SENG300 P3-G1

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SelfCheckoutStationLogic class:

- Connects all elements of software together
- Install selfCheckoutStation and Session

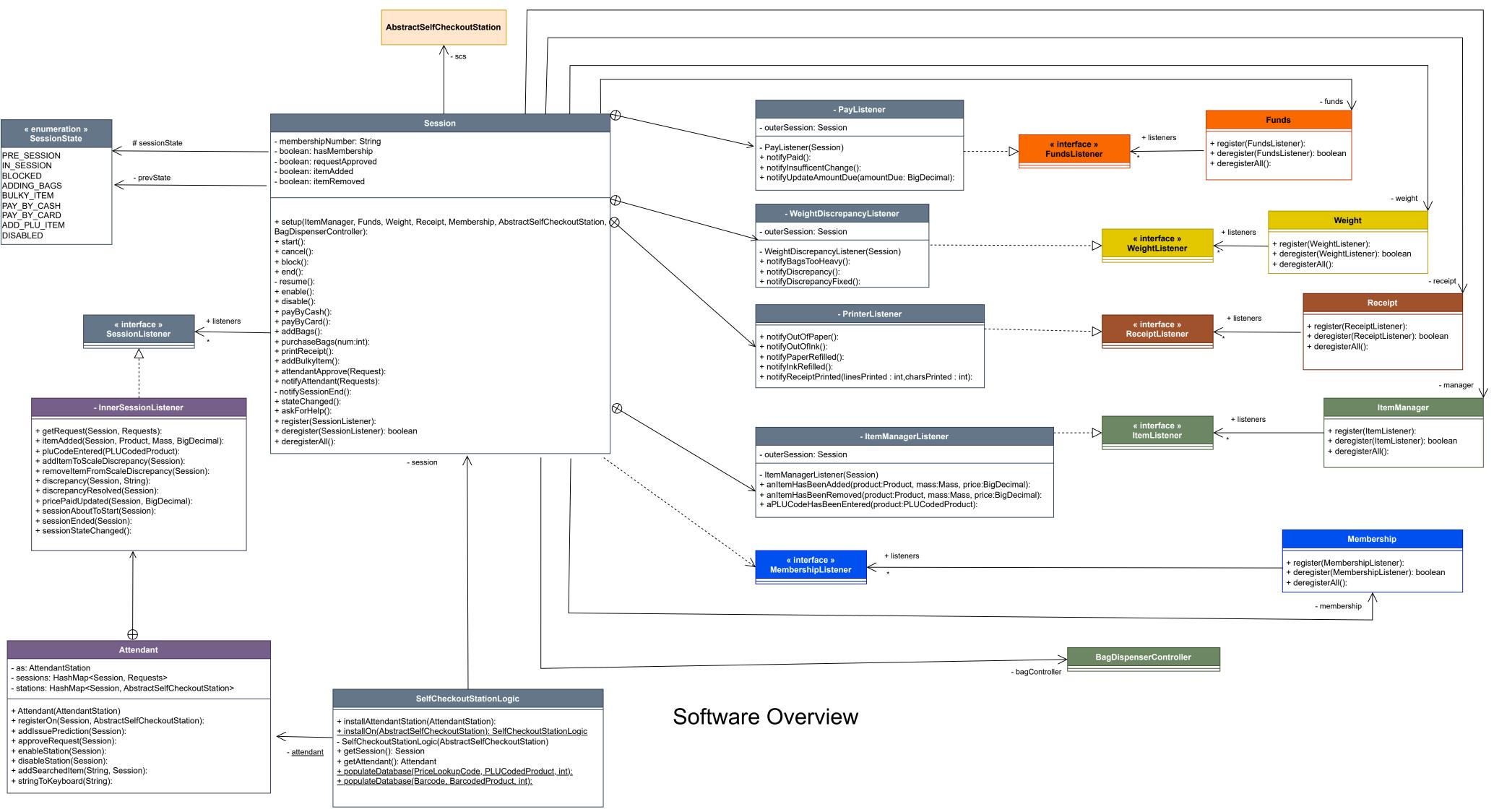
Session has the following:

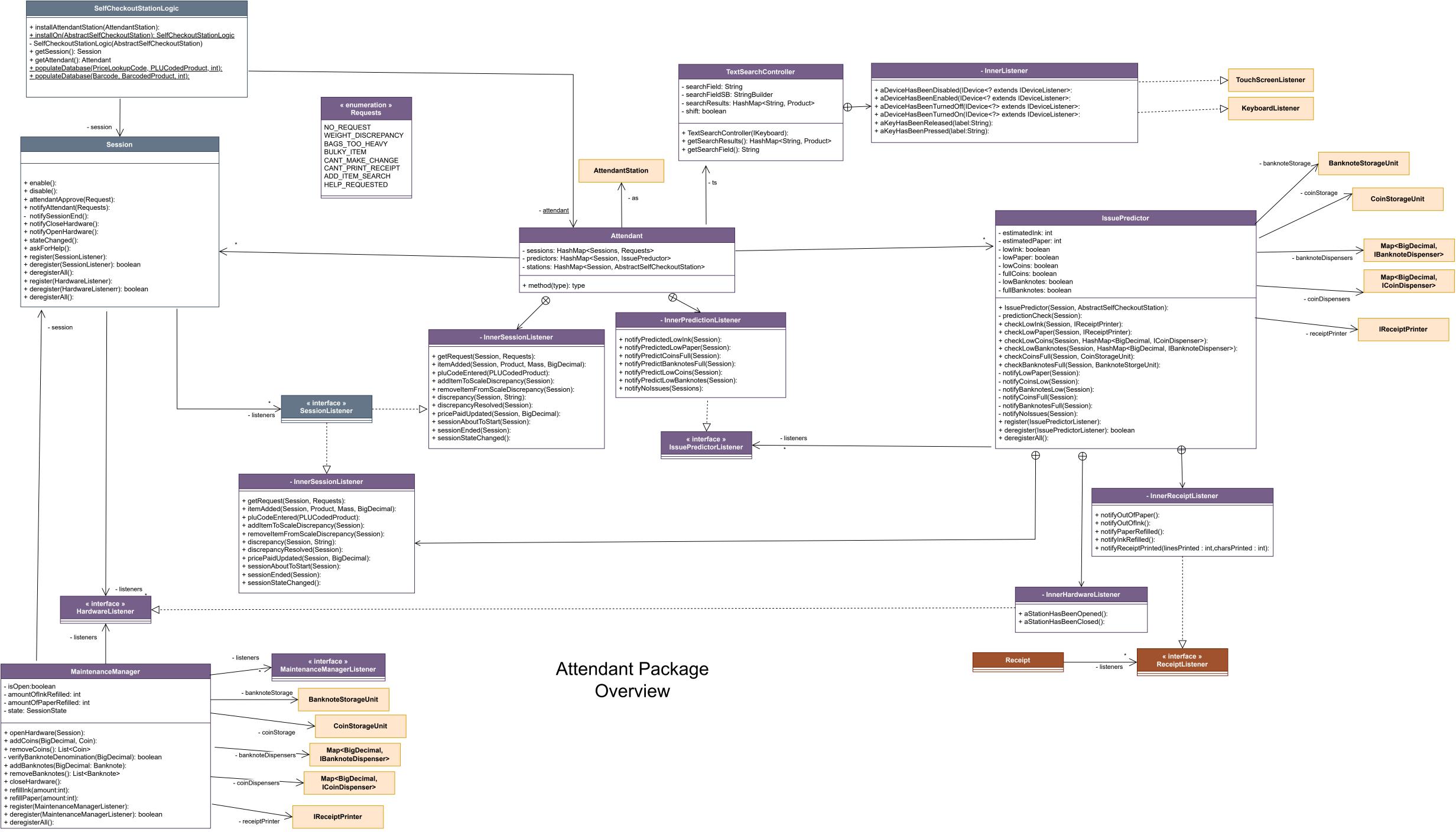
- Manages the state of the session
- Has the actions that customers can perform for a self checkout system such as:
 - Start session
 - add/remove items of various types
 - Purchase bags and add own bags
 - Pay for items via cash/card (credit & debit)
 - Enter membership card
 - Get receipt
 - Ask/signal for attendant's help
- Weight package:
 - Updates the weight as items are added to the system
 - Checks for weight discrepancy
- Funds package:
 - Keeps track of the total price of items, the amount paid by the customer, and the remaining amount due by checking status of payment
 - Supports different modes of payment such as pay via cash and pay via card
- Receipt package:
 - Prints receipt once payment has been made
- Items package:
 - Defines a rule for adding items based on different modes of adding items
 - Manages aspects to adding items to an order (scan, visual catalogue, PLU, bulky item)
 - Adds reusable bags (and places in the dispenser)
- Membership package:
 - Defines the instances of members and provides functionality for entering membership numbers

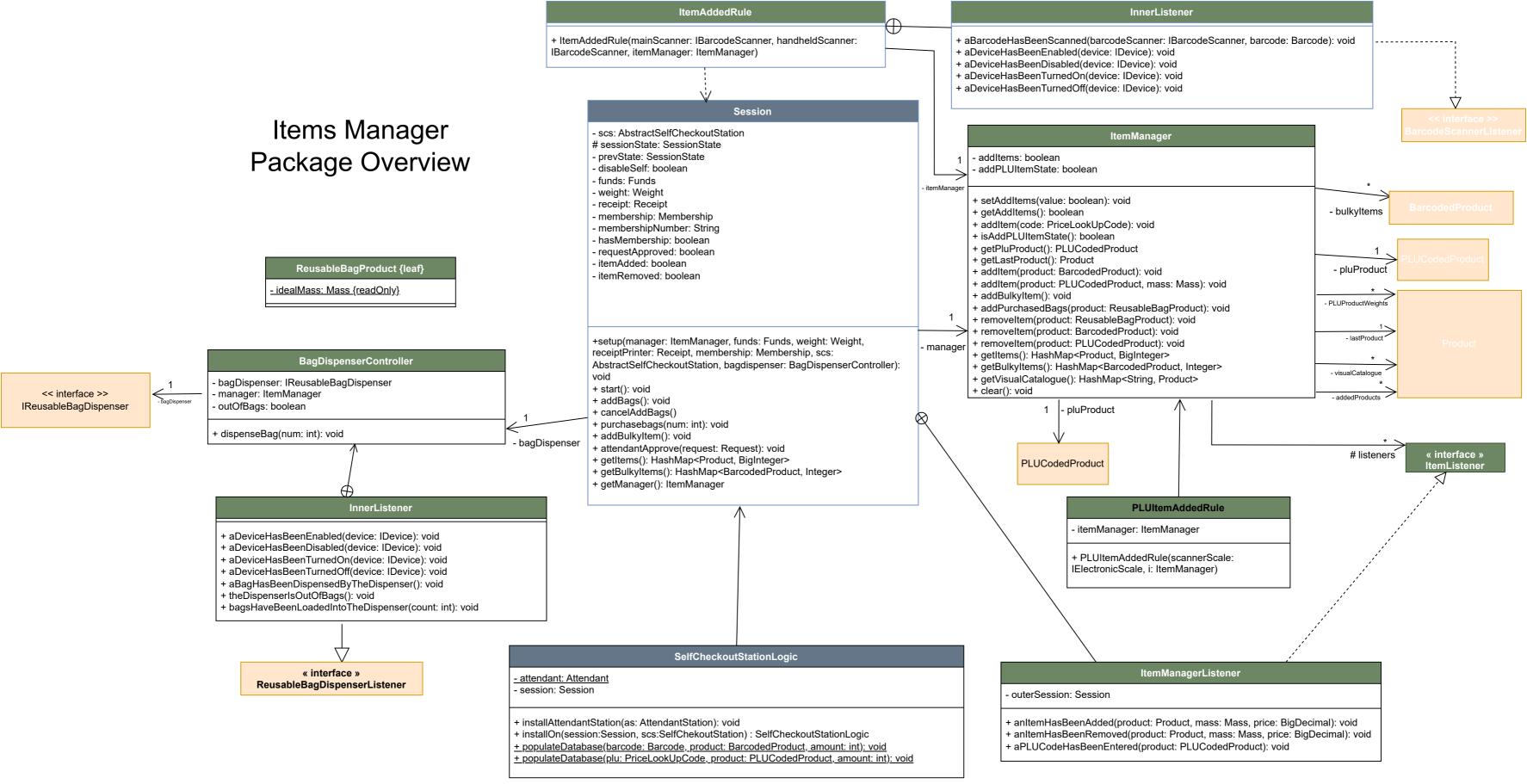
General features for the Attendant (attendant package):

- Attendant session is connected to their own station; listen to all registered customer sessions
- Attendant can do the following to resolve customers' issues:
 - Maintain ink, paper, coin and banknote
 - Enable/disable session
 - Handle weight discrepancy by removing/adding items and/or bags
 - Add item via text search
 - Predict an error pre or post session

All these features are interacted through a graphical user interface for the self-checkout station software, hardware and for the attendant station, developed using the Java Swing library. That allows you to visually interact with all of the components a part of the software.







Weight Package Overview + installAttendantStation(as: AttendantStation): void + installOn(session:Session, scs:SelfChekoutStation) : SelfCheckoutStationLogic << interface >> WeightDiscrepencyListener ElectronicScaleListener outerSession: Session « interface » notifyDescprepancy(): void WeightListener notifyDiscrepancyFixed(): void notifyBagsTooHeavy(): void + listeners InnerListener \oplus + aDeviceHasBeenEnabled(device: IDevice): void Session + aDeviceHasBeenDisabled(device: IDevice): void + aDeviceHasBeenTurnedOn(device: IDevice): void - listeners: ArrayList<SessionListener> + aDeviceHasBeenTurnedOff(device: IDevice): void - hardwareListeners: ArrayList<HardwareListener> + theMassOnTheScaleHasChanged(scale: IElectronicScale, mass: Mass): void - scs: AbstractSelfCheckoutStation + theMassOnTheScaleHasExceededItsLimit(scale: IElectronicScale): void # sessionState: SessionState + theMassOnTheScaleNoLongerExceedsItsLimit(scale: IElectronicScale): void - prevState: SessionState disableSelf: boolean - membershipNumber: String - hasMembership: boolean requestApproved: boolean - itemAdded: boolean - itemRemoved: boolean - bagDispenser: BagDispenserController Weight +setup(manager: ItemManager, funds: Funds, weight: Weight, - actualWeight: Mass receiptPrinter: Receipt, membership: Membership, scs: expectedWeight: Mass AbstractSelfCheckoutStation, bagdispenser: BagDispenserController): - isDiscrepancy: boolean - weight - bagCheck: boolean + addBags(): void lastWeightAdded: Mass + cancelAddBags() personalBagsWeight: Mass + purchasebags(num: int): void - purchasedBagsWeight: Mass + addBulkyItem(): void - inSession: boolean + attendantApprove(request: Request): void - MAXBAGWEIGHT: Mass + qetItems(): HashMap<Product, BigInteger> + getBulkyItems(): HashMap<BarcodedProduct, Integer> + Weight(baggingArea: IElectronicScale) + getWeight(): Weight + clear(): void + getListeners(): ArrayList<SessionListener> + setInSession(value: boolean): void + addBags(): void + cancelAddBags(): void + update(mass: Mass): void + subtract(mass: Mass): void + getLastWeightAdded(): Mass + removeItemWeightUpdate(massToSubtract: Mass): void + checkDiscrepancy(): void + checkDiscrepancy(forceNotify: boolean): void + getExpectedWeight(): Mass + getActualWeight(): Mass + get MAXBAGWEIGHT inGrams(): double

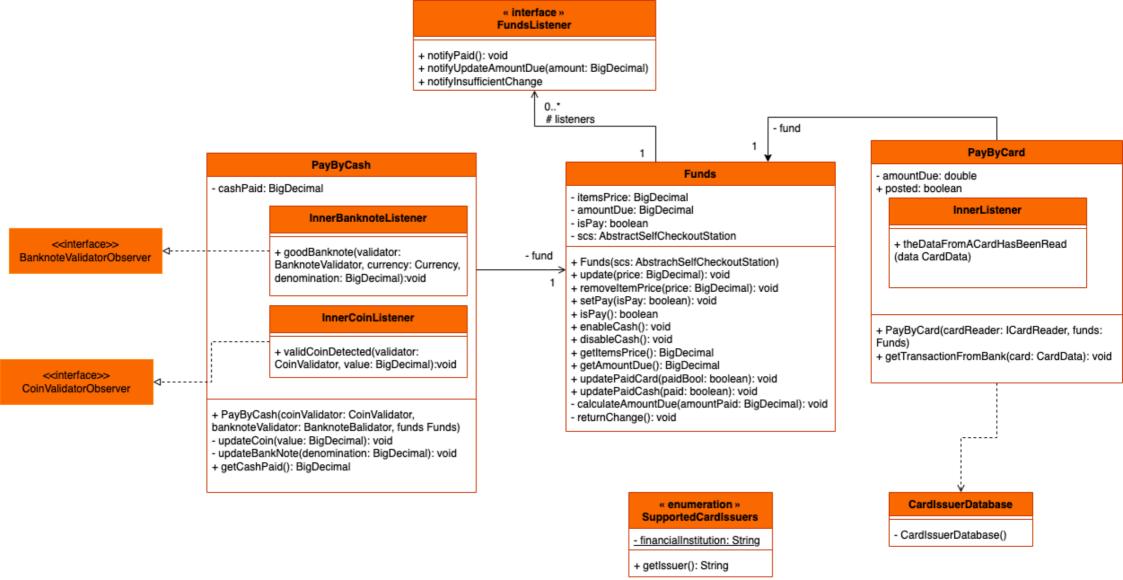
+ get MAXBAGWEIGHT inMicrograms(): long

+ isDiscrepancy(): boolean

SelfCheckoutStationLogic

attendant: Attendant

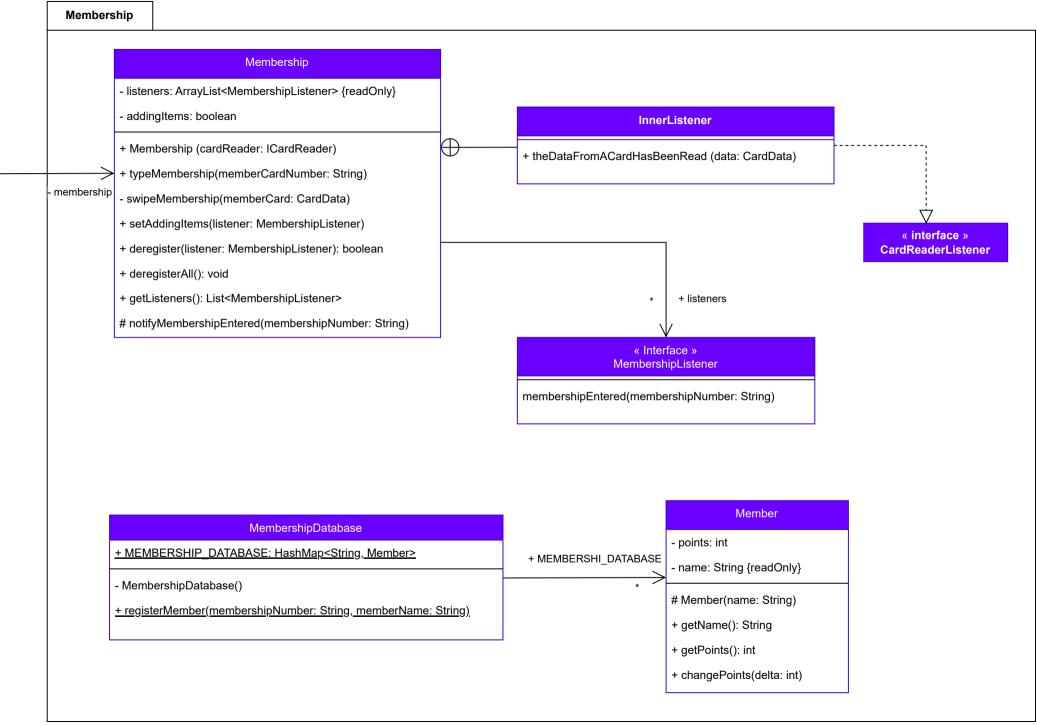
- session: Session



Session

- listeners: ArrayList<SessionListener>
- hardwareListeners: ArrayList<HardwareListener>
- scs: AbstractSelfCheckoutStation# sessionState: SessionState
- # sessionstate. Sessionsta
- prevState: SessionState
- disableSelf: booleanmembershipNumber: String
- hasMembership: boolean
- requestApproved: boolean
- +setup(manager: ItemManager, funds: Funds, weight: Weight,
- receiptPrinter: Receipt, membership: Membership, scs:
- $\label{lem:abstractSelfCheckoutStation, bagdispenser: BagDispenserController): \\ void$
- + enterMembership():
- + getListeners(): ArrayList<SessionListener>

Membership Package Overview



com.thelocalmarketplace.GUI.session GUI Package Overview + CartProduct + ProductPanel +JPanel - product: Product - serialVersionUID: long - session: Session quantity: int - product: Product - isPLU: boolean - session: Session - addButton: PlainButton + CartProduct(product: Product, session: Session + ProductPanel(product: Product, session: Session) mass: Mass) + ActionListener + Simulation # paintComponent(g Graphics): void + getAddButon(): JButton + addProduct(): boolean com.thelocalmarketplace.GUI.attendant + removeProduct(): boolean - scs: AbstractSelfCheckoutStation + updateMass(inGrams: BigDecimal): void + actionPerformed(e: ActionEvent): void - as: AttendantStation *panel com.thelocalmarketplace.software.attendant - attendant: Attendant + AttendantGUI + ProductItem session: Session attendantGUI - receipt: Receipt - attendant: Attendant + AddedProducts + ProductItem(Product, Session, Attendant) - predictor: IssuePredictor - IssuePredictorListener + manager: MaintenanceManager - manager: MaintenanceManager - serialVersionUID + predictor: IssuePredictor + SearchCatalogue productList: HashMap<Product, CartProduct> + notifyPredictLowInk(Session) + sessions: HashMap <Session, Requests> + Simulation() + textSearch: TextSearchController session: Session + notifyPredictLowPaper(Session) + AttendantCatalogue + SearchCatalogue(session: Session) + setupLogic(): void + asScreen: ITouchScreen + notifyPredictCoinsFull(Session) - softwareGUI + AddedProducts(session: Session) + getHashMapForButtons(): HashMap<Product, Pr + setupData(): void + notifyPredictBanknotesFull(Session) - inventory: Map <String, Product> + removeProduct(product: Product, mass: Mass): void + setupLoading(): void + notifyPredictLowCoins(Session) - populateSessions(): void + getProducts(): HashMap<Product, CartProduct> + unhide(): void + notifyPredictLowBanknotes(Session) + AttendantCatalogue(Session, Attendant) + hide(): void + contains(product: Product) + notifyNoIssues(Session) + unhide(): void + remove(): void + amount(): int - hardwareGUI * panel - MaintenanceManagerListener +SessionListener + StationPanel + notifyInkAdded(Session) + notifyPaperAdded(Session) + session: Session - InnerPredictionListener + itemAdded(session: Session, product: Product, + notifyCoinAdded(Session) -ButtonListener - attendant: Attendant ofProduct: Mass. currentExpectedWeight: Mass, + catalogue + notifyBanknoteAdded(Session) - issues: HashMap <String, Boolean> + main(String[] args): void currentExpectedPrice: BigDecimal): void + notifyCoinRemoved(Session, CoinStorageUnit) + enabled: Boolean + SoftwareGUI + itemRemoved(session: Session, product: Product, + cartItemsPanel + notifyBanknoteRemoved(Session, BanknoteStorageUnit) ofProduct: Mass, currentExpectedWeight: Mass, + notifyHardwareOpened(Session) - populateMessages(): void currentExpectedPrice: BigDecimal): void + SoftwareGUI(session: Session) + notifyHardwareClosed(Session) + issuesPresent(): Boolean - InnerListener + start(): JPanel + end(): JPanel + addItemToScaleDiscrepancy(session: Session): void - InnerResolutionListener + getIssues(): HashMap <String, Boolean> com.thelocalmarketplace.GUI.customComponents + removeItemFromScaleDiscrepancy(session:Session): void - updateIssues(HashMap <String, Boolean>): void + discrepancy(session: Session, message: String): void + mainPanel(): JPanel + discrepancyResolved(session: Session): void + displayStart(): void + Colors + GradientPanel + pricePaidUpdated(session: Session, amountDue, + displayMain(): void addBagsScree BigDecimal): void + displayEnd(): void - addBySearch + getRequest(session: Session, request Requests): void + displayDisabled(): void + CustomBarUI + PlainButton - approveRequest + sessionAboutToStart(session: Session): void + update(price: double, mass: double): void + sessionEnded(session: Session): void + hide(): void + pluCodeEntered(product: PLUCodedProduct): void + unhide(): void + RoundPanel + sessionStateChanged(): void - pluNumPad + paymentScreen + PaymentPopup + PLUNumPad + public PaymentPopup(session: Session) + popUp(): void - session: Session + hide(): void com.thelocalmarketplace.GUI.hardware + isVisibile(): boolean + MembershipNumPad(session: Session) + getCashButton(): JButton + getValidMembership(): boolean + getCardButton(): JButton + isVisible(): boolean + getMembershipButton(): JButton + HardwareGUI + getMembershipPad(): MembershipPad supervisor: AttendantStation + ListTransferHandler - scs: AbstractSelfCheckoutStation - index: int - addIndex: int membershipPad + CashPanel HardwareGUI(scs: AbstractSelfCheckoutStation, + NumberOfBags + AddBagsPopup - serialVersionUID: long addCount: int supervisor: AttendantStation) - scs: AbstractSelfCheckoutStation + populateItems(): void + canImport(info: TransferHandler.TransferSupport): - session: Session + FiveBillBtn: JButton + introPanel(): JPanel - lastObject + AddBagsPopup(session: Session) boolean + button one coin: JButton + itemPanel(title: String, list: JList<ItemObject< list): JPanel + getAddPersonalBagButton(): JButton + MembershipNumPad # createTransferable(c: JComponent): Transferrable + NumberOfBags(session: Session) - Five_Cent_Coin: Coin + addData(data: ItemObject, list: JList<ItemObject>): void # lastItem + getAddStoreBagButton(): JButton + getSourceActions(c: JComponent): int - session: Session + returnNum(): void - Ten Cent Coin: Coin + removeData(data: ItemObject, list: JList<ItemObject>): void + getCancelButton(): JButton + importData(info: TransferHandler:TransferSupport): - TwentyFive Cent Coin: Coin plu: String + updateDisplay(): void + mainScan(): void + getNumOfBagsScreen(): NumberOfBags - One_Dollar_Coin: Coin + isVisible(): boolean + handScan(): void + isVisible(): boolean # exportDone(c: JComponent, data: Transferable, - Two Dollar Coin: Coin + MembershipNumPad(session: Session) + getNumber(): String + getSupervisor(): AttendantStation action: int): void + getValidMembership(): boolean - Non Coin: Coin + getDelete(): PlainButton + getStation(): AbstractSelfCheckoutStation · numOfBagsScreen - Five_Dollar_Bill: Banknote + isVisible(): boolean + getDone(): PlainButtoin + setVisibility(visibility: boolean): void - Ten Dollar Bill: Banknote - Twenty Dolalr Bill: Banknote Fifty_Dollar_Bill: Banknote - Hundred Dollar Bill: Banknote + TransferHandler +JPanel - gui - Non_Bill: Banknote + ButtonPanel + CashPanel(scs: AbstractSelfCheckoutStation) + setupCashData(): void - bags: ReusableBag[] - numBags: int + ItemObject - long serialVersionUID l*panel - name: String - item: Item + ButtonPanel(gui: HardwareGUI) + CardPanel + flavor: DataFlavor - serialVersionUID: long - scs: AbstractSelfCheckoutStation + ItemObject(item: BarcodedItem, name: String) + ItemObject(item: PLUCodedItem, name: String) cardSelected: Card - cardSelectedString: String + getBarcode(): Barcode + getPLUCode(): PriceLookUpCode - debitCard: Card - creditCard: Card + ActionListener + getMass(): Mass - invalidCard: Card + getItem(): Item + CardListener + toString(): String - membershipCard: Card + actionPerformed(e: ActionEvent): void + createTransferable(obj: Object): Transferrable - infoLabel: JLabel - infoPanel: JPanel + isDataFlavorSupported(oflavor: DataFlavor) - pane12: JPanel + getDataFlavor(): DataFlavor + getTransferData(oflavor: DataFlavor): Object - inserted: boolean - swipeButton: JButton - insertButton: JButton - tapButton: JButton + CardPanel(scs: AbstractSelfCheckoutStation) # updateSelection(): void + setupCardData(): void