.
* Secure authentication and PDF bill generation.

###  Reuse:

* Pre-existing libraries for PDF generation.
* Standard authentication libraries.

 **Buy**:

* Optional third-party tools for analytics if custom reporting is not sufficient.

**Work Breakdown Structure**

###  Team Structure:

* Product Owner: Responsible for requirement prioritization and stakeholder communication.
* Scrum Master/Project Manager: Facilitates the Agile process, tracks progress.

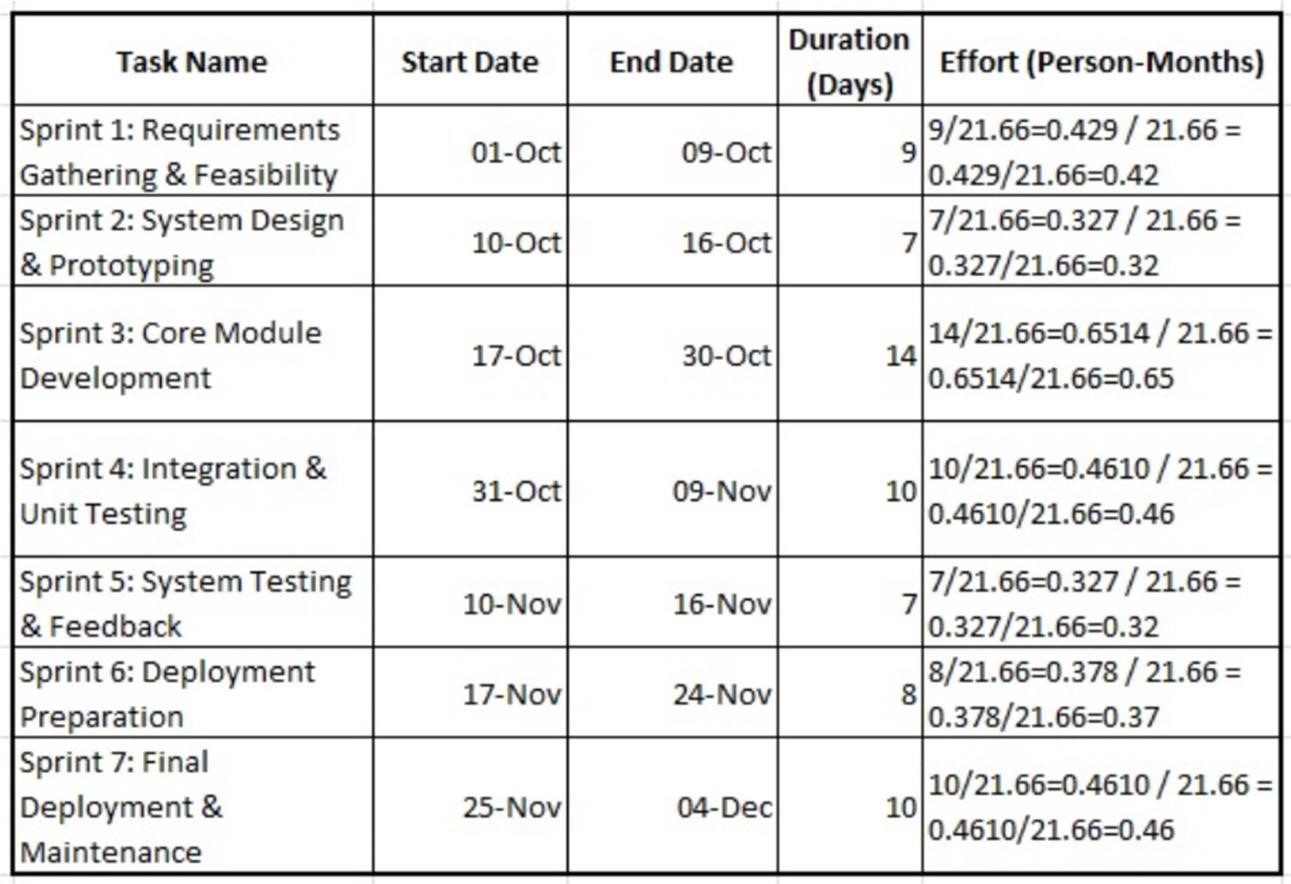
###  Development Team:

* Front-end developer (Java Swing).
* Back-end developer (SQL, PDF generation).
* Database Administrator (DBA).
* Testers for unit, integration, and system testing.
* Business Analyst: Collects and refines requirements.

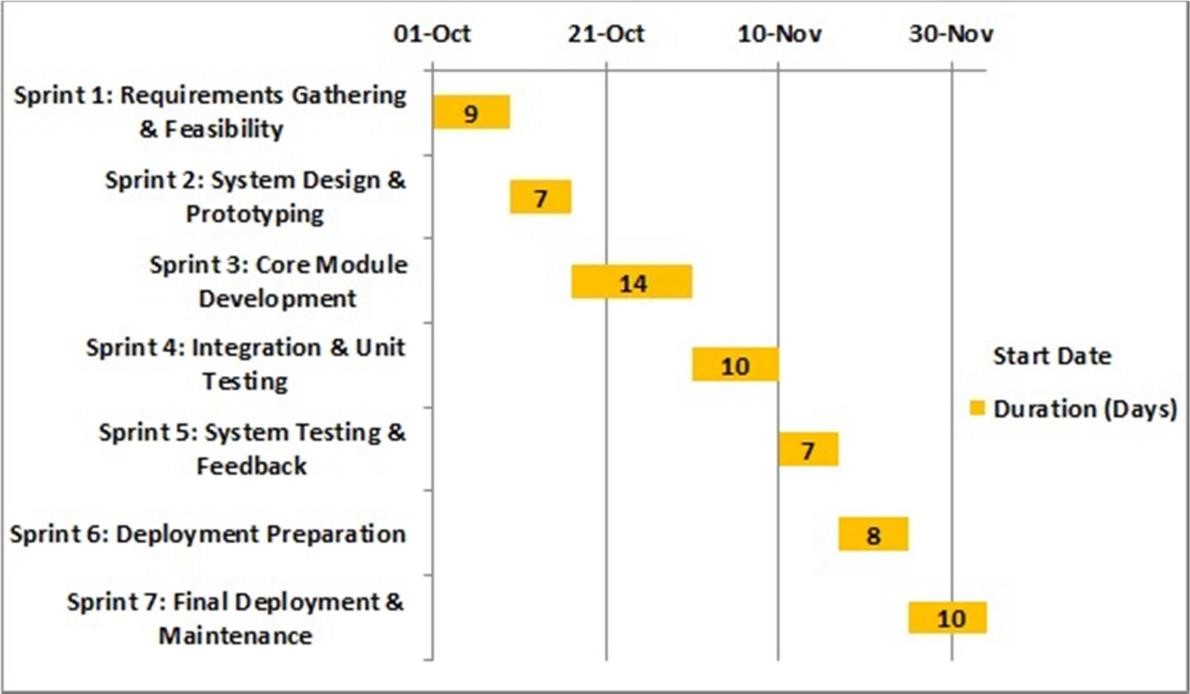
###  Responsibilities:

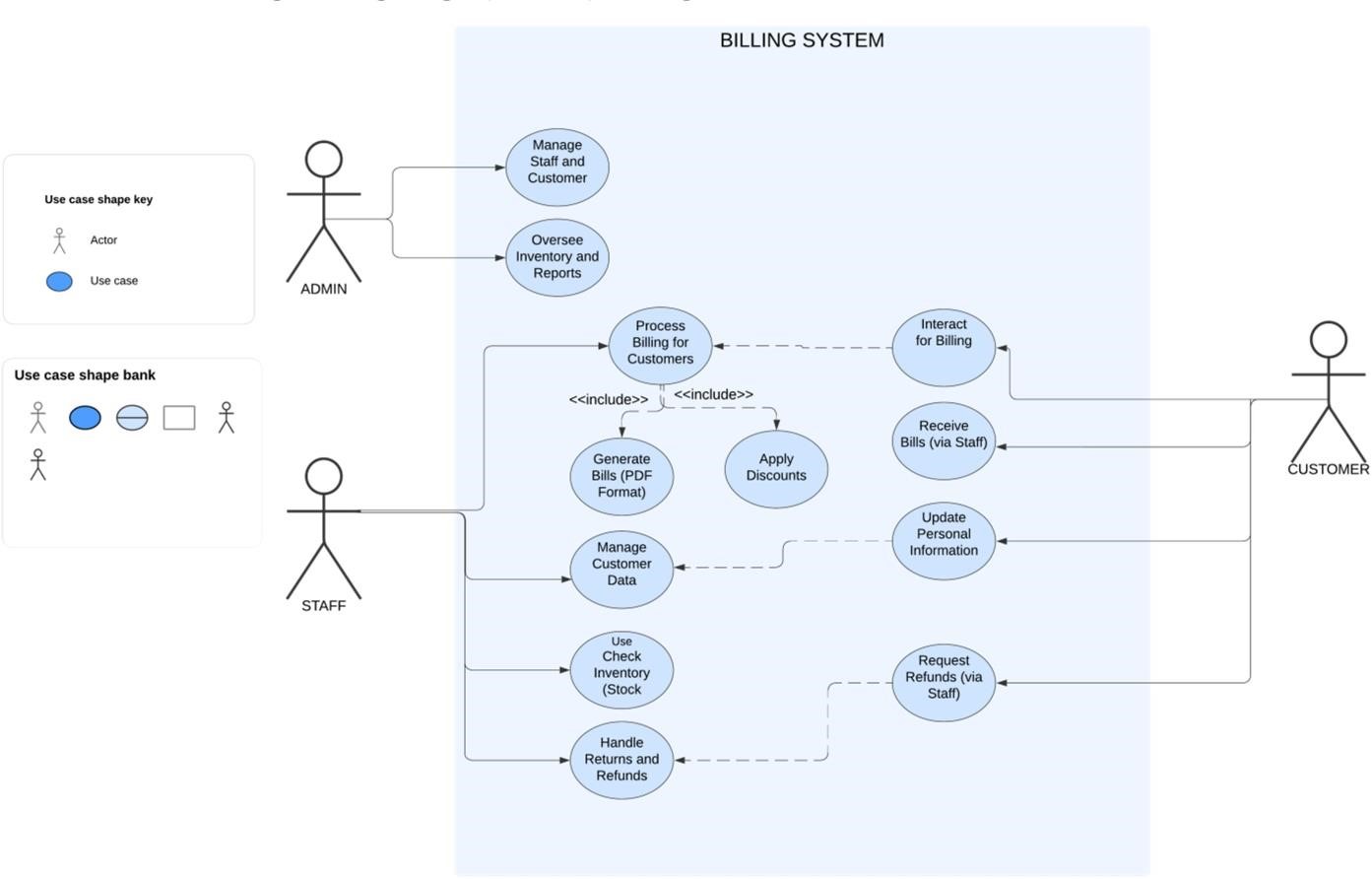
* Admin: Access to all modules (customer, inventory, billing, reports).
* Staff: Access to customer registration, billing, and stock check.
* Developers: Responsible for system development and integration.

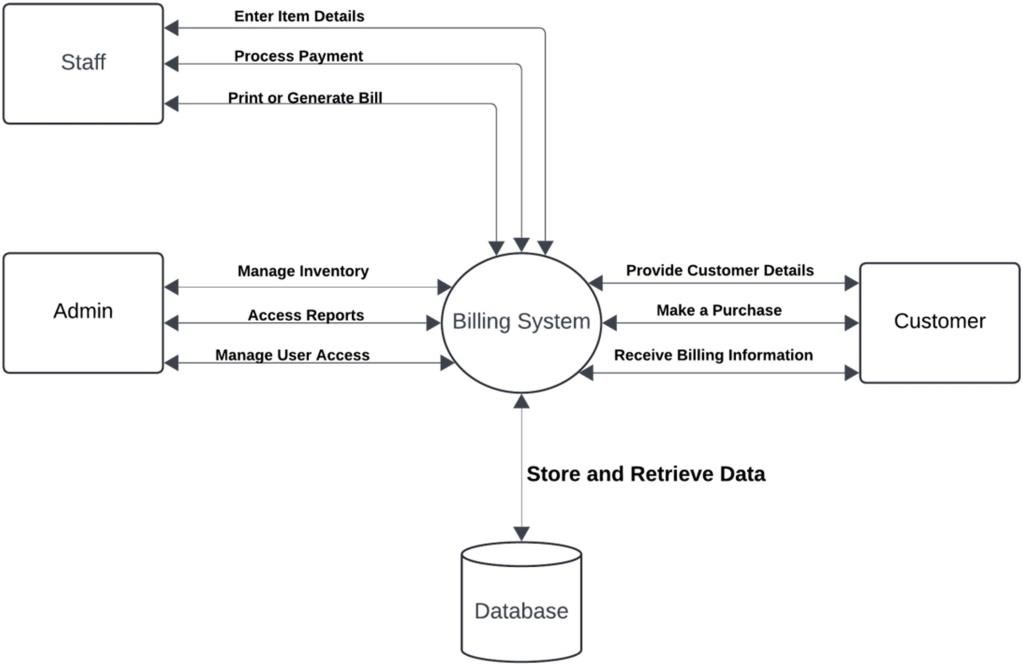
###  Effort Estimation:

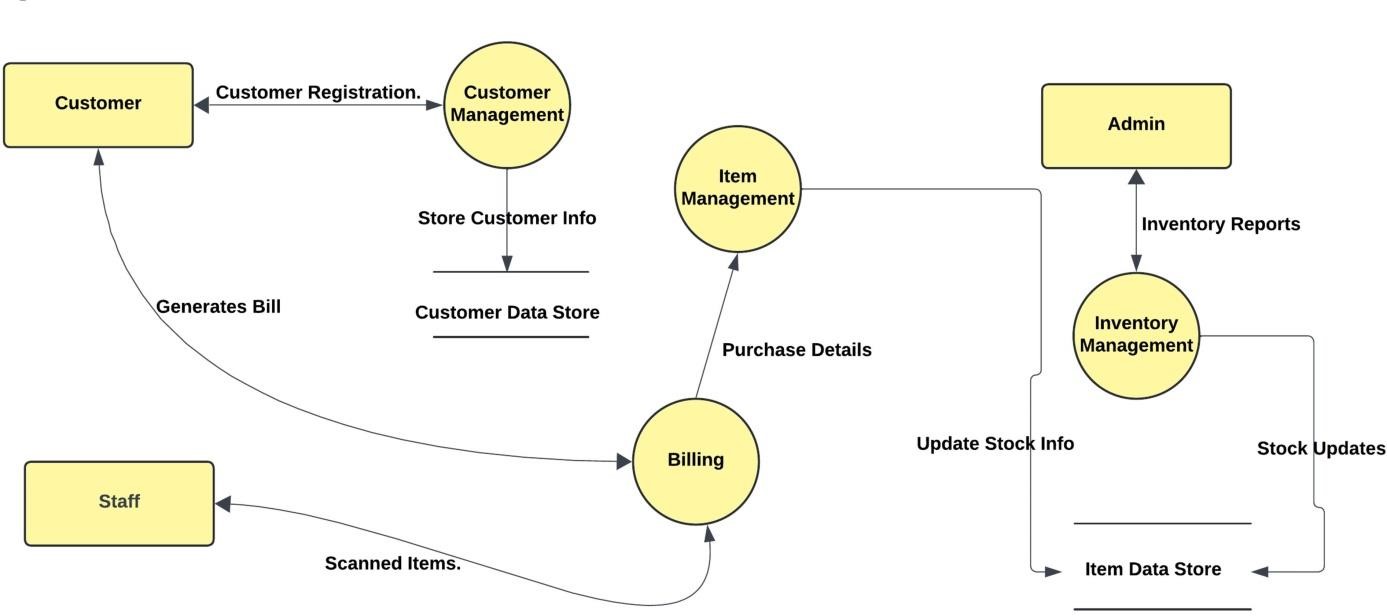
* Use Agile story points for task effort estimation.
* Assign resources based on expertise and task complexity.

### Gantt Chart



**Data Flow Diagram Logic**





### Logic 2

