**Registration**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| N/A | administratorSignUp()  salespersonSignUp()  shareholderSignUp()  addSupplier()  addCustomer() |
| **Responsibilities** | **Collaborative classes** |
| 1. Signing up new users 2. Recovering Account | Administrator, Salesperson, Shareholder, Supplier, Customer |

**Note:** After installation of device administratorSignUp() method will be called by the system. The administrator will register salespersons and shareholders via salespersonSignUp() and shareholderSignUp() methods. Suppliers will be included in the system by the administrator upon calling addSupplier() method. Administrator and salespersons can include customer by addCustomer() method.

**Authentication**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | checkValidity()  checkActiveProcess()  recordLogInformation()  recoverUserAccount() |
| **Responsibilities** | **Collaborative Classes** |
| Authenticating users | HRManagementDatabase |
| Recording log information | Record, RecordManagementDatabase |

**Note:** The system invokes checkValididty() of SignInAndSignOut class when the entered username and the email needs to be matched with the username and the password within HRManagementDatabase. If the user is salesperson, his/her first login time for that respective day will be recorded in RecordManagementDatabase.

During sign out, the system will call checkActiveProcess() which will show if there are any running process. The last logout time will be recorded everyday by RecordManagementDatabase.

For recovering account, recoverUserAccount() method will be invoked.

**User**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| username  fullName  password  email  presentAddress  permanentAddress  NID | User(): constructor  recoverAccount()  signOut()  getUsername()  setUsername()  getFullName()  setFullName()  getPassword()  setPassword()  getEmail()  setEmail()  getPresentAddress()  setPresentAddress()  getPermanentAddress()  setPermanentAddress()  getNID()  setNID()  viewSystemInformation()  receiveNotification() |
| **Responsibilities** | **Collaborative Class** |
| Receiving notifications | Notification, RecordManagementDatabase, Record |
| Signs out from the system | Authentication |
| Recovers own account | Authentication |
| Views system summary | System, Graph |

**Note:** When recoverAccount() method will be called, recoverUserAccount() of SignUpAndRecoverAccount will be invoked and signOut() method will be called when user wants to exit the system.

**Administrator**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| backUpQuestion  correspondingAnswer | addSalesperson()  removeSalesperson()  editSalesperson()  addShareholder()  removeShareholder()  editShareholder()  addSupplier()  removeSupplier()  editSupplier()  addShareholderInvestment()  withdrawShareholderCash()  viewTransaction()  manageProduct()  manageNotifications()  payMaintenanceExpenditure() |
| **Responsibilities** | **Collaborative Classes** |
| HR Management | AddAndRetrieveAccount,  HRManagementDatabase |
| Cash Management | HRManagementDatabase, CashDetails |
| Product Management | Product, ProductManagementDatabase |
| Notification Management | RecordManagement |
| Manage Maintenance Expenditure | TransactionManagementDatabase, CashDetails |

**Note:** When Administrator class calls addSalesperson() method, SalespersonSignUp() method of SignUpAndRecoverAccount class will be invoked. The information found from salespersonSignUp() will be stored in HRManagementDatabase. When removeSalesperson() method is called, salesperson information will be removed from HRManagementDatabase. When editSalesperson() method is called, salesperson information will be edited.

When Administrator class calls addShareholder() method, shareholderSignUp() method of AddAndRetrieveAccount class will be invoked. The information found from shareholderSignUp() will be stored in HRManagement database. When removeSalesperson() method is called , salesperson information will be removed from HRManagementDatabase. When editShareholder() method is called, shareholder information will be edited.

When Administrator class calls addSupplier() method, addSupplier() method of SignUpAndRecoverAccount class will be invoked. The information found from addSupplier() will be stored in HRManagementDatabase. When removeSupplier() method is called, supplier information will be removed from HRManagementDatabase. When editSupplier() method is called, supplier information will be edited.

When addShareholderInvestment() method is called, updateShareholderInformation() of HRManagementDatabase and increaseAssets() of CashDetails will be invoked. The increment will be done via respective methods.

When withdrawShareholderCash() method is called, updateShareholderInformation() method of HRManagementDatabase and decreaseAssets() method of CashDetails() will be invoked. The decrement will be done via respective methods.

When payMaintenanceExpenditure() method is called, updateExpenseAmount() method of cashDetails will be invoked.

When manageNotification() method is called, notification details from RecordManagementDatabase will be displayed.

When viewRecord() method is called, all the tables of RecordManagementDatabase will be displayed such as notification records, loan records, missing product records, salesperson log information will be updated.

**Salesperson**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| spRecritmentDay  spSalary | addCustomer()  deleteCustomer()  updateCustomerInformation()  searchbyProductName()  searchbyCompanyName()  searchbyComponentName()  initiateTransaction()  returnProductBack()  addLoan()  deleteLoan()  updateLoan()  addProduct()  removeProduct()  updateProduct()  updateCash()  notifyAdministrator()  notifySupplier()  getReturnProductFromCustomer()  getMonthlyPayment()  manageRecommendation() |
| **Responsibilities** | **Collaborative Classes** |
| Notification Management | Notification, RecordManagementDatabase |
| Product Management | Product, ProductManagementDatabase |
| Customer Management | Customer, HRManagementDatabase |
| Transaction management | TransactionManagementDatabase |
| Gets salary | TransactionManagementDatabase |

**Note:** When addCustomer() method is called, addCustomerInformation() of HRManagementDatabase is invoked and customer information is stored.

When deleteCustomer() method is called, removeCustomerInformation() of HRManagementDatabase is invoked and customer information is removed.

If due payment of customer changes, updateCustomerInformation() method of Salesperson class will call updateCustomerInformation() method of HRManagementDatabase and information is updated.

When initiateTransaction() method is invoked, the product requested by the customer is searched by name (via search By CompanyName() method) , company name (via search ByCompanyName() method ), component name(via searchByComponent() method). If product is available and there is no due payment, updateProduct() method is called. If customer is unable to give full payment, addLoan() method is also called.

When notifyAdministrator() method is called, the notification will be added to the notification table within the RecordManagementDatabase. Administrator will be able to see the notification messages via the manageNotification() method. When notifySupplier() method is called, message will be sent to the supplier’s contact no and/ or email address.

**Shareholder**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| joiningDate  investmentAmount | withdrawCashOrInvest()  viewCashInformation() |
| **Responsibilities** | **Collaborative Classes** |
| Notification Management | Notification, RecordManagementDatabase |
| Viewing Graph | Graph, RecordManagementDatabase |

When withdrawCashOrInvest() method is called, addNotification() method of RecordManagementDatabase is invoked. The action (withdraw/invest) is included with the amount notification. The administrator view the notification via manageNotification() method. When viewCashInformation() method is invoked shareholder can see cash information, graphs.

**Supplier**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| supplierName  supplierJoiningDate  supplierContactNumber  supplierAddress  companyName  companyEmail | getSupplierName()  setSupplierName()  getSupplierJoiningDate()  setSupplierJoiningDate()  getSupplierContactNumber()  setSupplierContactNumber()  getSupplierAddress()  setSupplierAddress()  getCompanyName()  getCompanyEmail()  toString()  receiveProductRequest()  receivePayment()  deliverProduct()  changeCompanyInformation()  confirmAdministrator() |
| **Responsibilities** | **Collaborative Classes** |
| Receiving Notifications | Notifications, RecordManagementDatabase |
| Delivering Products | ProductManagementDatabase |
| Receiving payment | TransactionManagementDatabase, CashDetails |
| Editing company information | HRManagementDatabase |

**Customer**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| customerName  customerContactNumber  customerAddress  customerNID  customerDueAmount | getCustomerName()  setCustomerName()  getCustomerContactNumber()  setCustomerContactNumber()  getCustomerAddress()  setCustomerAddress()  getCustomerDueAmount()  setCustomerDueAmount()  increaseDueAmount()  decreaseDueAmount()  returnProduct()  recommendForProduct() |
| **Responsibilities** | **Collaborative Classes** |
| Purchasing Products | Salesperson, RecordManagementDatabase, Record |
| Loan Management | RecordManagementDatabase |

**Product**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| productName  productID  productType  productComponent  productCostPrice  productSellingPrice  productManufacturingDate  productExpiryDate  productDiscount  productSalesFrequency  productQuantity  companyName | getProductName()  setProductName()  getProductID()  setProductID()  getProductType()  setProductType()  getProductComponent()  setProductComponent()  getProductCostPrice()  getProductCostPrice()  getProductSellingPrice()  setProductSellingPrice()  getProductManufacturingDate()  setProductManufacturingDate()  getProductExpiryDate()  setProductExpiryDate()  getProductDiscount()  setProductDiscount()  getProductSalesFrequency()  setProductSalesFrequency()  getProductQuantity()  setProductQuantity()  getCompanyName()  increaseQuantity()  decreaseQuantity()  updateSaleFrequency()  increasePrice()  decreasePrice()  toString() |
| **Responsibilities** | **Collaborative Classes** |
| Storing Information | ProductManagementDatabase |
| Updating sale-frequency | ProductManagementDatabase |
| Price updating | ProductManagementDatabase |
| Quantity updating | ProductManagementDatabase |

**Notification**

|  |  |  |
| --- | --- | --- |
| **Attributes** | **Methods** |  |
| notificationUsername  notificationSenderUsername  notificationRecepientUserName  notificationMessage  notificationID | getNotificationUsername()  setNotificationUsername()  getNotificationSenderUsername()  setNotificationSenderUsername()  getNotificationRecepientUsername()  setNotificationRecepientUsername()  getNotificationMessage()  setNotificationMessage()  getNotificationID()  setNotificationID()  notifyAdministrator()  notifySupplier()  sendLowStockAlert()  sendExpiryDateAndAlert()  toString() |  |
| **Responsibilities** | **Collaborative Classes** |  |
| Notifying Users | Notifications, Administrator, Supplier, ProductManagementDatabase |  |
| Notify about low stock | Salesperson |  |
| notify about expiry date | Salesperson |  |

**Record**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| recordID  recordType  recordDateOfOccurrence  recordAmount  recordRemarks | getRecordID()  getRecordType()  getDateOfOccurence()  getRecordAmount()  getRecordRemarks()  toString() |
| **Responsibilities** | **Collaborative Classes** |
| Storing Information | Record, RecordManagementDatabase |

**Graph**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| graphType  timeSpan  profit  saleFrequency  CashDetails  productComponent | **viewSystemInformation()** |
| **Responsibilities** | **Collaborative Classes** |
| Displaying system summary | System |

**CashDetails**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| Assets  debtorAmount  creditorAmount  profitAmount  expenseAmount  monthlySale  monthlyInvestment | getAssets()  setAssets()  getDebtorAmount()  setDebtorAmount()  updateDeptorAmount()  getCreditorAmount()  setCreditorAmount()  getProfitAmount()  setProfitAmount()  getMonthlyProfit()  getYearlyProfit()  increaseAssets()  decreaseAssets()  updateProfitAmount()  updateMonthlySale()  toString() |
| **Responsibilities** | **Collaborative Classes** |
| Storing and supplying monetary information | TransactionManagementDatabase |

**HRManagementDatabase**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | addAdministratorInformation()  updateAdministratorInformation()  getAdministratorInformation()  addSalespersonInformation()  removeSalespersonInformation()  updateSalespersonInformation()  getSalespersonInformation()  addShareholderInformation()  removeShareholderInformation()  updateShareholderInformation()  getShareholderInformation()  addSupplierInformation()  removeSupplierInformation()  updateSupplierInformation()  getSupplierInformation()  addCustomerInformation()  removeCustomerInformation()  updateCustomerInformation()  getCustomerInformation()  storeConfirmationCode()  getConfirmationCode() |
| **Responsibilities** | **Collaborative Classes** |
| Storing all information related to HR and providing system with necessary information | Salesperson, Shareholder, Supplier, Customer |

**ProductManagementDatabase**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | addProduct()  removeProduct()  updateProduct()  addProductToExpiryDateList()  removeProductFromExpiryDateList()  addProductToLowStorageList()  removeProductFromLowStorageList()  searchProductByName()  searchProductByCompany()  searchProductByComponent()  getAllProducts()  addProductToExpiredProduct()  removeProductFromExpiredProduct()  addProductToLowStorageList()  removeProductFromLowStorageList()  addProductToRecomendationList()  UpdateRecomendationList()  getRecomentationListInformation() |
| **Responsibilities** | **Collaborative Classes** |
| Updating product information | Product, ProductManagementDatabase |

**TransactionManagementDatabase**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | addTransaction()  updateTransaction()  deleteTransaction()  getAllTransaction()  addMaintenanceExpenditureTransaction()  getMaintenanceExpenditureTransaction()  addSalespersonSalaryTransaction()  getSalespersonSalaryTransaction()  viewSalespersonSalaryTransaction() |
| **Responsibilities** | **Collaborative Classes** |
| Storing and displaying transaction | Salesperson, TransactionManagementDatabase |

**RecordManagementDatabase**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | addLoan()  editLoan()  removeLoan()  addMissingProductRecord()  addProfitRecord()  addLoginSession()  addLogoutSession()  editLogoutSession()  addAccidentOrMissingRecords()  addNotification()  getNotification()  getRecordInformation() |
| **Responsibilities** | **Collaborative Classes** |
| Storing and displaying records | Salesperson, Notifications, Records, RecordManagementDatabase |

**System**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
| joiningDate  investmentAmount | signIn()  checkExpiryDate()  checkLowStorage()  calculateProfitInformation()  viewSystemSummary()  notifySuppier()  calculatePrice() |
| **Responsibilities** | **Collaborative Classes** |
| Expiry Date Checking | RecordManagementDatabase, ProductManagementDatabase, Product |
| LowStorageChecking | RecordManagementDatabase, ProductManagementDatabase |

Once a day, the checkExpiryDate() method gets called. The method goes through the product table of ProductManagementDatabase and surveys for products whose expiry dates will come within the time limit fixed by the administrator. If it finds products which have reached the time limit , it will send a notification to RecordManagementDatabase.

Once a day, the checkLowStorage() method gets called. The method goes through the product table of ProductManagementDatabase and surveys for products whose quantity is equal to or lower than the which has reached or exceeded the limit. It will send a notification to RecordManagementDatabase.

When viewCashInformation() method of Shareholder, System will show graphs and transactions.

When a product is sold, System will generate a corresponding transaction.

# **Interface**

|  |  |
| --- | --- |
| **Attributes** | **Methods** |
|  | processEnteredData()  showGraph()  createAdministratorWorkspace()  createTransactionManagementWorkspace()  showTransactionInformation()  showNotification() |
| **Responsibilities** | **Collaborative Classes** |
| Processing user-entered data | (Implementor dependent) |
| Showing Graph |
| Creating Administrator Workspace |
| Creating Transaction Management Workspace |
| Showing Transaction Information |
| Showing Notifications |