**Design Overview of Vending Machine**

**User Interface**

**Inputs:**

Coin Slot (Accepts 1, 5, 10, or 25 cent coins)

Dollar Slot (Accepts $1 or $5 bills)

4 Options for Drink Selection (Coke, Diet Coke, Sprite, Dr Pepper)

**Outputs:**

Change Return Tray (Provides coins only)

Drink Dispenser Tray (Provides 20 oz bottles only)

4 indicators to show if drink is out of stock (1 for each drink option)

Message screen

**List of Possible States**

**State 0: Ready to Receive Money**

No money received.

Vending machine is ready to receive money from user.

After money is received, proceed to State 1.

**State 1: Ready for Drink Selection**

Vending machine is ready to receive drink selection from user.

FOR each drink in the array of available drinks:

IF the drink is not in stock:

THEN activate the drink’s red light indicating “Out of Stock”

AND do not accept the drink’s selection number from the user.

ELSE IF the drink is selected by the user:

Accept the drink’s selection number from the user as a valid selection.

If more money is needed for the selected drink, proceed to State 2.

Otherwise, proceed to State 3.

**State 2: Need More Money**

WHILE the amount of money received is less than the amount of money required to purchase 1 bottle of the selected drink:

Prompt the user to input more money (dollars or coins).

If more money is needed for the selected drink, remain in State 2.

Otherwise, proceed to State 3.

**State 3: Dispensing in Process**

IF enough money received to purchase 1 bottle of the selected drink

AND IF button press received for 1 drink option

AND IF selected drink is in stock:

THEN dispense 1 bottle of selected drink

AND dispense correct amount of change.

If dispensing was successful for the correct drink and the proper amount of change, proceed to State 4.

Otherwise, proceed to State 5 to process any errors.

**State 4: Transaction Complete**

Display message to inform the user if any change was required and how much was dispensed.

Display message to confirm which drink was dispensed.

Display message: “Thank you for your purchase.”

IF no error has occurred:

Proceed to State 0.

ELSE:

THEN display error message on message screen.

**State 5: Error Processing**

IF all 4 drinks are out of stock:

THEN Display message: “The vending machine is empty. Please restock all drinks and restart the machine.”

**Java Classes**

**Drink.java**

Contains the following properties:

name (String)

price (Double)

index (Int)

quantityRemaining (Int)

isInStock (Boolean)

**Machine.java**

Contains the following properties:

availableDrinks (array of type Drink)

maxDrinkStorage (Int) ⇒ constant value of 80

numberDrinkOptions (Int)

amountReceived (Double)

amountOwed (Double)

drinkCost (Double)

isAcceptingDollars (Boolean)

isAcceptingCoins (Boolean)

**Main.java**

Contains the following properties:

drinkSelected (Int)

drinkQuantityRemaining (Int)

amountReceived (Double)

amountOwed (Double)

Contains the main method