



# PES UNIVERSITY

Department of Computer Science & Engineering

**Software Engineering**

**UE23CS341A**

## Assignment 1 Submission

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**Software Engineering**

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## Scenario

### Self-Service Coffee Kiosk

You are designing the software for a **self-service coffee kiosk** in a busy café. The kiosk must allow customers to:

1. Select a coffee (Espresso, Americano, Latte, Cappuccino).
2. Choose size (Small, Medium, Large).
3. Customize add-ons (Extra shot, Soy/Almond milk, Syrups).
4. Pay via credit/debit card or mobile wallet.
5. Print a receipt with order details and loyalty points added.

The kiosk screen should be responsive and straightforward. Customers must complete a single order in under 60 seconds. Password-protected admin mode allows café staff to refill ingredients, update prices, and view sales reports.

Refer the next page for solution:

**Requirements table:**

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Req ID	Type	Description	Priority	Acceptance Criteria	Rationale (short)
FR-001	Functional	The system shall allow a customer to select a coffee type (Espresso, etc.)	High	When a customer taps “Espresso,” the screen highlights Espresso and displays “Size”	Core ordering functionality
FR-002	Functional	The system shall allow the customer to select a drink size.	High	When a size is selected, it is shown as chosen and the next step is prompted.	Required for price calculation and preparation
FR-003	Functional	The system shall allow the customer to select add-ons (Extra shot, Soy/Almond milk, etc.)	Medium	When an add-on is selected, the customer is shown available customizations for the selected drink.	Gives users optional customizations for their drink
FR-004	Functional	The system shall calculate the total price of the order, and allow the customer to pay via credit/debit card or mobile wallet.	High	When a customer completes the order selection, the system shows the price and displays modes of payment	Core payment functionality
FR-005	Functional	The system shall print a receipt with order details and loyalty points added	High	When a customer pays for their order, the system prints out the receipt and adds loyalty points to their membership	Required lawfully to provide receipt for an order to the customer. Loyalty program helps in customer satisfaction and retention
NFR-001	Nonfunc.	The system shall complete any order (selection to payment) in under 60 s.	High	A timing log shows < 60 s from first tap to transaction approval	Ensures quick service during peak hours
NFR-002	Nonfunc.	The system shall have password-protected admin mode	High	When an admin enters this mode, the system takes the admin to the backend inventory management system	Allows café staff to refill ingredients, update prices, and view sales reports.

## UML Use Case Diagram:

SE UML Diagram for Coffee Kiosk 22/08/25, 10:12 PM



## Use-Case Flow Document:

### Use Case: Out of Stock / Ingredient Shortage

#### Main Success Scenario

1. Inventory service detects that Almond Milk = 0 (below threshold) or the kiosk receives an out of stock flag for almond milk.
2. Kiosk updates the UI in real-time and disables Almond Milk from the customization menu. A status reads “Out of stock! Suggested: Soy milk”.
3. The customer attempts to select Almond Milk but sees it greyed out and a short explanation and suggested alternatives (Soy, Whole milk, No substitute).
4. The customer selects an alternative (e.g., Soy milk). The system recalculates price (if needed) and updates the order summary.
5. Customer proceeds to payment. Payment authorizes successfully.
6. Order is sent to the preparation unit with the chosen alternative.
7. Inventory service records the decrement for the alternative and logs the out-of-stock event for Almond Milk. An automated alert is sent to Admin for restocking.
8. The customer receives confirmation and a message: “Almond milk is currently out of stock, we’ve used Soy milk as substitution.”
9. Use case ends successfully.

#### Alternate Flows:

Customer chooses to proceed without the add-on

1. At step 3, customer declines suggested alternatives and selects **No substitute**.
2. The system removes the add-on from the order, updates summary and price, and proceeds to payment as normal.