**Project Report**

**Application Program Interfaces:**

**Information Processing:**

addStaffInfo(Staff ID, Store ID, Name, Age, PhoneNumber, Title, TimeOfEmp, Email, Address)

return confirmation

updateStaffInfo(Staff ID, Store ID, Name, Age, PhoneNumber, Title, TimeOfEmp, Email, Address)

Return confirmation

If NULL for any fields, then those fields wont be updated

deleteStaffInfo(Staff ID)

Return confirmation

addStoreInfo(Staff ID, Store ID, Name, Age, PhoneNumber, Title, TimeOfEmp, Email, Address)

return confirmation

updateStoreInfo(Staff ID, Store ID, Name, Age, PhoneNumber, Title, TimeOfEmp, Email, Address)

Return confirmation

If NULL for any fields, then those fields wont be updated

deleteStoreInfo(Staff ID)

Return confirmation

addCustomerInfo(Cust ID, Staff ID, Store ID, Sign up date)

Return confirmation

updateCustomerInfo(Cust ID, Staff ID, Store ID, Sign up date)

Return confirmation

If NULL for any fields, then those fields wont be updated

deleteCustomerInfo(Cust ID)

Return confirmation

addSupplierInfo(supplier id, supplier name, phone, email address, location)

Return confirmation

updateSupplierInfo(supplier id, supplier name, phone, email address, location)

Return confirmation

If NULL for any fields, then those fields wont be updated

deleteSupplierInfo(supplier id, supplier name, phone, email address, location)

Return confirmation

giveMemberships(Cust ID, Store ID, Sign up date, Staff ID)

Return Confirmation

cancelMemberships(Cust ID, Store ID, Staff ID, Sign up date)

Return Confirmation

setMembershipStatus(Cust ID, Store ID, Staff ID, Sign up date)

Return confirmation

getMembershipStatus(Cust ID, Store ID, Staff ID, Sign up date)

Return confirmation

**Maintaining Inventory office:**

createInventory(Product ID, Product Name, Supplier ID, Quantity in stock, buy price, market price, production data, expiration date)

Return confirmation

updateInventory(Product ID, Product Name, Supplier ID, Quantity in stock, buy price, market price, production data, expiration date)

Return confirmation

getProductInfo(Product ID, Product Name, Supplier ID, Quantity in stock, buy price, market price, production data, expiration date)

Return list of products

manageTransfer()

**Maintaining Billing office:**

generateBills(supplier id, supplier name, phone, email address, location)

Return generated bill

generateReports(supplier id, supplier name, phone, email address, location)

Return generated report details

checkMembershipStatus(Cust ID, Store ID, Staff ID, Sign up date)

Return membership status

addReward(discount info, valid dates for sale, Cust ID)

apply discount

checkSale(transaction ID, store id, customer id, cashier id, purchase date, product list, total price)

return confirmation

**Reports:**

getCustomerInfoReport(Cust ID, Staff ID, Store ID, Sign up date)

return report of customer records

getStaffInfoReport(Staff ID, Store ID, Name, Age, PhoneNumber, Title, TimeOfEmp, Email, Address)

return report of staff records

**Problem Statement**

We will design a WolfWR wholesale-store Management System for the staff at WolfWR to maintain staff information, club-member information, supplier information, store information and merchandise information. The four major tasks that will be performed are, information processing, maintaining inventory records, maintaining billing and transaction records, and generating reports regarding total sales, customer growth, and merchandise stock. Staff at the registration office will sign up new customers and cancel memberships. All the transaction records of each club member will be maintained. Staff at the warehouse office would add new shipments received, transfer products between stores, handle returns from stores to warehouse and returns of damaged/defective products from customers.

Since there will be many data transactions taking place in such a huge wholesale store chain, a database is needed to avoid conflicts. There will be many registration staff signing up many customers at the same time. Similarly, there will be many transfers handled by the warehouse staff when products are being shipped/transferred from one location to another and when products are returned from various stores. To perform these tasks efficiently, a database is needed. Without a database, there will data redundancy. For example, if Customer A signs up as a member during his first visit, then his data should be stored in a database. If it isn’t stored, then the efficiency of the store would slow down. The main information which are stored in the database are the club member information, store information, merchandise information, staff information and supplier information.

**Intended Users:**

Administrative Staff: Have access to all the information pertaining to the wholesale store chain. They will have to access to everything that happens with respect to the store, staff, club members, product transfers, suppliers etc..

Registration office staff: Handle new customer registration and cancellation of memberships from existing customers.

Warehouse office staff: Handles new shipments received by stores and suppliers, monitors the transfers of products between stores, and handles product returns.

Billing staff: Generate bills that are to be paid to suppliers, and reward checks for platinum members.

**Main Entities:**

1. Staff Information: staff ID, store ID, name, age, home address, job title, phone number, email address and time of employment.
2. Club member information: customer id, first name, last name, membership level, email address, phone, home address, active status
3. Supplier Information: supplier id, supplier name, phone, email address, location
4. Merchandise Information: product ID, product name, quantity in stock, buy price, market price, production data, expiration date, supplier ID
5. Store Information: store ID, manager ID, store address, phone number

**Tasks and Operations – Realistic Situations:**

**Situation 1:** The admin wants to know the merchandise stock report generated for the current month in store A. She/He then realizes that there is an excess of Product B. A product transfer/return is requested from store A to the warehouse.

**Situation 2:** An existing club member named Henry, enters one of the wholesale stores. He realizes that his new phone number has not been updated in the system. The registration office staff updates his new phone number in the system.

**Situation 3:** A platinum member named Emma is billing her products in the billing counter. Once the bill is generated, she realizes that the discount was not applied for certain products and that she did not receive a 2% cashback reward for the previous year. The billing staff updates the sale information of each product in the store and sends a reward check based on her membership level.

**Assumptions:**

1. A staff works for at most one store at a given point of time.
2. There is a single warehouse handling the inventory within multiple stores.
3. A person can sign up for as a club member only at a store.
4. A club member can return only a damaged/defective product. Thus, we do not add the returned product back to the inventory.
5. Only two membership levels exist, gold and platinum.
6. Both gold and platinum memberships last for a year after which the membership has to be renewed.
7. One checkout by the customer at a store is considered as one transaction.
8. Each transaction will have exactly one staff (cashier) associated with it.
9. The cashback amount for platinum memberships will be rewarded in the first transaction of the next year.

**Description of Views:**

* Billing staff: Billing staff can generate bills that need to be paid to suppliers. They can also handle yearly rewards for platinum members and send out reward checks. All transaction and billing related reports can be generated by the billing staff. Need not be aware of warehouse
* Registration staff: Operators in the registration office can sign up new customers and cancel memberships. Need not to be aware of supplier and warehouse information
* Warehouse staff: Operators in the warehouse office can add in new shipments received, transfer products between stores, and handle returns. This staff need not be aware of customers info and store level information.
* Customer: club member info, transaction info and also return transaction info. Store info. Need not be aware of supplier nor warehouse information.
* Supplier: Supplied product info and billing info. Need not to be aware of anything other info.