**Class Diagram Decoder**

|  |  |  |
| --- | --- | --- |
| **Package Name** | **Package Description** | **Packages Used** |
| GUI | Contains GUI boundaries and a control class. | Stock, Sales, Customers, Reports, Staff, Rates |
| Database | Contains the database abstraction layer and the helper interface (Helpers are implemented in the packages they are used in). |  |
| Stock | Contains the blank management system. | Database, Sales |
| Sales | Contains the sales, refunds and transactions. | Database, Rates |
| Customers | Contains customer accounts and discount plans. | Database |
| Reports | Contains report producers. | Stock, Sales, Rates |
| Staff | Contains staff accounts. | Database |
| Rates | Contains the exchange and tax rates. | Database |

|  |  |
| --- | --- |
| **Package Name** | **Objects (Entity, Control, Boundary, Interface)** |
| GUI | [Awaiting GUI] |
| Database | DB\_Connector (Control), IDB\_Connector (Interface), SQLHelper (Control) |
| Stock | Blank (Entity), BlankCollection (Entity), BlankController (Control), IStockAccessor (Interface), BlankSQLHelper (Control) |
| Sales | Sale (Entity), SaleCollection (Entity), Transaction (Entity), Refund (Entity), RefundCollection (Entity), SaleController (Control), ISalesAccessor (Interface), SaleSQLHelper (Control), RefundSQLHelper (Control), TransactionSQLHelper (Control) |
| Customers | Customer (Entity), CustomerCollection (Entity), DiscountPlan (Entity), DiscountPlanCollection (Entity), CustomerController (Control), ICustomerAccessor (Interface), CustomerSQLHelper (Control), DiscountPlanSQLHelper (Control) |
| Reports | IReportGenerator (Interface), TicketStockReport (Control), InterlineSalesReport (Control), LocalSalesReport (Control), ReporterControl (Control), IReportAccessor (Interface) |
| Staff | Account (Entity), AccountCollection (Entity), AccountController (Control), IStaffAccessor (Interface), AccountSQLHelper (Control) |
| Rates | ExchangeRate (Entity), ExchangeRateCollection (Entity), TaxRate(Entity), TaxRateCollection (Entity), RateController (Control), IRateAccessor (Interface), ExchangeRateSQLHelper (Control), TaxRateSQLHelper (Control) |

Note, the 2 below tables are missing GUI objects. {} – Multiplicity, [] – Relation Type, <-> - Relation Direction Visually, x – Navigable False Side, () – Relation Name

|  |  |
| --- | --- |
| **Object** | **Associations** |
| DB\_Connector |  |
| IDB\_Connector | [Realization] <- DB\_Connector |
| SQLHelper | [Generalization] <- BlankSQLHelper; [Generalization] <- SaleSQLHelper; [Generalization] <- RefundSQLHelper; [Generalization] <- TransactionSQLHelper; [Generalization] <- CustomerSQLHelper; [Generalization] <- DiscountPlanSQLHelper; [Generalization] <- AccountSQLHelper; [Generalization] <- ExchangeRateSQLHelper; [Generalization] <- TaxRateSQLHelper; [Dependency] -> IDB\_Connector |
| Blank | [Composition] {1} x-> {0..1} BlankSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| BlankCollection | [Aggregation] {1} x-> {0..\*} Blank (hasBlanks) |
| BlankController | [Dependency] -> ISalesAccessor; [Dependency] -> IDB\_Connector; [Composition] {1} x-> {1} BlankCollection (blanks) |
| IStockAccessor | [Realization] <- BlankController |
| BlankSQLHelper | [Association] {1} x-> {1} Blank (Reads from) |
| Sale | [Composition] {1} x-> {0..1} SaleSQLHelper (Uses); [Composition] {1} x-> {0..1} Transaction (transaction); [Dependency] -> IDB\_Connector |
| SaleCollection | [Aggregation] {1} x-> {0..\*} Sale (hasSales) |
| Transaction | [Composition] {1} x-> {0..1} TransactionSQLHelper (Uses); [Composition] {1} x-> {0..1} Refund (refund); [Dependency] -> IDB\_Connector |
| Refund | [Composition] {1} x-> {0..1} RefundSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| RefundCollection | [Aggregation] {1} x-> {0..\*} Refund (hasRefunds) |
| SaleController | [Dependency] -> IRateAccessor; [Dependency] -> IDB\_Connector; [Composition] {1} x-> {1} SaleCollection (sales); [Composition] {1} x-> {1} RefundCollection (refunds) |
| ISalesAccessor | [Realization] <- SaleController |
| SaleSQLHelper | [Association] {1} x-> {1} Sale (Reads from) |
| RefundSQLHelper | [Association] {1} x-> {1} Refund (Reads from) |
| TransactionSQLHelper | [Association] {1} x-> {1} Transaction (Reads from) |
| Customer | [Composition] {1} x-> {0..1} CustomerSQLHelper (Uses); [Aggregation] {1} x-> {0..1} DiscountPlan (hasPlan); [Dependency] -> IDB\_Connector |
| CustomerCollection | [Aggregation] {1} x-> {0..\*} Customer (hasCustomers) |
| DiscountPlan | [Composition] {1} x-> {0..1} DiscountPlanSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| DiscountPlanCollection | [Aggregation] {1} x-> {0..\*} DiscountPlan (hasPlans) |
| CustomerController | [Dependency] -> IDB\_Connector; [Composition] {1} x-> {1} CustomerCollection (customers); [Composition] {1} x-> {1} DiscountPlanCollection (plans) |
| ICustomerAccessor | [Realization] <- CustomerController |
| CustomerSQLHelper | [Association] {1} x-> {1} Customer (Reads from) |
| DiscountPlanSQLHelper | [Association] {1} x-> {1} DiscountPlan (Reads from) |
| IReportGenerator | [Realization] <- TicketStockReport; [Realization] <- InterlineSalesReport; [Realization] <- LocalSalesReport |
| TicketStockReport | [Dependency] -> IStockAccessor |
| InterlineSalesReport | [Dependency] -> ISalesAccessor; [Dependency] -> IRateAccessor |
| LocalSalesReport | [Dependency] -> ISalesAccessor; [Dependency] -> IRateAccessor |
| ReporterControl | [Composition] {1} x-> {1} TicketStockReport (stockReporter); [Composition] {1} x-> {1} InterlineSalesReport (interlineSalesReporter); [Composition] {1} x-> {1} LocalSalesReport (localSalesReporter); |
| IReportAccessor | [Realization] <- ReporterControl |
| Account | [Composition] {1} x-> {0..1} AccountSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| AccountCollection | [Aggregation] {1} x-> {0..\*} Account (hasAccounts) |
| AccountController | [Dependency] -> IDB\_Connector; [Composition] {1} x-> {1} AccountCollection (accounts) |
| IStaffAccessor | [Realization] <- AccountController |
| AccountSQLHelper | [Association] {1} x-> {1} Account (Reads from) |
| ExchangeRate | [Composition] {1} x-> {0..1} ExchangeRateSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| ExchangeRateCollection | [Aggregation] {1} x-> {0..\*} ExchangeRate (hasExchangeRates) |
| TaxRate | [Composition] {1} x-> {0..1} TaxRateSQLHelper (Uses); [Dependency] -> IDB\_Connector |
| TaxRateCollection | [Aggregation] {1} x-> {0..\*} TaxRate (hasTaxRates) |
| RateController | [Dependency] -> IDB\_Connector; [Composition] {1} x-> {1} ExchangeRateCollection (exchanger); [Composition] {1} x-> {1} TaxRateCollection (taxer) |
| IRateAccessor | [Realization] <- RateController |
| ExchangeRateSQLHelper | [Association] {1} x-> {1} ExchangeRate (Reads from) |
| TaxRateSQLHelper | [Association] {1} x-> {1} TaxRate (Reads from) |

|  |  |  |
| --- | --- | --- |
| **Object** | **Attributes** | **Operations** |
|  |  |  |